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Machine Learning-Based Melanoma Skin Cancer Detection

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Abstract Skin cancer is the most commonprevalent and serious form of cancer in humans, with melanoma being a particularly deadly type. Early detection of melanoma is crucial for successful treatment. However, the standard biopsy method for diagnosis is painful and time-consuming. To address this issue, a computer-aided detection system using methods for Support Vector Machine (SVM) and image processing has been developed for the detection of melanoma at an early stage. This involves taking an affected skin image and subjecting it to pre-processing techniques, segmentation combining thresholding andmorphological techniques, and capturing key aspects of texture, color, and form, including using the GLCM (Gray Level Co-occurrence Matrix) texturing approach feature extraction. These extracted features are then fed into the SVM classifier, which categorizes the image as Melanomas may be cancerous or benign. By combining and applying the shape, color, and GLCM features, ahigh level classifier accuracy rate 83% is attained.

Keywords - SVM, segmentation, GLCM, and melanoma

I. INTRODUCTION

The skin is the body's most crucial organ, serving to safeguard the internal organs, bones, and muscles underneath from injury. One of the most significant roles of the skin is protecting the body from harmful UV Fair-skinned people are more vulnerable to skin damage from UV radiation than dark-skinned people. radiation from the sun, which can damage DNA in skin cells and lead to skin-related diseases and skin cancers. Skin cells contain melanin, which helps protect the skin from UV radiation, but fair-skinned individuals are more susceptible to skin damage from UV radiation than those with dark skin due to lower melanin levels.

As a result, fair-skinned individuals are more frequently diagnosed with melanoma, the deadliest type of skin cancer, which can be classified into malignant and benign forms. The prevalence of malignant melanoma is just 4% of the population., it is responsible for 75% of melanoma cancer deaths. Early detection of melanoma is critical for successful treatment and can save lives. However, if melanoma is not detected early, it can penetrate deep into the skin, making treatment more difficult. Melanocytes are present in the body and primary cause of melanoma. The biopsy technique is the official procedure for detecting skin cancer, which involves extracting a piece of tissue from the body and sending it to a laboratory for testing. This process is complex, painful, and time-consuming, and carries a risk of spreading the disease to other parts of the body.

Researchers have proposed various detection techniques for melanoma, including segmentation, feature extraction, classification, and pre-processing are the four primary steps. Segmentation is used to isolate the lesion from the skin to obtain the region of interest, while the GLCM methodology has been widely used for

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A REVIEW PAPER ON KNEE-OSTEOARTHRITIS DETECTION OF X-RAYS USING CONVOLUTION NEURAL NETWORK

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Abstract

The most prevalent musculoskeletal condition that affects older people's mobility is osteoarthritis (OA). Using a five-point scale and the Kellgren and Lawerence (KL) approach, the clinical severity of knee osteoarthritis is evaluated. The initial work consisted of creating flat classifiers with several manually created functions to prepare the automatic grade prediction KL from X-ray images. Discriminatory learning qualities, however, can be challenging to implement, particularly for complicated properties data like X-rays, which are frequently used to identify knee osteoarthritis. Also, the United States uses a unique YOLOv2 Model to identify two knee joints on X-ray images. We also think that an accuracy rating, such as mean square error, is better appropriate for automatically predicting the severity of knee osteoarthritis.

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A Review: Online Mobile Price Range Prediction Using Machine Learning

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Abstract: **The most frequently purchased item today is typically a mobile phone, which has become a common commodity. Every year, thousands of different mobile phone models with new features, specifications, and designs are released. So, determining the mobile's actual pricing and estimating its position in the market are crucial for effective marketing and a product's successful launch. Mobile device prices have an impact on both how well it is marketed and how well it is received by its rivals. In addition to the available standards and desired designs, financial stability is crucial for market survival. Customers typically check whether they can buy the specified item at the projected price or not. So, before releasing the mobile device, estimating the pricing is crucial, as is learning about the market and competition. In this paper, supervised machine learning is used to suggest a mobile pricing prediction system. The primary purpose of this research is to forecast "Whether a mobile with certain features will be inexpensive or expensive." The actual dataset was created with the help of online resources. Multiple linear regression employs a number of independent variables, but there is only one dependent variable whose actual and predicted values are compared to determine the accuracy of the results. Predictions were made using a variety of methodologies, including multiple linear regression analysis, k-nearest neighbours, naive bayes, and decision trees. The projections are then compared and assessed to see which ones offer the best results. The performance of the four approaches was equivalent. We hope to do so in the future.** ***Keywords: Machine Learning, Data Collection, KNN, Data Visualization, Data preprocessing.***

I. INTRODUCTION

Price is one of the marketing and commercial attribute that has the most impact. The first question the consumer asks is how much the things cost. The main issue of any consumer is "whether he can buy something with the circumstances offered or not." As a result, the main objective of the research is to calculate home pricing. The route to the aforementioned goal only begins with this paper. Artificial intelligence, or a computer's capacity for intelligent response to queries, is now a fairly vast field of engineering. We have access to the most recent artificial intelligence techniques. access to the most latest artificial intelligence techniques.Price is the most influential marketing and commercial attribute. The consumer's initial question is how much the things cost. Each consumer's primary worry is "whether the mobile can be in affordable way to buy something with the circumstances offered or not." As a result, the research's primary purpose is to determine home pricing. circumstances offered or not." As a result, the primary goal of the research is to determine home pricing. The path to the aforementioned aim starts with this paper. Artificial intelligence, or a computer's ability to respond intelligently to queries, is already a rather wide branch of engineering. Having the access to the most recent artificial intelligence techniques, such as classification techniques,data visualition techniques and preproceesing process,tools available, including MAT LAB, Python, Cygwin, WEKA, and others. Each item's genuine cost can be ascertained using the same process, including vehicles, motorcycles, generators, motors, food, medications, and more. For example, one of the most important programs for figuring out mobile costs is Mobile Processor. In the busy world we live in today, battery life is extremely crucial. While choosing a mobile device, it's also important totake its size and thickness into account. Video consistency, camera pixels, and internal memory all need to be remembered. One of themost significant technological limitations of the twenty-first century is internet browsing. The size of the mobile device also affects the list of available functionalities Hence, using all of the aforementioned factors, we'll determine if the mobile will be very expensive, affordable, expensive and exceedingly expensive.

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Prathibhimba - Testing Platform for Alva's Placement Activities

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Abstract

There are several testing platforms available. We have an improved version of this with specific features that not only help institutions see student progress, but also show students where they are doing well and where they need to improve. A student learning outcome is a relatively broad statement of the intended overall outcome of an educational program. It can include a variety of assessments such as formative, summative, and placement-based. It can also include competitions for students to create a competitive environment. We are developing a portal to help students identify their performance and where they can improve, as well as detailed solutions to the various questions. The questions will be based on the needs of the examiners and will include a database of different questions from the practicum and semester to assist the examiners. The instruments used for assessment will vary by discipline. The appendix provides additional information on instruments commonly used at the college level. Assessment plans should include the proper details of the assessment , how it is used, and whether there are benchmarking points. Examples of the instruments used should be included with the completed template. Our proposed platform is the assessment platform where all students can participate in the assessments at the specified time. The assessment time is based on the number of questions they participate in or is set by the assessors. After the specified time has elapsed, students will receive the result of their exam. Along with the exam result, the main answers to all the questions in the exam are also displayed. We can also check how many exams were attended by the students and what grades they received.

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NEXT WORD PREDICTION USING N-GRAM.

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Abstract*— *One of the most effective methods for improving conversation is to anticipate the word that will be chosen next. Socializing has gotten much simpler thanks to the development of mobile technologies and the widespread use of the internet. People use their mobile devices for a growing number of activities, including email, social networking, banking, and other things, all over the globe. It's critical to type as rapidly as you can because this conversation moves at such a rapid clip. This calls for the use of a predictive text application. Text prediction is one of the most widely used strategies for quickening communication. However, it's also important to consider how quickly text is expected in this scenario. The objective of this work is to develop a new word predictor algorithm that recommends words that are grammatically more suitable, with less strain on the system, and significantly lowers the number of keystrokes required by users. The predictor uses a probabilistic language model based on the N-Grams method as its text prediction tool.

Keywords—n-gram,tokenization,corpus,uni-gram,bi-gram,tri-gram,natural language processer.

I. INTRODUCTION

NLP is a crucial component of artificial intelligence, which also includes machine learning, and it helps computers converse with people effectively and learn from their interactions. In an effort to speed up message delivery by allowing the user to choose a suggested word rather than having to type it, one such addition is to show mobile users predicted "next words" as they type along in apps like WhatsApp. Mobile devices have evolved into indispensable daily partners for socializing, playing, and conducting business at home and at work. Text entry can be difficult on touch screen devices in especially because they lack a full-size keyboard. Automated text prediction tries to solve this by predicting the next word from entered text. Mobile devices have evolved into indispensable daily companions for socializing, playing games, and conducting business at home and at the workplace. Text input can be difficult on touch screen devices because they lack a full-sized keypad. Automated text prediction makes an effort to address this by foretelling words from entered text. The project's main objective is to create a predictive model of English writing. So a model forecasts the following word when someone types two words.

II. LITERATURE REVIEW

Anticipating the next phrase has been a critical tool for better communication for more than a decade. Traditional algorithms using word frequency lists completed the words that the user had already written out. In recent years, however, more sophisticated predictive techniques based on the words before them or syntactic rules have emerged. Using more sophisticated forecasting methods, higher rates can be saved. Despite the fact that several researchers have found that the increased cognitive load associated with word prediction may have an effect on quick communication, recent research has shown that more accurate predictions can compensate more than these loads.

[1] The objective of this study is to imitate human word choice behavior in a model of natural language processing. Three different sources—blogs, news, and tweets—provide the algorithm with the data it needs to be trained and tested. The total amount of info is approximately 556 MB. The suggested system's architecture is composed of three sections. In the first section, the data sources are cleansed. The second portion describes how to use the training corpus to generate prediction tables for the N-Grams model, and the third section describes how to use the test data to assess the model's accuracy. This was created by Jaysidh Dumbali and Nagaraja Rao A.

[2] The basic n-gram model forecasts the subsequent word using the n-grams of one to four words. The first task is to generate n-grams and frequencies from the sampled "training" collection. When the sample dataset is big, the generation of n-grams takes more time and memory, especially when n > 2. Instead of processing the complete sample at once, the n-gram generation algorithm will process the files in 1,000-line chunks, build n-gram frequencies,

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Detection of Adulteration in Fruits Using Machine Learning

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Abstract— Summary - food is necessary for life. The food we use must be clean, nutritious and without additives to maintain human health. This paper develops an IoT-based detection of food and formalin technology identify formalin using machine learning methods. A volatile compound HCHO gas sensor connected to a Raspberry pi3 was used to extract the formalin content of any fruit or vegetable as a function of output voltage, and various machine learning algorithms were used to classify the fruit or vegetable based on the extract. characteristics. Our system includes supervised machine learning algorithms which accurately predict the correct concentration of formalin at all temperatures, which can also be correctly classified between artificially added and naturally formed form.

Index Terms - Adulteration, Formalin, Naturally Occurring Formalin, Formaldehyde, Machine Learning, Internet of Things, HCHO Gas Sensor, Raspberry Pi3, Supervised Machine Learning Algorithms.*Index Terms*—Component, formatting, style, styling, insert.

I. INTRODUCTION

The consumption of any food is for the nutrition it provides. As food goes through the successive during production, processing and finally marketing, the nutrients contained in the food are broken down. The concept of adulteration is widely used to improve the composition, shelf life and appearance of food. The nature or quality of food deteriorates when degrading substances are added or any essential substance is removed during food adulteration. Degradants can foreign or non-standard chemical substances contained in the food that damage the food. Food adulteration involves the intentional addition of small amounts of non-nutritive substances to improve the appearance or shelf life of the food.

Most fruits and vegetables are adulterated with a harmful chemical called formalin. Formalin is a colorless aqueous solution of formaldehyde for preservation of biological specimens. This chemical is used to prevent corpses from decomposing. This function is used for decomposition. Not all cases of adultery lead to serious health problems. However, the chemical is very toxic and 30 ml of formalin containing 37 percent formaldehyde can kill an adult [7]. Merchants use formalin as a preservative for treatment fruity appearance and vegetables and keep them longer. SEM secretary Abdus Sobhan found in a survey where 115 samples of mangoes and other fruits were collected from more than 50 organic shops. stores and allows formalin-treated chemical-free fruit. Consuming any fruit substance is for the nutrition, nutrition and minerals of the fruit. Because the crop object was collapsed by prefab, adjustment and closing areas. The idea of adulteration is used to keep fruits healthy for their appearance. Besides, he's used to it Keep fruit or vegetables nice and storable. Fruit adulteration can reduce the fruit by adding crumbles or using ingredient removal. The chemical in the fruit may be foreign or worse. Non-nutritive elements can be added in small doses to improve the shelf life and brightness of the fruit.

All components of fruits are consumed for sustenance. Nutritional value of fruits fell because the grain went through several stages of production, processing and distribution. Adulteration is a term often used to improve the texture, shelf life and appearance of fruit products. Fruit adulteration is the alteration of the character or quality of a fruit by adding or removing essential parts. One of them could be a foreign or inferior chemical in the fruit an adulterer During adulteration, small amounts of non-nutritive chemicals are intentionally added to fruit to improve the appearance or shelf life of the fruit.

India is a country based on agriculture. India produces a wide variety of fruits and vegetables. In terms of fruits, India is second only to China. All pre-harvest and post-harvest operations are done manually in India. The agricultural sector requires manual automation, which takes a long time and is inefficient. The fruits are sorted and graded in the post-harvest process. Fruits are sorted and graded according to several quality parameters. Both internal and external quality criteria are applied to these variables. Internal quality criteria are taste, sweetness, flavor, aroma, foods from fruits and carbohydrates. Quality indicators of the external surface are structure, shape, color, size and volume. Modified algorithms such as YOLOv3 with better accuracy than YOLOv2 and VGG16 method under Convolutional neural network algorithm were added to correctly predict formalin concentration at all temperatures in our system.

A chemical called formalin is harmful to fake fruits and vegetables. Formalin is a colorless aqueous solution of

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EXAM CELL AUTOMATION SYSTEM

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Abstract

The exam cell activities require a lot of paperwork and manual work. The main aim of the system is to automate exam cell activities. Exam cell activity includes a lot of manual calculations. The project objective to bring in a focus system which can be usefully managed. This system allows students to sign on into the system by registering like by their Enrollment number, Name, email, examination, semester, Password, Father name, Mother name, Address, Gender etc. The exam cell Automated System is improve for the institute to reduce the work load of the Staff and Students. It help to access approach the examination details of a every student in a respective department. The student details is stored in numerical order, which will be hand over by the teacher for a particular student.

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MONOCHROMATIC TO RGB IMAGE USING DEEP LEARNING

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Abstract—**In this paper, investigate the use of deep learning techniques for monochromatic to RGB conversion. Our goal is to develop a model that can effectively infer color information from gray-scale images, enabling more accurate colorization of historical and archival photos. We use a convolution neural network (CNN) architecture that is trained on a large data set of color images and their corresponding gray-scale versions. The model is evaluated on a separate test set and achieves high accuracy in colorization, with results that are comparable to state-of-the-art methods.We start by prepossessing the data set of images and dividing it into training and testing sets. We then design and train our CNN model using the TensorFlow framework. The model architecture consists of multiple convolution layers with ReLU activation functions, followed by batch normalization and max pooling layers. The final output layer uses a soft-max activation function to output the predicted RGB values for each pixel in the input gray-scale image.We evaluate the performance of our model using several metrics, including peak signal-to-noise ratio (PSNR) and structural similarity index (SSIM). Our results demonstrate that the proposed model achieves high accuracy in colorization, outperforming baseline methods such as bi-linear interpolation and k-nearest neighbor interpolation.Our findings suggest that deep learning techniques have significant potential for improving the quality and efficiency of monochromatic to RGB conversion, and could have important applications in fields such as photography, digital imaging, and art restoration.**

Index Terms—**CNN, RoLU, SSIM, PSNR**

I. Introduction

The paper on "Monochromatic to RGB using Deep Learning" aims to address the challenge of converting monochromatic images into their corresponding RGB counterparts. We leveraged Convolution Neural Networks (CNN) - a powerful deep learning architecture that can learn and recognize complex patterns in images - to develop a model that can accurately predict the RGB values for each pixel in a monochromatic image. The model was trained on a large data set of monochromatic and RGB images, and we used various techniques to improve its accuracy, such as data augmentation, regularization, and fine-tuning. The results of our project demonstrate the effectiveness of deep learning in colorizing monochromatic images, which has numerous applications in fields such as image processing, computer vision, and photography.Project was motivated by the fact that many historical and artistic images are monochromatic, and colorizing them can provide valuable insights into the past and enrich our cultural heritage. However, manual colorization can be a time-consuming and labor-intensive process, requiring expert knowledge and skills. This approach offers a faster and more automated solution, making it accessible to a wider range of users.We conducted extensive experiments to evaluate the performance of our model, including testing it on a variety of monochromatic images with different levels of complexity and noise. The results showed that our model outperforms existing methods in terms of accuracy and speed, making it a promising tool for practical applications.Overall, our project demonstrates the potential of deep learning to solve challenging image processing problems and highlights the importance of interdisciplinary research in fields such as computer science, art, and history.

II. Literature Review

With reference to Tung Nguyen, Kazuki Mori and Ruck Thawonmas, [1] research mainly out comes that, Image colorisation is an interesting topic and has become a research area over the past years. This task involves coloring a black and white image using deep learning techniques. A deep convoluted neural network (CNN) is built and trained on over a million images. The output generated by the pre-trained version is entirely dependent on frames which it extracts from scratch using advanced features without direct human assistance. Images are from specific sources such as Inception, ResNet-v2, ImageNet, etc. Numerous network architectures, objectives, color spaces and problem formulations have been found. The goal of this task is to recolor images in black and white or grayscale using a convolutional neural network. The utility is designed to recolor saturated images with a specified opacity color overlay on specific areas. The neural model is trained using black and white images as input and real images as output. Minimizing the color difference between the color image and the real image will play a role in forming

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Bitcoin Price Prediction using Machine Learning and Sentiment Analysis

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Abstract - In this paper, we attempt to predict the trend in prices of bitcoin by using means of Machine Learning approaches. We also focus on the deciding factor of human sentiments from two community platforms. Sentiments can be argued to be an influencing factor in the sudden rise in demand for Bitcoin. We intend to study the sentiments over Twitter as well as Wikipedia Edits section by processing them using the sentiment- analysis model and try to find out the more reliable source and the best model for processing. As in for the supervised learning methods for bitcoin price prediction, we use the Random Forest Approach tagged with XGBoost models. For unsupervised learning, we experiment with Long Short-Term Memory (LSTM) model. By comparing both the supervised and the unsupervised learning models, we apply the best approach in predicting prices and processing sentiments with arguably better accuracy.

1. INTRODUCTION

1.1. Bitcoin

Cryptocurrency was first introduced in 2008 with Bitcoin being the first currency. Satoshi Nakamoto, the founder or argued by some as a group of founders under pseudonym is the anonymous brain behind Bitcoin
The ideology behind any commercial transaction is the trust which exists between the spender and the receiver. This trust in usually maintained by a third party who acknowledges the flow of money between the two personnel. However, this also decides the fate of the transaction solely with the third party and any loss to the preserved data can lead to loss in the integrity of all transactions. Nakamoto [1] finds the solution for data loss and double spending problem by introducing Bitcoin which flows over a peer-to-peer network. Each transaction is stored in a ledger which itself is maintained as a copy with each peer.

1.2 Problem Statement

Since then, this ideology has been deeply debated on concerns over the validity of cryptocurrency as a whole and remained to be of shallow importance in the financial markets. However, Bitcoin has been the talk of the town for past three years especially around 2021-2022 when the prices sky rocketed to unimagmable extents. Hence the number of investors who are trying to flock around this trend have increased by many manifolds. This creates a very lucrative environment for the investors who all want to have a bite of this trend. But what we understand from the bitcoin market collapse that occurred past year is that cryptocurrency market is just as fragile as any other market or arguably more volatile. Can machine learning approaches be used to predict this volatility? We solve this question by developing a model which can help us predict the price of Bitcoin with high accuracy. The predicted price might not be accurate but this helps us understand a general trend and direction of prices. We plan on testing our data with multiple approaches and choose the best approach for our model.

1.3 Sentiment Analysis

This rise has also been aided by the popular opinions of various social media sites. With the increase in the number of users using internet and also the amount of people expressing their free speech has left us with thousands of opinions. Lennart [2] through his studies has tried to establish a pattern between bitcoin prices and tweets by a single user Elon Musk. The study claims individual tweets to result in 16.8% increase in prices along with similar decrease for negative tweets. This not only makes the already volatile cryptocurrency market even more unstable by creating a rise of conflict between individuals trying to gain illicit gains by swinging the market into one's favour and investor protection. Hence even human sentiments can be a major factor to be considered to a deciding factor in predicting the prices. We try to analyse such sentiments to categorize them as Neutral, Positive and Negative using the sentiment-analysis model.

1.4 Machine learning Approach

As the necessity demands, machine learning provides one with many different approaches and algorithms to predict bitcoin prices with their own merits and drawbacks. Weighing on multiple factors such as a non-linear trend in the prices and being an unpredictable market leaves us with very less choices to choose the Arima Model. Arima with all its merits still relies on the assumption of linear data and hence can be neglected in this scenario. We narrow our choices down to mainly using the Random Forest regression as part of analysis for supervised machine learning approach and LSTM in the study of unsupervised deep learning approach. Our choice with Random Forest Regression over others is credited to its higher proven accuracy in predicting nonlinear trends which suit perfectly for our study. Albeit, when comparing the accuracy of both the approaches, this paper chooses to go ahead with the

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from **ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY**

for presenting the paper entitled "**BITCOIN PRICE PREDICTION USING MACHINE LEARNING AND SENTIMENT ANALYSIS**"

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FAKE NEWS DETECTION USING MACHINE LEARNING

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Abstract

Pervasive fake news on platforms such as social media raises serious concerns since it could have a harmful impact on society and the nation. Presently, people are disseminating more and more knowledge on this global internet platform every single second. False news is information that is spread through many media, including social media, international news, etc. It's becoming more difficult to tell whether the news is accurate or not as media has developed. On these social media platforms, the majority of people simply spread the information across the network without checking to see if it is accurate or not. Attacking end-to-end technology and finding fatal flaws is the primary method now employed by hackers. It is quite difficult for everyone to manually recognize bogus news. In order to effectively identify bogus news, a machine learning system is required. It can be difficult to automatically determine whether a text article is false or false information. Before making a determination about an article's veracity, even an expert in a given field must consider a number of factors. For the automated classification of news stories, we suggest using a machine learning ensemble approach in this work.The finest classical machine learning models areexplored in this study as it analyses the research on false news identification, to create a product methodology uses supervised machine learning techniques that can differentiate between accurate news and deceptive fake news.

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Heart Disease Prediction using Machine Learning

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Abstract: ***The medical community's main concern is predicting heart disease. and may make it easier for clinicians to distinguish between healthy and unhealthy cardiovascular disease. Heart illness must be detected as soon as possible. One of the most pressing problems in medicine is heart disease. By adopting a heart disease prediction system that uses machine learning to identify harmful heart conditions before they occur, we can somewhat mitigate this issue. Heart disease dataset with 13 features will be used in our research. Medical analysts can now easily identify medical diseases early on thanks to many artificial technologies. Finding classification accuracy using various supervised machines is the major goal. The contribution will be in learning, approaches, and optimum outcomes. For this project, we will only use publically available datasets. In our work, the Python Google Collab will take into account various supervised classifier-based evaluations and will enhance outcomes through fine tuning. The development of the Heart Disease Prediction System makes use of machine learning techniques. Health care data, which can take the form of text, photographs, or other media, is widely used in the biomedical sector of the healthcare industry, but it is rarely accessed and not mined. By developing the heartt disease prediction System, we can thereby prevent this issue. By using this technology, we can treat cardiac patients more effectively while also lowering costs.***

Key Words:- Classification, Supervised machine learning, Biomedical, Accuracy.

1 INTRODUCTION

Heart disease is the type of ailment that can result in death is heart disease. Heart disease is responsible for far too many deaths each year. The deterioration of cardiac muscle can lead to heart disease. Moreover, the inability of the heart to pump blood can be used to characterise heart failure. Coronaryartery disease is another name for heart disease. A lack of blood flow to the arteries can lead to CAD. The signs of heart illness, such as high blood pressure, chest pain, hypertension, cardiac arrest, etc.,can be used to diagnose the condition. There are numerous each with a unique set of symptoms.Like1) Heart disease involving blood vessels: chest pain, breathlessness, pain in the neck or throat; and 2) Heart disease resulting from aberrant heartbeats: slow heartbeat, discomfort, chest pain, etc. Shortness of breath, uneasiness, and chest pain are among the most prevalent symptoms. Shortness of breath, chest discomfort, and fainting are the most typical symptoms. Birth abnormalities, hypertension, diabetes, smoking, narcotics, and alcohol are all factors that contribute to heart disease. Infections that affect the inner membrane can occasionally accompany heart disease and cause symptoms like fever, exhaustion, a dry cough, and skin rashes. Bacteria, viruses, and parasites can all lead to heart infections. Heart conditions include angina pectoris, congenital heart disease, slow heartbeat, congestive heart failure, hypertension, coronary artery disease, cardiac arrest, and congenital heart disease. Data mining, machine learning, deep learning, and other automated methods are now available in plenty to identify cardiac disease. The techniques of machine learning will therefore be briefly introduced in this paper. With the help of machine learning resources, we train the datasets in this. There are certain risk variables that are used to make predictions about heart disease. Risk factors include age, sex, blood pressure, cholesterol levels, diabetes, smoking, and alcohol use. Heart rate, being overweight, and chest pain.

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This is to certify that Dr./~~Mr.~~/~~Ms.~~ Arun Anoop. M of Alva's Institute of Engineering and Tech has presented a paper titled Heart Disease Prediction Using Machine Learning

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IMAGE SEGMENTATION USING DEEP LEARNING

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Abstract—**In real life, object recognition in digital photos and videos is crucial. Nowadays, models like the Fast RCNN are used to identify objects in pictures. In object detection, bounding boxes around objects are used to identify the items in the picture. For a person, watching surveillance footage and analyzing them is a taxing and time-consuming task. The key reason for using Mask RCNN for videos is that the previously employed Faster RCNN architecture was slower and unable to achieve instance segmentation (pixel class of an image), but Mask RCNN solves those limitations. Replicating the method of surveillance footage analysis, particularly as it pertains to industrial videos, can be extremely beneficial for evaluating productivity, calculating out if completed products or raw materials are accessible, finding flaws, creating reports etc. To finish this assignment, we suggest using a video annotation and grading approach. We develop summaries in comprehensible English as we caption videos. These interpretations are helped by an understanding of the events and objects in the movie. The technique laid out in this research may be used to produce an annotated video summary which is composed of frames and the explanations for each one. Initially, the frames from the video are collected utilizing uniform sampling. As a result, captioning for videos is reduced to captioning for images. Then, Mask-RCNN is used to identify items like raw materials, finished goods, people, etc from the sampled video frames. To acquire the picture captions, a template-based sentence generating approach is also used. Eventually, a report is created that lists the products found as well as information about the production, such as how long the product was found to be there, how many products were found, whether any operators were present at the workstation, etc.**

Keywords—**Region Proposal Network, Object detection,Mask R-CNN, instance segmentation, ResNet, Tensorflow, Keras, MS-Coco.**

I. INTRODUCTION

The results of semantic segmentation and object identification in the visualization circle have improved greatly in a short period of time. Strong foundational systems for object recognition and semantic segmentation, that include the Fast or the Faster RCNN and Fully Convolutional Network frameworks, respectively, have been a major contributor to these advancements. Conceptually simple, flexible, and resilient, these approaches also provide quick training and inference times. In this effort, we want to provide a comparable enabling structure, such as segmentation. It is challenging to correctly identify all items in a photo and to accurately segment each instance at the exact same time.

As just a consequence, it combines components of object detection, that aims to categorize specific objects, with semantic segmentation, whose objective is to categorize every pixel into a predetermined set of categories without differentiating between separate object instances. And use a bounding box to find each. Given this, one may assume that a hard approach is necessary to achieve decent outcomes. Yet, we demonstrate that a method that is unexpectedly quick, flexible, and simple for using may outperform earlier unconventional instance segmentation findings. Our method, called Mask R-CNN, enhances faster R-CNN by concurrently including a branch for segmentation mask prediction for each Region of Interest (RoI) and the current stream for categorization and regression using bounding boxes.

The mask subsidiary, a brief Fully convolutional neural network that estimates a segmentation mask pixel-by-pixel, is delivered to each RoI. Because of the Faster R-CNN framework's support for a variety of customizable architectural designs, Mask R-CNN is simple to build and train. The mask division's limited calculation expense also makes setup and experimentation quick. Strictly speaking, Mask R-CNN follows Faster R-CNN logically, but for the best outcomes, the mask branch must be built correctly. More crucially, Faster RCNN was not created with the goal of emulating pixel-to-pixel systems' input and output. The use of coarse spatial quantization for feature extraction in RoI Pool, the unofficial main function for attending to instances, is the most notable example of this.

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Automatic Attendance Management System using Face Recognition

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Abstract: *Face recognition is among the most productive image processing applications and has a pivotal role in the technical field. In the recent time automated face recognition has become a trend and has been developed very much. this is mainly due to two reasons first it is due to availability of modern technologies and second is due to the ability to save time using face recognition in the process of taking attendance of students. Its usage will grow vast in the future as it saves a lot of time. It consumes a lot of time to take attendance manually and few might also fake the attendance, in order to prevent time consumption and avoid faking the attendance. Face recognition is used to identify the person present in the class and mark their attendance . this is done with the help of image or video frame. We proposed an automatic attendance management system using techniques such as PCA algorithm. The face detection and recognition will automatically detect the students in the classroom and mark the attendance by recognizing the person. The traditional process of making attendance and present biometric systems are vulnerable to proxies. This paper is therefore proposed to tackle all these problems. The proposed system makes the use of Haar classifiers, KNN, CNN, SVM, Generative adversarial networks, and Gabor filters. After face recognition attendance reports will be generated and stored in excel format. The system is tested under various conditions like illumination, head movements, the variation of distance between the student and cameras. After vigorous testing overall complexity and accuracy are calculated. The Proposed system proved to be an efficient and robust device for taking attendance in a classroom without any time consumption and manual work. The system developed is cost-efficient and need less installation.*

Keywords: KNN, SVM, VIOLA-JONES, HAAR classifiers, CNN

I. INTRODUCTION

Attendance being a very necessary side of administration may normally become an arduous, redundant activity, pushing itself to inaccuracies. The traditional approach of making roll calls proves itself to be a statute of limitations as it is very difficult to call names and maintain its record especially when the ratio of students is high. Every organization has its way of taking measures for the Attendance of students. Some organizations use document-oriented Approach and others have implemented these digital methods such as biometric fingerprinting techniques and card swapping techniques. however, these methods prove to be a statute of limitations as it subjects students to wait in a time-consuming queue. if the student fails to bring his id card then he will not be able to get attendance. evolving technologies have made many improvements in the changing world. The system of intelligent attendance is generally implemented with biometrics help. Recognition of face is one of the Biometric ways of improving this system. Face recognition proved to be a productive method for taking attendance. The normative face recognition techniques and methodologies fail to tackle challenges like scaling, pose, illumination, variations, rotation, and occlusions. The framework proposed is designed to solve the drawbacks of current systems. there has been a lot of advancement in face recognition but the vital steps are face detection, feature extraction, and face recognition. firstly, two or more cameras depend on the need, and the size of the classroom has to be installed on the ceiling of the classroom from where it covers the entire area. image captured from these cameras will be considered as an input to the system. There may be a possibility of getting image blurred due to movements of students, for better efficacy image can be upgraded using

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MINING THE SOCIAL MEDIA DATA USING BIG DATA ANALYTICS

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Abstract—The technologies today have changed all the aspects of the people by making them attract towards the Social Media, Web applications and by the online games through the Internet. Most of the information or the data available in the internet are provided by the users, customers and corporate companies as well. These data will be utilized for the sake of the Company. The social media platforms like the Facebook, Instagram, Twitter, Whatsapp were widely used these days. Around 2.7 billion times the like button of the Facebook is pressed on an average in the world and on an average 2.5 to 3 hours were spent on these platforms daily by liking, chatting and by tweeting on social media Big data is a lot of information that is difficult to organize and understand using traditional methods. But by analyzing it, we can find important insights that benefit everyone. There are four main features of big data called the 4 Vs: Velocity, Volume, Variety, and Veracity. The challenge is to find the value in this data and make predictions. In social media, a tools like data mining algorithms and Hadoop to further tasks.

Keywords - Big Data, Social media, text mining, Hadoop, data storage.

I. INTRODUCTION

Throughout the previous two to three decades, web technology and its applications have become popular and are utilized everywhere. Many of the billion social media users worldwide will be engaged on a regular basis and linked via tablets and smart phones. The distinctive features of social media platforms, such as the data exchange and communication, have contributed to the development of Web 2.0[1]. Big Data is typically defined as the storage of massive amounts of data, including both organized and unstructured data. The high-quality data gathered here is utilized to establish connections between legal citations, business trends, and research quality. According to McKinsey, the term "big data" refers to datasets that are too big to be gathered, handled, and analyzed using standard database software tools.

Large and complicated data volumes that are challenging to manage using conventional database tools or data processing processes are referred to as "big data." Data mining technologies are employed in order to glean useful information from these enormous data collections. Big data seeks to reveal hidden patterns and connections in the data in order to transform chaotic and complex data into information that can be used. To extract novel insights and important knowledge from large data sets, conventional data analysis techniques like exploratory, clustering, and factorial analysis must be modified [2]. The following, which is distributed by the four V's: velocity, volume, variety, and veracity, can be used to measure big data;

1. Volume – The quantum of data is at veritably large scale. The quantum of information being collected is so huge that ultramodern database operation tools are unfit to handle it and thus come obsolete.
2. Velocity- The rate of data production is exponential. It is constantly expanding in terabytes and petabytes.
3. Variety- Unshaped partially structured, and structured data are all types of data that are formed. This information is of a diverse type.
4. Veracity- The nature of the data generation is undetermined. It can be challenging to distinguish between outdated information and accurate information.

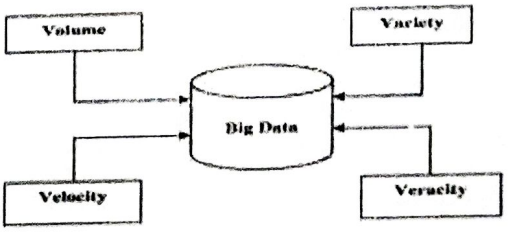

Fig 1: Categorization of Big Data in 4V's

Massive amounts of user-generated data are present on social media platforms, which can be mined for data. This data consists of posts from message boards, online forums, blogs, video and image sharing social media sites, and interactive games. Social media analytics frequently employ text analytics and sentiment analytics to examine client opinions [4]. Social media data, however, is essentially secondary data that isn't always structured because user

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DEVELOPMENT OF A MACHINE LEARNING MODEL TO DETECT CHRONIC KIDNEY DISEASE (CKD) AND PARKINSON'S DISEASE (PD)

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Abstract

Since people nowadays suffer from various diseases and its early detection is crucial. Machine Learning is used for early disease detection. Disease detection using Machine Learning is a method that detects diseases based on symptoms reported by the patients and data provided by the researchers. An algorithm analyzes the patient's disease symptoms, removes the null values or missing values and then the data is divided into train data and test data. The trained data is used to train the machine learning model and test data is used to test the trained model. Supervised machine learning algorithms like Support Vector Machine, Random Forest and XGBoost are used for disease detection. The probability of getting sick is calculated using the Random Forest, Support Vector Machine and XGBoost algorithms. A combined model to detect both Parkinson's Disease and Chronic Kidney Disease was built after the existing model for Parkinson's Disease, which employed audio files as its input and had a 75% accuracy rate, and the clinical model to detect Chronic Kidney Disease. For Parkinson's disease, the voice frequency is used as input, and for chronic kidney disease, measures including blood pressure, hemoglobin, and red blood cells are employed. These methods are more accurate than the models currently in use. Accurate analysis of medical data helps in early detection of diseases and treatment of patients as the amount of biological and health data increases. Using decision trees and linear regression algorithms, a model was developed to detect Chronic Kidney Disease (CKD) and Parkinson's Disease (PD).

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Covid-19 Verification and Supply Chain Management.

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Abstract—The worldwide economy was highly affected by the Covid-19 pandemic. Through the rigorous research and the scientific developments, an effective vaccine for Covid-19 was discovered. The government made it compulsory to produce the vaccination certificates for the individuals to access various facilities including transport, restaurants, cinema theaters or business in order to prevent the spreading of virus. This led to the forging of the certificates by the people. The paper introduces a blockchain solution that focuses on the registration of vaccinating authorities and issuance of vaccine certificates that can be quickly verified by anyone. The solution is application-based and aims to streamline the process of verifying vaccine certificates. Furthermore, the paper highlights the importance of analyzing the data retrieved from the blockchain, as this data will be accessed by numerous authorities.

Keywords—Block Chain, Digital Signature, Verification.

I. INTRODUCTION

The lifestyle of individuals has been transformed due to advancements in information technology, widespread availability of the internet, and the widespread use of mobile devices. People are starting to take notice of blockchain, the underlying technology. Blockchain boasts a decentralized and tamper-proof database that has the potential for various applications.

The application of blockchain technology extends beyond storing information, conducting transactions, and building trust in a unique way. Blockchain is viewed as a ground-breaking technology for cryptography and cybersecurity, and it has diverse applications, such as healthcare, cryptocurrency, smart contracts, Internet of Things, smart grids, governance, and supply chain management. The present research work seeks to provide a comprehensive analysis of blockchain security, privacy, and trust. It also examines the challenges associated with implementing blockchain technology in the field of Healthcare mainly focusing on valid Covid-19 certificate generation. Finally, the research proposes a blockchain-based framework for secure and dependable management of valid Covid-19 vaccine records.

The Covid-19 vaccine certificate is a guaranteed proof issued by the Government that a person has received COVID-19 vaccine. Currently, there are different types of certificates being issued, i.e., for the First Dose, Second Dose and a consolidated certificate for all doses, whether you've received "Covishield " or "Covaxin".

It's no surprise that there is been a lot of discussion about Covid-19 certificates being able to prove that one has actually received the vaccination. Here, we deal with 3 scenarios:

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DATA MINING TECHNIQUES IN INSURANCE SECTOR

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Abstract

The insurance business has amassed a significant amount of vehicle insurance data due to the development the insurance sector's information system. The protection business now faces the pressing issue of figuring out using these enormous data sources effectively. Data mining technologies can address the aforementioned issues. In this paper, customers analysis model is created to lower the risk of underwriting insurance businesses. A decision tree algorithm is utilized in this work to mine and analyze data from the auto insurance industry.

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VIRTUAL CLASSROOM

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Abstract—**A Virtual classroom is an Software tool that uses the internet to connect distant learners which is similar to face-to-face interaction. The main intention is about the challenges that a person has encounter in the virtual classroom setting. Prior to the arrival of Covid-19 in the 21st century, the finest and most efficient method of Learning was viewed as taking place in person, with the instructor and students interacting in real time.The techniques of teaching and learning have undergone significant changes due to technological advancements in the last few decades, particularly in the area of computer-aided learning. In the field of education,the World Wide Web has been extremely important for the storing and dissemination of knowledge. Even so, The pandemic had left us all confused more by circumstances, gave us all tremendously tech-savvy and strengthened our passion for it and willingness to embrace technology. Both instructors and pupils had the exact same experience. The trainer must deliver the teaching material in a given place at a fixed time in a traditional classroom setting.So it limits the instructor as well as the pupil in regards of where and when to teach. Although network learning has grown increasingly widespread in almost all educational settings, it really is predicted to emerge as the dominant method of instruction in the coming days.**

Keywords—**World Wide Web.**

I. INTRODUCTION

Any nation's economic development and societal transformation are thought to be primarily influenced by its educational system. Education is becoming more accessible day by day. As network computers, the Internet, and telecommunications technology have become more prevalent, e-Learning has gained popularity as a useful instrument for education and training. Effective teacher-student dialogue has always been a priority in the classroom.The layout of the classrooms encourages students to remain quietly and pay close attention to the instructors lessons.e-Learning is now widely known as a supportive tool for education and training.The world has been fighting the novel coronavirus since the beginning of 2020, and the outbreak has isolated everything, including educational institutions.In some developing nations, formal education is still primarily provided through conventional methods.

Teachers and students frequently experiment with new approaches to knowledge construction as a result of the substantial development of e-learning.Understanding can grow in a supportive setting where students can confide in their instructors and discuss their fears and uncertainties. Due to the Covid19 outbreak,online instruction has been adopted in many nations as a method of pupil instruction and learning. The area of education that places the most emphasis on using technology to provide instruction to pupils who are not physically present to receive it does so. Since the introduction of personal computers, laptops, and the internet, each discipline had attempted to integrate audio visual methods of teaching and learning in their various domains. In every corner of the world, the change from a depressed economy to a new knowledge-based economy is right now underway. To carry out online learning as efficiently as possible, we must determine the proper digital networks. Due to the rapid expansion of internet-dependent learning in virtually all schools and colleges, this area of education will be highly popular in the future days and will soon replace the conventional method of education. Geographic location is a key factor in the continuous development and adoption of remote learning, which is the result of certain circumstances.What a pupil learns, how well they achieve, and how much of an impact does non-traditional learning have on an individual? The benefits, drawbacks, and efficacy of online courses have all been the subject of numerous studies. During the ongoing discussion about online courses,

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TWO LAYER AUTHENTICATION USING OTP AND QR-CODE

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Abstract

The security of the device depends on stoner authentication because wireless communication technology is developing so rapidly. In the authentication procedure, words are very important. During the authentication process, the word entered by the stoner will be transferred from the company to the authentication garçon, allowing the garçon to grant access to the authorised stoner. The bushwhackers will seize the chance to try and guess the other person's word in order to conduct some illegal conditioning by using another person's name to keep them out of trouble. As a consequence of the issues, many solutions have been put forth to enhance the security of wireless communication technology. The study's roughly predicted outcome will be used to raise the safety of the mechanism. The recommended results include one-time passwords, mincing, and two-factor authentication. By adding a new result as a consequence of the QR law, more data can be saved. The system's goal is to improve the existing registration and authentication process. It has the affect of making word breaking more subtle and influences drug users to choose and set watchwords that are challenging to crack.

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DROWSINESS DETECTION SYSTEM USING OPENCV AND PYTHON

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Abstract

The research done in the subject of computer engineering is reviewed in this document. To stop accidents caused by tired or sleepy drivers, a mechanism for detecting their tiredness should be created. A restricted implementation of the numerous strategies that are discussed in the thesis on the subject was addressed in the novel along with results and solutions. With the current state of traffic, the document addresses the many methods for detecting weariness and their effectiveness in averting accidents. The report also summarizes the views of various authors in order to obtain better results in the concerned area and provide the utility with greater effectiveness for a safer road.

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PARKINSON'S DISEASE PREDICTION USING MACHINE LEARNING TECHNIQUES

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Abstract— Parkinson disease is a progressive neurodegenerative disorder that affects the motor system, and early detection can improve the quality of life for individuals with the condition. In recent years, there has been growing interest in using audio recordings and machine learning algorithms to detect early diagnosis of Parkinson's illness. This approach involves training supervised machine learning algorithms to analyze audio recordings and identify patterns and features that may indicate the presence of the disease. Using audio recordings to forecast the onset of Parkinson's disease presents both obstacles and potential, which are discussed in this paper's description of the state of the research in this area. The research concludes by highlighting the potential benefits of this approach, including the potential to enable earlier detection and intervention, leading to improved management of symptoms and potentially delaying the progression of the disease.

Keywords— Parkinson's disease, neurodegenerative

I. INTRODUCTION

Parkinson's condition It is a complicated, advancing neurodegenerative condition that primarily affects the motor system of the nervous system. According to estimates, about a million Americans have PD, and as the population ages, this number is anticipated to rise. While there are currently no remedy for PD, early detection and intervention can help slow down the progression of the disease and improve the quality of life for individuals with the condition.

One potential approach for early detection is through the analysis of audio recordings. PD can affect speech and vocal patterns, including changes in pitch, volume, and articulation. As a result, there has been growing interest in the use of machine learning algorithms to analyze audio data for early prediction , diagnosis about PD.

Supervised machine learning algorithms are trained to identify patterns and features in data that may indicate the presence of Parkinson's disease. By using a dataset of audio recordings from individuals with and without Parkinson's disease, machine learning models can be trained to accurately predict the likelihood of disease in new, unseen recordings. This has the potential to enable early detection and intervention, leading to improved management of symptoms and potentially delaying the progression of the disease.

Recent studies have shown promising results in using machine learning algorithms to analyze audio data for PD detection. For example, one study used a combination of Mel-frequency cepstral coefficients (MFCCs) another Teager-Kaiser energy operators (TKEO) to extract features from audio recordings of individuals with and without PD. The extracted features were then used to train a support vector machine (SVM) classifier, which achieved an accuracy of 93.6% in detecting PD. Another study used a combination of wavelet packet decomposition and random forest classification to achieve an accuracy of 97.8% in detecting PD.

While the use of supervised machine learning algorithms for PD prediction using audio recordings is a promising area of research, there are still some challenges that need to be addressed. For example, the quality and variability of the audio recordings can impact the accuracy of the machine learning models. Additionally, there may be other factors that contribute to changes in speech and vocal patterns, such as age or other medical conditions.

Using supervised machine learning algorithms to predict Parkinson's disease through audio recordings could potentially enhancing the standard of living for persons with Parkinson's disease and their families. By providing healthcare providers with a tool for early detection, disease management for individuals with Parkinson's disease and their families. Further research in this area is needed to address the challenges and optimize the accuracy of the machine learning models.

II. EXISTING SYSTEM

The use of health informatics systems to identify and monitor Parkinson's disease, a rapidly expanding approach neurodegenerative disease that affects a great number of

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Smart Child Rescue System

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Abstract - A water well or borewell is an excavation or building made in the ground by digging, boring, or drilling to access groundwater in underground aquifers. Nowadays, it is rather common to observe abandoned borewells that have been left open after usage. These walls turn into a deadly trap for young children who play close to the wells without realizing their depth. The task of rescuing children who have become trapped inside the borewell is not only challenging but also dangerous. The rescue teams attempt to save these young children for hours, sometimes days, and it costs a lot of money. Consequently, technology must be used to improve the rescue effort.

Key Words: underground aquifers, abandoned , excavation .

1.INTRODUCTION

One of the prevalent problems in several regions of India nowadays is kids slipping into bore wells. Children falling into borewells most frequently occur in rural India. This reveals something about the bore hole sizes. Bore wells are drilled in cities for domestic consumption. They have a smaller diameter. Large-diameter bore wells are also dug by some manufacturing businesses. These would often be found in the villages. This, however, cannot be regarded as the main cause since in the villages, people look for groundwater for household, agricultural, and other uses. People need water, but it is not always readily available, so they dig a borewell. Consequently, groundwater is the source. And thus, work on drilling a deep borewell to reach a decent source level of ground water begins. For a number of reasons, including the summer, excessive extraction, inadequate recharge, etc., groundwater is vital. However, a large number of bore wells don't supply water and are frequently left open.

When there is no longer any water, the driller will partially plug the hole and pack up and leave. One day a wandering youngster unknowingly plunges into the borewell. considering a toddler may easily fall into a borewell due to its diameter. If the youngster is not located elsewhere, it takes a long time to realize that they have fallen into a borewell. Since there won't be any use for the borewell owing to a shortage of water, it may potentially collapse. Since some borewells may reach depths of more than 300 feet, a youngster can stay caught in the muck instead of always falling to the bottom. Finding the depth of an open borewell is a difficult undertaking since the interior is quite deep and dark. However, if the youngster has fallen into a deep borewell, a web camera is sent down there to capture images of the child.

2. LITERATURE SURVEY

V. Saritha *et al.* [1] The purpose of this study is to prevent children from falling into bore-wells, which necessitates a novel design with a sensor placed above the borehole to detect children who fall within. The automated horizontal closure, which is kept at a depth of around 3 feet, closes if the device detects a child, shielding the kids from falling below. It has the capability to keep an eye on the confined youngster and to offer a platform on which the child can be raised using motors. The three blocks, which are set at an angle of 120 degrees from one another, are pushed toward the side of the bore hole by the motor, which is mounted on top of a gear mechanism. The clipper will then be used to rescue the youngster who is trapped within the hole by picking him or her up and placing them with the aid of a remote control. The rope fastened at its hands is used to manually insert the clipper. This scenario states that

A REVIEW ON VOICE CONTROLLED WHEELCHAIR WITH OBSTACLE SENSOR AND THERAPY UNIT

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Abstract: ***This paper presents the design of an automated wheelchair with voice control. The main objective of this campaign is to promote voice control of wheelchairs for individuals who need it. The system's safe mobility is enhanced by additional features including obstacle identification that reduce the likelihood of accidents while travelling. This gadget also features a component for therapy that helps the user's limbs avoid becoming numb after extended rest.***

Keywords-wheelchair, voice, obstacle, disability, therapy

I. INTRODUCTION

Inspiring and admirable effort has been done by many researchers to make patients' life as simple and independent as possible. The fact that physically challenged patients can hardly move and must use a wheelchair is one of their major limitations. A controller is now built into certain wheelchairs, making them more modern. This type of wheelchair can be useful for patients who have functional upper limbs but little control over their bottom limbs. In today's world, speech recognition is a hot topic. Speech recognition has a wide range of uses that improve the quality of our lives. However, for wheelchair remained a notable barrier. As a result, an intelligent wheelchair system based on voice recognition is suggested. The voice-activated wheelchair is built with safety features to prevent collisions with obstacles and can be operated via voice commands. The primary goal of this system is to be able to recognise speech as accurately as possible. Speech recognition is the process of turning spoken words into forms that computers can understand. This intelligent wheelchair incorporates speech recognition, so when a command is given verbally, the system will carry it out as instructed. It has a therapy machine to help the crippled person's limbs and prevent numbness from being brought on by prolonged rest. Through this approach, disabled people can receive some therapies alone. Through the use of their voice commands, those who are physically disabled or socially isolated will be able to move around freely and independently like other members of the community. This paper discusses the creation of a system that uses an infrared sensor, Raspberry Pi, Google Assistant, servo motor, and an Android handset as a microphone.

II. LITERATURE SURVEY

[1] Muhammad Azlan Alim, et al. In this proposed system, a voice-activated intelligent wheelchair device for those with physical disabilities who are unable to steer with their limbs. This innovation uses voice commands to control the wheelchair's mobility in various directions. The Android device serves as a microphone to connect to the Google Assistant before the Raspberry Pi processes the data. The servo motors will subsequently be given the appropriate instructions by the Raspberry Pi. Through the employment of an infrared sensor, this technology provides automated obstacle detection and assists the operator in applying the temporary stop button when the impediment is detected. The trial findings of more than 90% accuracy and a reaction time of less than 1.2 seconds confirm that it is a trustworthy system for usage by disabled individuals. The dual-controller mode further highlights its importance for users who have limited control over one or both of their lower limbs. This wheelchair also has a user-friendly mechanism since it doesn't require any special training or user restrictions to use.

[2] Ms. Cynthia Joseph, et al. In this proposed system, The device is built on a design that incorporates manual operation to let physically challenged persons use voice activation. Voice recognition software and an Arduino microcontroller have been utilised to facilitate wheelchair mobility. An improper spoken command does not cause the wheelchair to move. The Arduino controls the wheelchair directions in accordance with the instructions provided by voice and gesture. Obstacle detection is performed via ultrasonic sensors. The prototype's layout makes it possible to utilise it effectively and without much effort on your own. It helps consumers save time, money, and energy. Ultrasonic sensors are effective at detecting any obstruction. The prototype begins to move as soon as the user turns it on, and any impediment that is anticipated to be within a specific range will be picked up. Older because of their independence. [3]M.Senthil Sivakumar, et al. In this proposed system, They suggest a wheelchair, speech module, and navigation module for the Intelligent Home Navigation System (IHNS). An older person or someone with physical limitations can easily move around the house using their method. The wheelchair is controlled automatically or manually in the suggested system

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A Brief Study on Automatic Music Control System using Image Processing

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Abstract: *The scope of our project is to control a music player using human gestures. This employs a camera along with an embedded system to segment human gestures and convert them to control signals in real-time. With the help of the Music Controller, one can simply wave or do a simple gesture of hand movement in front of the webcam which will in turn switch or pause the particular music track that was being played. Our project mainly focuses on scenarios where we are multitasking that is working on many applications at a time or running various programs at a time on our desktop and along with that listening to music in background that is music being played in one of the windows. At such times if we wish to pause or switch a particular music track we have to make some movements like switching to the music window and doing the desired operation. With the help of Music Controller, one can simply wave or do a simple gesture of hand movement in front of the webcam which will in turn switch or pause the particular music track that was being played.*

Keywords: Image Processing.

I. INTRODUCTION

Gesture recognition is one of the gateway for making the machine to understand human body language, thus building a richer bridge between machines and humans than the conventional user interfaces or even GUIs (graphical user interfaces). The hand gesture can be defined as a gesture or a posture which resulted from the movement of a combination of hand and arm. Hand gesture means a dynamic movement such as sign languages and waving hands which is complex but suitable for a real time environment. Gesture-based technology has been booming the past several years, especially with the creation of the Microsoft Kinect for PCs and the Xbox 360. Computer-integrated programs can be something for the future, especially because it simplifies tasks such as changing a song while you're reading something important. Controlling music playback (e.g. play, stop, pause, and next) is often used to demonstrate new interfaces and inter- action techniques. Using a set of function to control music playback has also been used to demonstrate and evaluate gesture recognition algorithms. In order to derive meaningful conclusions from an evaluation of a gesture recognition algorithm it is, however, helpful to use a gesture set which is not purely based on the designer's intuition, the algorithms capabilities, or chance. Most work in the area of gestural interaction focused on algorithms and robust recognition of gestures. However, gestural interfaces must fulfill the same requirements as any other interaction technique. In particular, it is important to define usable gestures for the functionalities that the particular application offers. In order to deduce usable gestures a process that ensures valid results must be employed.

1.1 Objective

The main objective of this proposed system is,

- A primary goal of gesture recognition research is to create a system which can identify specific human gestures and use them to convey information or for device control.
- The proposed system mainly focuses on scenarios where we are multitasking that is working on many applications at a time or running various programs at a time on our desktop and along with that listening to music in background that is music being played in one of the windows. At such times if we wish to pause or switch a particular music track we have to make some movements like switching to the music window and doing the desired operation. This process is bit long and time consuming as well.
- Suppose if you can do this operation without switching to the media player and by doing just one hand

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Automatic Image Segmentation for the Detection of Illness in Cash Crops Extended Data Set Method & Deep Learning

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Abstract: *The economy of our country heavily depends on agrarian produce. This is the driving force behind Recognizing unhealthy leaves is the key to preventing crops from declining and yield from declining. It required a tremendous amount of labour, knowledge of the leaf diseases, and a tremendous lot of time. As a result, methods for image processing are used to find and identify unhealthy plant leaf conditions. Automatically identifying plant leaf diseases is helpful because it reduces the laborious task of observing in large farms and identifies disease symptoms right away. The stages of image acquisition, image pre-processing, picture segmentation, feature extraction, and classification are involved in the detection and identification of plant leaf diseases. The methodologies for pre-processing images, picture segmentation algorithms for automatic recognition, and research on potential plant leaf disease classification algorithms are all included in this work.*

Keywords: Image processing; segmentation; Support Vector Machine; Decision Support System.

I. INTRODUCTION

India is one of the developing countries wherein majority of population of country is depends on agriculture and agricultural production [8]. Studies show that the plant leaf disease reduces the quality and quantity of agricultural products. Therefore detect and identify disease at early stage is important task for farmers. Detection of disease at early stage can save the whole crops from a disease. The identification and recognition of plant leaf disease by open naked eye is quite difficult task for farmers and consult scientist or expertise person is very costly for farmers in our developing countries like India. However, illnesses are a significant factor in India's declining agronomics. In order to control crop diseases, farmers must deal with a number of challenges. In the agricultural industry, illness detection is crucial, and doing so requires careful diagnosis and the right kind of surveillance to prevent catastrophic losses.

Therefore, consider for quick, low cost and precise way to automatically recognize and identify disease from the leaf of plants is of pragmatic significance for large farms. The present Decision Support Systems (DSS) are establish on call center need that the farmers have to convey details about plant leaf through orally. DSS based on image processing can be useful to improve the production of agriculture.

II. LITERTURE SURVEY

[1]. Plant Leaf Disease Classification Using Efficient Net Deep Learning Model Ümit ATİLAa, Murat UÇARb:

Deep learning techniques have lately gained popularity for pattern identification and image processing. The PlantVillage dataset's plant leaf images from 39 classes were to be classified using the EfficientNet deep learning architecture, which was proposed in this work. The effectiveness of the suggested design was evaluated in comparison to cutting-edge deep learning architectures utilised in the literature for plant leaf disease detection. Both the original and the expanded versions of the PlantVillage dataset were used for experimental experiments.

[2]. Development and Validation of a Deep Learning Algorithm for the Recognition of Plant Disease Sijiang Huang, Weijie Liu:

We discovered that various plant diseases, such as tomato scab and speck, had poor recognition performances in the experimental results of this paper. In order to improve the efficacy of these diseases' recognition, we will expand our

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A Review on a Machine Learning Approach to Skin Cancer Detection

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Abstract: *Skin cancer, one of the most common cancers worldwide, accounts for around one- third of all diagnosis. The main cause of skin cancer is unrepaired DNA breaks in skin cells, which result in genetic mistakes or skin mutations. The importance of early detection of skin cancer symptoms cannot be overstated given the rising incidence, high mortality rate, and expensive medical treatments. Researchers have created several early skin cancer screening methods due to how hazardous these problems are. Skin cancer is identified and benign skin cancer and melanoma are distinguished using the lesion's features, such as its symmetry, colour, size, and form. Dermatologists make a diagnosis based on the layer-by-layer arrangement of skin lesions. CNN was superior to even board-certified dermatologists. Additionally, methods that enlist mechanical aid to detect cancer are more successful. Artificial intelligence that organises information and generates decision-making processes in a manner like that of the human brain.*

Keywords: DNA, mutation, mortality, benign, melanoma.

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A Review on Eye Aspect Ratio Technique

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Abstract: *One of the most common factors that contributes to the deaths and injuries caused by road accidents is drowsiness. It can also affect the performance of a driver. Detecting eye blinks is an essential part of various driver safety applications. The rapid pace of blinking makes it incredibly challenging to detect eye blinks automatically. This paper presents a method that can be used to identify eye blinks captured by a camera. The suggested method takes into account the facial landmarks for each frame and then takes the distance between the eyes from these landmarks. The proposed technique calculates the positions of the facial landmarks, uses the Eye Aspect Ratio (EAR) to extract a single scalar quantity, and determines the eye closeness in each frame.*

Keywords: Drowsiness Detection, Eye Aspect Ratio, Facial Landmarks

I. INTRODUCTION

One of the most important factors that jeopardises traffic safety and is linked to catastrophic accidents, fatalities, and financial losses is drowsiness. Driving performance suffers as tiredness increases. Accidents resulting in significant injury or death happen as a result of in attentiveness caused by an involuntary shift from waking to sleep.Eye blinking is influenced by various factors, including eyelid conditions, eye conditions, the presence of disease, the presence of contact lenses, psychological conditions, the surrounding environment, drugs, and other stimuli. The blink rate decreases when driving since it's important to concentrate on the road. The typical blink rate when driving is 8 to 10 blinks per minute. Age, gender, and the amount of time spent blinking all have an impact on a person's blink rate.A very successful method for identifying the blink of an eye using a facial landmark detector with Eye Aspect Ratio (EAR). One easy way is to use the Eye Aspect Ratio (EAR) algorithm. Further, the EAR requires only basic calculations based on the ratio of the distances between the eye's facial landmarks. This eye blink detection method is quick, accurate, and simple to master.

II. LITERTURE SURVEY

[1] Viola et al. conferred an algorithm for object detection, it is uses terribly easy features named Haar. In this algorithm, several numbers of Haar-like features is extracted from the image, and a many effective features are separated to the use in AdaBoost algorithm, then this feature are prepared into a hierarchical data structure same as the decision tree. This algorithm is comparatively quick and robust because of the simple extracted features and choice of the simplest features. This method is amazingly quick and efficient as compared to various strategies.

[2]. Alshaqaqi,et.al Drowsiness detection has many implications including reducing roads traffic accidents importance. Using image processing techniques is amongst the new and reliable methods in sleepy face. The present pilot study was done to investigate sleepiness and providing images of drivers' face, employing virtual-reality driving simulator. In order to detecting level of sleepiness according to the signal, information related to 25 drivers was recorded with imaging rate of 10 fps. Moreover, on average 3000 frames were analyzed for each driver. The frames were investigated by transforming in grey scale space and based on the Cascade and Viola & Jones techniques and the images characteristics were extracted using Binary and Histogram methods. The MPL neural network was applied for analyzing data.70% of information related to each driver were inserted to the network of which 15% for test and 15% for validation. In the last stage the accuracy of 93% of the outputs were evaluated. The intelligent detection and usage of various criteria in long-term time frame are of the advantages of the present study, comparing to other researches. This is helpful in early detection of sleepiness and prevents the irrecoverable losses by alarming.

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A Brief Study on Human Action Recognition

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Abstract: *Human action recognition is the process of labelling image sequences with action labels. Robust solutions to this problem have applications in domains such as visual surveillance, video retrieval and human–computer interaction. The task is challenging due to variations in motion performance, recording settings and inter-personal differences. In this survey, we explicitly address these challenges. We provide a detailed overview of current advances in the field. Image representations and the subsequent classification process are discussed separately to focus on the novelties of recent research. Moreover, we discuss limitations of the state of the art and outline promising directions of research.*

Keywords: Human action recognition.

I. INTRODUCTION

We consider the task of labelling videos containing human motion with action classes. The interest in the topic is motivated by the promise of many applications, both offline and online. Automatic annotation of video enables more efficient searching, for example finding tackles in soccer matches, handshakes in news footage or typical dance moves in music videos. Online processing allows for automatic surveillance, for example in shopping malls, but also in smart homes for the elderly to support aging in place. Interactive applications, for example in human–computer interaction or games, also benefit from the advances in automatic human action recognition. In this section, we first discuss related surveys and describe the most common datasets and algorithms. Also, we outline the main characteristics and challenges of the field as these motivate the various approaches that are reported in literature. In its simplest form, vision-based human action recognition can be regarded as a combination of feature extraction, and subsequent classification of these image representation.

II. SURVEYS

Recent Advances in Video-Based Human Action Recognition using Deep Learning: A Review [1]

Di Wu, Nabin Sharma, Michael Blumenstein [1] Video-based human action recognition has become one of the most popular research areas in the field of computer vision and pattern recognition in recent years. It has a wide variety of applications such as surveillance, robotics, health care, video searching and human-computer interaction. There are many challenges involved in human action recognition in videos, such as cluttered backgrounds, occlusions, view point variation, execution rate, and camera motion. A large number of techniques have been proposed to address the challenges over the decades. Three different types of datasets namely, single viewpoint, multiple view point and RGB-depth videos, are used for research. This paper presents a review of various state-of-the art deep learning-based techniques proposed for human action recognition on the three types of datasets. In light of the growing popularity and the recent developments in video-based human action recognition, this review imparts details of current trends and potential directions for future work to assist researchers.

Action Recognition for Surveillance Applications Using Optic Flow and SVM [2]

Somayeh Danafar, Niloofar Gheissari [2] Low quality images taken by surveillance cameras pose a great challenge to human action recognition algorithms. This is because they are usually noisy, of low resolution and of low frame rate. In this paper we propose an action recognition algorithm to overcome the above challenges. Author used optic flow to construct motion descriptors and apply a SVM to classify them. Having powerful discriminative features, significantly reduce the size of the feature set required. This algorithm can be applied to videos with low frame rate without scarifying efficiency or accuracy, and is robust to scale and view point changes. To evaluate our method, author used a database consisting of walking, running, jogging, hand clapping, hand waving and boxing actions. This grayscale database has

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Utilizing the CNN Algorithm to Identify Meals and Calculate Calories

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Abstract: *Food is one of the most important requirements of every living being on earth. The human beings require their food to be fresh, pure and of standard quality. The standards imposed and automation carried out in food processing industry takes care of food quality. Now a day, people across the universe are becoming more sensitive to their diet. Food recognition and calorie measurement project will describe the relationship between nutritional ingredients identification in food and inspecting calories through Machine Learning models to perform the data analysis, the experiments on real life dataset to show that our method improves the performance with efficient accuracy. Also, our System will recommend food for some different age groups. This work is able to identify the Nutrition that we may get effected by lacking of certain nutritional ingredients in our body and recommends the food that can benefit the rehabilitation of those Age groups. To achieve high accuracy and low time complexity, the proposed system implemented using CNN Machine Learning models.*

Keywords: Calculate Calories.

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Missing Person Identification

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Abstract: *At present the Computer automated Face recognition systems are used for personal identification, but the Age variations of an individual poses a serious problem for it. Designing an appropriate feature representation and an effective matching framework for age invariant face recognition remains an open problem. To classify person age using faces author using combination of two CNN where one CNN will extract face features which can help in identify changes in face over time and second CNN helps in predicting/ classifying age. Face aging causes intra-subject variations (such as geometric changes during childhood & adolescence, wrinkles and saggy skin in old age) which negatively affects the accuracy of face recognition systems. Therefore, this paper proposes a unified, multi-task framework to jointly handle these two tasks, termed MTLFace, which can learn age-invariant identity-related representation while achieving pleasing face synthesis. Specifically, we first decompose the mixed face features into two uncorrelated components—identity- and age-related features—through an attention mechanism, and then decorrelate these two components using multi-task training and continuous domain adaption. d. This system will decrease the crimes and ensure the security in our society.*

Keywords: Face recognition systems.

I. INTRODUCTION

Face recognition has been a hot research topic in computer vision for many years. The traditional wisdom is to utilize the margin-based metrics to increase the intra-class compactness and train the models with a massive amount of data to improve face recognition performance. Face recognition is affected negatively by synthetic makeup and research has shown that synthetic makeup is one of the reasons why celebrities have trouble with face recognition system. Some researchers use unique face images from subjects who volunteer to have their face image used for age-invariant face recognition research. In some applications, data augmentation is used to separate subject-specific facial features that are stable from variations in other facial features caused by aging. This leads to the generation of age invariant face recognition systems that are robust to variations in facial features caused by aging. Data augmentation has been used to adapt face images for applications on mobile devices and cloud environments that operate in real-time.

The augmented face images are often used as data input to several deep learning models like the convolutional neural networks to create robust age-invariant face recognition systems. This leads to the generation of age invariant face recognition systems that are robust to variations in facial features caused by aging. Data augmentation is done in various ways. In this work improving the accuracy of an age invariant face recognition (AIFR) system using data augmentation technique on a classical pre-trained convolution neural network is the focus of this study.

II. LITERATURE SURVEY

T. F. Cootes, A. Lanitis. et al We explain how the effects of aging on facial look can be explicated using learned age alterations and present experimental results to show that reasonably accurate estimates of age can be made for unseen images. We can improve our results by taking into account the fact that different individuals age in different ways and by considering the effect of daily life.

MING Ju-wang exposes a 3D approach for choosing faces by simulating based on 2D images. It can also detect multiple faces dynamically with varying situations. [6]

Teddy Mantoro reviews eigenface methods to create a face vector or face print by using cascade classifiers and uses Principal Component Analysis (PCA) for training. [4]

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Plant Leaf Disease Detection using KNN Algorithm

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Abstract: *Software has always been a companion for humans since the boomed invention of automation. All the automation which has been done till date always carried a motive for the ease of complex processes and sometimes for replacing enormous human activities. The project presents plant leaf disease detection, effect of disease on plant yield and the remedies for its cure. In agriculture, research of automatic plant disease is essential in monitoring large fields of plants, and thus automatically detect symptoms of disease as soon as they appear on plant leaves. Every other field has got some benefit from new technologies as compared to the agricultural field. According to past studies, 42% of agricultural production is in loss and that too because of the increasing rate of loss due to plant leaf diseases. To overcome this major issue, this plant leaf disease detection technique can be applied to detect a disease from the input images. This process involved steps like image preprocessing, image segmentation, feature extraction.*

Keywords: Plant Leaf Detection.

I. INTRODUCTION

India is a country with a majority of the population relying heavily on the agricultural sector. The crop cultivation area in India spans around 3,50,000 hectares approximately and the production quantities roughly sum up to 53,00,000 tons, making India the third largest agricultural producer in the world. The sensitivity of crops coupled with climatic conditions have made blights common in the crop during all the stages of its growth. Blight affected leaves constitute 10-30% of the total crop loss. Identification of such blights in the leaf is very important in preventing any heavy losses in yield as well as the quantity of the agricultural product. Monitoring the leaf blights manually is a difficult task due to its complex nature and is a time consuming process. Therefore, there is a need to reduce the manual effort put into this task, while making accurate predictions and ensuring that the farmer's lives are hassle free. Visually observable patterns are difficult to decipher at a single glance, leading to many farmers making inaccurate assumptions regarding the blight. As a result, prevention mechanisms taken by the farmers may be ineffective and sometimes harmful. Farmers usually come together and implement common blight prevention mechanisms, as they lack expert advice on how to deal with their crop infestation. There have been circumstances where due to inadequate knowledge or misinterpretation regarding the intensity of the blight, over-dosage or under-dosage of the pesticide has resulted in crop damage. This is the underlying motivation for the proposed methodology that aims to accurately detect and classify blights in the crop. The methodology suggested in the paper pertains to the most common blights found in the leaf like, Bacterial leaf spot and Septoria leaf spot, Yellow Leaf Curl among many others. Any leaf image given as input can be classified into one of the bright classes or can be deemed healthy. The dataset used for evaluation is a subset of Leaf Village, a repository that contains 54,306 images of 14 crops infested with 26 blights. The subset includes around 18160 images of different leaf blights. Broadly, the proposed methodology consists of three major steps: data acquisition, pre-processing and classification. The images used for the implementation of the proposed methodology were acquired from a publicly available dataset called Leaf Village, as mentioned earlier. In the next step, the images were resized to a standard size before feeding it into the classification model.

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A Review Paper on Brief Study on Breast Cancer Classification using Deep Learning

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Abstract: *The biggest cause of cancer-related deaths among women is breast cancer. The greatest and most efficient method to slow the growth of a tumour is early detection and diagnosis. The currently advised imaging technique for the early detection and diagnosis of breast cancer is mammography. Mammogram mass classifications continue to be a major difficulty and are essential for helping radiologists make an accurate diagnosis. The precise detection and classification of breast cancer is a crucial task in medical imaging because of the complexity of breast tissues. Due to their ability to automatically extract characteristics, deep learning techniques have been successfully applied in a wide range of industries, but particularly in the field of medical imaging. In order to identify and classify breast cancer on histopathology images, this research suggests an unique patch-based deep learning technique called Pa-DBN-BC (DBN). To extract features, unsupervised pre-training and supervised fine-tuning phases are performed. The network automatically extracts features from picture patches. To categorise the patches from histopathology images, logistic regression is performed. The model receives the characteristics extracted from the patches as input, and it outputs a probability matrix with either a positive sample (cancer) or a negative sample (background).*

Keywords: Deep Learning.

I. INTRODUCTION

One in eight women will develop breast cancer during their lives. Breast cancer is the most frequent type of cancer and the second leading cause of mortality for women after lung cancer. Any breast tissue, cell, or gland has the potential to become cancerous. It can start in the ducts that produce milk or in the glandular tissues known as lobules, which produce milk. If cancer cells are not found at an early stage, there is a potential that they will damage other areas of the body and spread. Breast tumours can either be benign or malignant; benign lesions are non-cancerous cell abnormalities that cannot develop into breast cancer, whereas malignant lesions are cancerous lesions. It is quite difficult to manually evaluate the microscopic image because both benign and malignant cells contain erratic features and architectures. Malignant cells proliferate swiftly by starting divisions right away. Breast biopsies and mammography, often known as low-dose x-rays of the breast, are two the most frequent type of cancer and the second leading cause of mortality for women after lung cancer. Any breast tissue, cell, or gland has the potential to become cancerous. It can start in the ducts that produce milk or in the glandular tissues known as lobules, which produce milk. If cancer cells are not found at an early stage, there is a potential that they will damage other areas of the body and spread. Breast tumours can either be benign or malignant; benign lesions are non-cancerous cell abnormalities that cannot develop into breast cancer, whereas malignant lesions are cancerous lesions. It is quite difficult to manually evaluate the microscopic image because both benign and malignant cells contain erratic features and architectures. Malignant cells proliferate swiftly by starting divisions right away. Breast biopsies and mammography, often known as low-dose x-rays of the breast, are two frequently used methods for finding breast cancer. Radiologists use a certain kind of breast picture during mammography to find early signs of breast cancer. With the aid of DBN, the suggested framework offers the automatic and precise representation of features from photos. Patch-based DBN requires fewer hardware resources, making it superior to other deep learning techniques.

II. LITERATURE SURVEY

[1] Li et al. proposed a patches' selection technique established by clustering ML algorithm and deep learning CNN (Convolutional Neural Network) to choose additional Selective patches. The method projected on four classes that are

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A Review on a Milk Quality Detection and Analysis

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Abstract: *The milk is the important nutrition for mortal being. The good quality milk should be free from the pollutants. Milk is substantially vended by original merchandisers as well as by super requests. still, in original areas to increase the volume of milk certain pollutants are added which may affect the nutritive quality of milk. Milk contamination is a social problem. The problem of contamination is faced by both Indian and foreign countries. Application of thinned milk causes severe health problems and a great concern to the food assiduity. The Country milk directors and consumers facing problem to find the quality of milk, accept the show of price and consumption. So, it's necessary to insure the quality of milk by measuring the vital parameters present in the milk and the pollutants that are added to the milk. Then we're measuring the different parameters of milk similar as pH, turbidity, conductivity, odor, temperature using detectors. Also, with the help of IOT(Internet of effects) process the milk assiduity should be suitable to shoot the real time reading information of milk to the government so that it helps to overcome the illegal effects similar as milk quality during the product of milk packet. This proposed system is enforced using At mega 328 microcontroller. All the detectors are combined to form compact and flexible system which dissect and classify the quality of milk into different grades and eventually affair displayed on TV screen. Problem faced in small journals and by the individualities can be averted by detecting the quality of milk, and help from causing the dangerous conditions by detecting the contamination of milk. husbandry is an important part of India and the dairy business is an overall benefit to India's business or frugality. Farmers force milk to dairy products and admit payments grounded on the chastity of the milk. As it's known, the world is moving presto now that people with further luxurious cultures are responding to trends and requirements. thus, there's a need to ameliorate the agrarian life of India. In milk, colorful factors are calculated, similar as fat, pH, and the asked rate of fat mass. The system calculates these parameters and the microcontroller reads the data and sends to android phone. The Blynk app installed on the phone can be used to perform billing computations and calculate the diurnal payments. This technology offers a clever mobile operation that help in determining the quantum of fat in milk. Both Arduino boards and microcontrollers may use the detector. The fashion for relating fat in milk samples is veritably affordable. The sector offers fair rates to growers and gives governments with real- time dairy value and proportions through the Internet of effects(IoT) procedure.*

Keywords: Microcontroller, IOT, sensors, adulteration in milk.

I. INTRODUCTION

Milk is the primary source of the nutrition for youthful mammals before they suitable to digest other types of food. In India milk product gives comparatively advanced profit to both growers and dairy granges. Throughout the world, further than 11 billion consumers of milk and milk products are there and 70 of child deaths every time are attributed to malnutrition. therefore milk is a major food for the babies. Now a day the milk contamination is substantially detected using colorful tests. The quality and impunity of raw milk is essential for the dairy products. The nutritive value of milk to mortal health needs no preface; it also has traditional impact on Indian society. At the same time it's intimidating that numerous merchandisers lacing it with water, cleansers, acidulous soda pop, sodium carbonate which has dangerous effect on the mortal health especially small kiddies. also, keeping the milk for the storehouse purpose for long duration there's the rapid-fire addition of bacteria. We know that, in order to make good dairy products, good quality of raw accoutrements is needful. A milk dealer and consumer will be assured of the quality of raw milk if certain introductory quality tests are carried out at colorful stages. As milk infection is a growing cause for mortal illness and death, there's a continually adding demand to maintain the safe milk force. There's a need to dissect the quality of milk from getting illness especially for the

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A Review of Blockchain-Based Supply Chain Management: Applications, Challenges and Research Opportunities

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Abstract: *Blockchain technology has the potential to transform supply chain management by providing traceability, transparency, efficiency, and security. This review paper aims to provide a comprehensive overview of the current state of research on the application of blockchain in supply chain management, and to identify the main challenges and opportunities of using blockchain in this context. The review is based on a selection of IEEE papers on the topic, including "A Framework for Blockchain-Based Supply Chain Management" by B. Zhang, J. Huang, and X. Liu, and "A Review of Blockchain Technology in Supply Chain Management" by Y. Guo, J. Zhang, and C. Zou. The review also highlights the main topics and contributions of the selected papers, and proposes a research agenda for future work.*

Keywords: Blockchain technology

I. INTRODUCTION

Supply chain management involves the planning, coordination, and control of the flow of goods, services, and information from the source to the customer. It plays a critical role in the global economy, as it enables the efficient and timely delivery of goods and services to meet the demand of consumers. However, traditional supply chain management systems are often inefficient, opaque, and vulnerable to risks and disruptions, due to the complexity and diversity of the supply chain network, the reliance on manual processes and centralized databases, and the increasing demand for transparency and sustainability.

Blockchain technology, with its decentralized, distributed, and immutable ledger, has the potential to transform supply chain management by providing traceability, transparency, efficiency, and security. The decentralized and distributed nature of blockchain ensures that the supply chain data is stored and replicated on multiple nodes, which makes it difficult to alter or delete the data without the consensus of the network. The immutable nature of blockchain ensures that the supply chain data is tamper-proof and permanent, which can provide a reliable and auditable record of the movement and status of goods and assets. In addition, the use of smart contracts can enable the automation and execution of transactions and processes in the supply chain, which can reduce the need for manual intervention and reconciliation, and increase the speed and accuracy of supply chain operations.

II. PROBLEM STATEMENT

The use of traditional supply chain management systems is often inefficient, opaque, and vulnerable to risks and disruptions, due to the complexity and diversity of the supply chain network, the reliance on manual processes and centralized databases, and the increasing demand for transparency and sustainability.

2.1 Objectives

The main objective of this proposed project is to,

- To review the current state of research on the use of blockchain technology in supply chain management.
- To identify the potential benefits and challenges of using blockchain in supply chain management.
- To identify the research opportunities for blockchain-based supply chain management.

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A Brief Study on Lane Detection using Lane Boundary Marker Network

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Abstract: *Both advanced driver assistance systems and self-driving automobiles rely heavily on lane detection. While current techniques utilize a scope of highlights from low-level to profound highlights separated from convolutional brain networks, they all experience the ill effects of the issue of impediment and battle to distinguish paths with low or no proof on the street. Key points along the lane boundaries are identified using a lane boundary marker network in this paper. An backwards viewpoint planning is assessed utilizing street geometry which is then applied to the recognized markers and lines/bends are fitted together on the amended focuses. Finally, missing path limits are anticipated utilizing path geometry limitations i.e., equidistant and parallelism. Reciprocal weighted averaging guarantees path limits with solid proof rule their anticipated other options. This demonstrates our algorithm's resistance to occluded and missing lanes. We also demonstrate that our algorithm can be used in conjunction with other lane detectors to enhance their lane retrieval capabilities.*

Keywords: Lana Detection.

I. INTRODUCTION

While the Advanced Driver Assistant System and self-driving cars have differing levels of autonomy requirements, some components of automation are the same. Road lane recognition and segmentation is one of them. In order to identify and ensure safe driving practices, lane detection is essential. And if the car is a self-driving one, an on-board device with this capability can warn the driver before making a dangerous lane shift and prevent it altogether. Utilizing deep learning algorithms has the advantage of shifting the focus away from the conventional lane border detection methodology and toward semantic segmentation of the lane region. Assumptions are made for all through lanes, which normally make up the majority of a highway's length. The main goal of this study was to assess the effectiveness of the suggested method in these situations. However, past efforts have successfully used the premise of parallel lanes to identify lanes in a corrected picture.

II. PROBLEM STATEMENT

The high death rate from traffic accidents is caused by a variety of factors, including inattention, disobedience of traffic laws, distractions, etc. Similar to this, failing to comprehend the driving scene is one of the major factors contributing to accidents on the road, most of which are caused by careless driving. Researchers and businesses have paid close attention to recent advancements in autonomous driving in an effort to reduce human error and regulate driving behavior in a real-time setting.

The lane marking system creates different tracks based on the differing speeds of cars and keeps them safe from other vehicles inside the lane line. An intelligent vehicle system (IVS) may be able to control its speed and lane-changing decisions with the help of these lane markings, which lowers the likelihood of an accident.

2.1 Objective

The main objective of this proposed project is to,

- The system has the task of identifying lane markings, his intention is safe environment and improved traffic environment. These systems immediately warn helps drivers avoid lane dividers when cars have to cross them accident.

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Disease Prediction using Machine Learning Algorithms

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Abstract: *The development and exploitation of several prominent Data mining techniques in numerous real-world application areas (e.g. Industry, Healthcare and Bio science) has led to the utilization of such techniques in machine learning environments, in order to extract useful pieces of information of the specified data in healthcare communities, biomedical fields etc. The accurate analysis of medical database benefits in early disease prediction, patient care and community services. The techniques of machine learning have been successfully employed in assorted applications including Disease prediction. The aim of developing classifier system using machine learning algorithms is to immensely help to solve the health-related issues by assisting the physicians to predict and diagnose diseases at an early stage. A Sample data of 4920 patients' records diagnosed with 41 diseases was selected for analysis. A dependent variable was composed of 41 diseases. 95 of 132 independent variables (symptoms) closely related to diseases were selected and optimized. This research work carried out demonstrates the disease prediction system developed using Machine learning algorithms such as the Decision Tree classifier, Random forest classifier, and Naïve Bayes classifier. The paper presents the comparative study of the results of the above algorithms used.*

Keywords: Disease Prediction.

I. INTRODUCTION

It has always been difficult to find a new medicine. A new medicine is researched and developed over a long period of time. The total number of candidate molecules in the foundation phase of drug discovery for any disease was estimated to be between 1060 and 10200 [1]. The reason for this is; It takes a long time to find the right compounds for making a new medicine. In the past, the medical industry did not have facilities that utilized machine learning strategies to investigate potential medicines. Since the advent of artificial intelligence (AI), the field of computer applications has seen significant growth. The idea of artificial intelligence is nothing more than a computerized simulation of human intelligence. The process of machine learning, which entails gathering information, developing rules for extracting it, demonstrating approximate or definite inferences, and verifying, is the foundation for the development of artificial intelligence. The precision of machine learning algorithms is the foundation of artificial intelligence's success. The availability of a substantial training dataset is primarily what determines a machine learning algorithm's accuracy. We now have a lot of data to train a system with. The integration of AI into the drug development process has evolved to a greater extent. AI is now playing a significant role in this analysis and development of drug discovery. Based on the requirements, pharmaceutical companies, AI-focused research and development institutions, and medical professionals can collaborate to investigate the new medicine. Numerous earlier works can be found in the literature for drug recommendations. A recurrent neural network (RNN) was proposed by Yasonik et al. [2] to generate molecules for drug discovery. Using transfer learning, the network was fine-tuned by investigating the generated molecules. The authors of the manuscript [3,4] describe how artificial intelligence can be used to investigate medicine. A system of evidence-based assessment is described in [5,6]. Machine learning algorithms will be used to make medical recommendations in the future .The system collects a lot of data based on the information patients provide. Utilizing these data systems enables training and the recommendation of medications. In [7], a few researchers have fostered a patient eating routine suggestion framework utilizing AI approach. For various medical diagnoses, various machine learning approaches have been developed. [8,9] provides a description of these strategies. Leung and others 10] have talked about how biologists, data scientists, and medical researchers working together on the development of genomic medicine can benefit from

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Crop Recommendation and Early Detection of Lack of Nutrients Using Machine Learning and Image Processing

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Abstract: *In a country where farming is still the most common vocation and conventional agricultural practises are still used, farmers can only expect a limited amount of crop yields, which is ultimately less advantageous for them than the inputs they provide. So, in order to maximise crop yields for a given input, we are demonstrating various techniques that will be helpful to create a recommendation system for smart farming. Agriculture has never been a lucrative industry in India despite being a big industry and major occupation there. We suggest a system that would evaluate soil properties (pH value, soil type, and nutrient concentration) as well as environmental factors (temperature, rainfall, and geographic location in terms of state) before advising the user on the best crop to plant. The numerous data mining approaches are discussed in this work along with how they relate to soil fertility, nutrient analysis, and rainfall forecasting. Using decision trees, classification can be accomplished in data mining. One of the major problems that farmers confront is diseases that are affected on plant leaves, especially rice leaves. As a result, it is very challenging to deliver the amount of food required to feed the world's expanding population. Diseases affecting rice have reduced production and cost the agricultural industry money. Image acquisition, picture pre-processing, image segmentation, feature extraction, and classification are processes in the disease detection process. The techniques for identifying plant diseases using photographs of their leaves were covered in this essay. The segmentation and feature extraction algorithms utilised in the identification of plant diseases were also covered in this research.*

Keywords: Crop.

I. INTRODUCTION

The need for food is rising as the world's population continues to rise. Farmers, agricultural scientists, the government, and researchers are always looking for ways to increase agricultural production using a variety of methods. As a result, the amount of information produced from agricultural data is growing daily. To extract and evaluate such a vast amount of data, a spontaneous approach is required. Machine learning algorithms and data mining techniques are essential for assessing various types of data in the agricultural industry. For the purpose of building models, drawing appropriate inferences, forecasting the trends of agricultural processes, and other purposes, these approaches and algorithms are directly applied to a data set. Precision farming is not highly valued in India. Today, we discovered that the environment is constantly changing, harming the crops and pushing farmers into debt and toward suicide. In many instances like these, farmers use more pesticides and fertilisers in an effort to increase production while also reducing soil fertility, decreasing soil holding capacity, and raising soil toxicity. Growing industrialisation uses more farmland, which increases soil contamination rates and lowers plant quality. Our method helps farmers choose the best crop, the appropriate quantity of fertiliser for the soil and crop, and early detection of diseases and nutritional deficiencies. We use meteorological data in our system since the monsoon is absolutely essential to Indian agriculture. The type of soil and its fertility are also crucial, therefore we utilise an NPK sensor to get data on soil parameters that are then utilised in the system. To forecast the ideal crop and crop yield, machine learning techniques like the Random Forest Algorithm are applied. Additionally, the system

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Heart Diseases Detection System

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Abstract: *Heart plays significant role in living organisms. Diagnosis and prediction of heart related diseases requires more precision, perfection and correctness because a little mistake can cause fatigue problem or death of the person. The prediction of heart disease is critically significant for diagnosis of diseases and treatment. The data mining techniques that can be applied in medicine, and in particular some machine learning techniques including the mechanisms that make them better suited for the analysis of medical databases. Heart disease is a significant problem in recent times; the main reason for this disease is the intake of alcohol, tobacco, and lack of physical exercise.*

Keywords: Heart Diseases Detection System.

I. INTRODUCTION

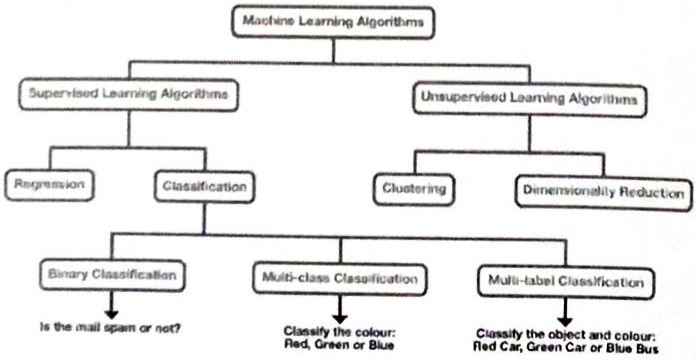
Heart is one of the most extensive and vital organ of human body so the care of heart is essential. Most of diseases are related to heart so the prediction about heart diseases is necessary and for this purpose comparative study needed in this field, today most of patient are died because their diseases are recognized at last stage due to lack of accuracy of instrument so there is need to know about the more efficient algorithms for diseases prediction.

Data mining technology provides a deep insight providing a user oriented approach to discover novel and hidden patterns in the data. This helps in evaluating the effectiveness of medical treatments. The data generated by healthcare transactions is enormous. This medical data containing patients' symptoms is analyzed to perform medical research [8]. With the development of information technology, extensive medical data is available. Medical data classification plays a significant role in various medical applications. Medical classification can be widely used in hospitals for the statistical analysis of diseases and therapies. It addresses the problems of diagnosis, analysis and teaching purposes in medicine.

To avoid these errors and to achieve better and faster results, we need an automated system. Over the past years, researchers find out that machine learning algorithms perform very well in analyzing medical data sets. These data sets will be directly given to machine learning algorithms, and machine learning algorithms will perform according to their nature, and those algorithms will give some outputs.

II. MACHINE LEARNING

Machine Learning is one of efficient technology which is based on two terms namely testing and training i.e. system take training directly from data and experience and based on this training test should be applied on different type of need as per the algorithm required. There are three type of machine learning algorithms:



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Comparative Study on the Detection of Parkinson's Disease using Machine Learning

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Abstract: *Parkinson's disease is a progressive disorder that affects the nervous system and the parts of the body controlled by the nerves and the root cause of it is falling rates of dopamine levels in the forebrain. It is a chronic degenerative disease with progressive illness, which means it develops new symptoms over time, actually the average diagnosis time is above two years. The prediction of the Parkinson's disease is the most challenging problem for the biomedical engineering researches and doctors. Due to the decrease in motor control that is the hallmark of the disease, voice can be used as a means to detect and diagnose PD. With advancements in technology and the prevalence of audio collecting devices in daily lives, reliable models that can translate this audio data into a diagnostic tool for healthcare professionals would potentially provide diagnoses that are cheaper and more accurate. We provide evidence to validate this concept here using a voice dataset collected from people with and without PD.*

Keywords: Parkinson's disease.

I. INTRODUCTION

Parkinson's disease (PD) is a degenerative neurological disorder that affects millions of individuals worldwide. The resulting dopamine deficiency leads to a range of motor symptoms, including tremors, rigidity, bradykinesia (slowness of movement), and difficulty with balance and coordination. PD is also associated with non-motor symptoms such as sleep disorders, anxiety, and depression. Early detection of PD is crucial for the effectiveness of treatment and the ability to delay disease progression. However, current diagnostic methods are often unreliable and may require multiple visits to a specialist before a definitive diagnosis is made, and the evaluation of symptoms is done by the use of rating scales such as the Unified Parkinson's Disease Rating Scale (UPDRS) and the Hoehn and Yahr scale. Moreover, PD is often misdiagnosed or not diagnosed until the later stages of the disease, when significant neural degeneration has already occurred. This highlights the need for more accurate and efficient diagnostic methods for PD. Artificial intelligence (AI) has the potential to revolutionize the early detection of PD by providing a more accurate and efficient diagnostic process. AI algorithms can analyse large amounts of data, identify patterns, and make predictions with high accuracy. In recent years, there has been a growing body of research on the use of AI for the early detection of PD. This includes the use of machine learning algorithms to analyse various types of data, such as clinical data, genetic data, and imaging data, voice data etc. to identify early signs of PD. In this review, we will examine the current state of AI-based approaches for early detection of PD and discuss their potential benefits and limitations. We will also explore on-going research in this field and discuss potential directions for future work. Our aim is to provide a comprehensive overview of the current state of the field and to identify opportunities for future research and development.

II. LITERATURE SURVEY

[1] Importance of Voice data: Speech or voice data is assumed to be 90% helpful to diagnose a person for identifying presence of disease. In general, Person with PD suffers from speech problems, which can be categorized into two: hypophonia and dysarthria. Hypophonia indicates very soft and weak voice from a person and dysarthria indicate slow speech or voice, that can hardly be understood at one time and this causes because of damage to central nervous system. So, most of the clinicians who treat PD patients observe dysarthria and try to rehabilitate with specific treatments to improvise vocal intensity.

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Artificial Cognition for Social Human-Robot Interaction

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Abstract: *Human–Robot Interaction (HRI) has lately gotten a lot of press in the academic community, in labs, in IT firms, and in the media. It is desirable as a result of this focus. to deliver an HRI survey as a lesson to individuals outside of HRI throughout the field, and to encourage debate on a united vision of HRI. The playing field The purpose of this article is to offer a comprehensive overview of difficulties relating to HRI, to identify significant themes, and to explore the topic issues that are expected to reshape the sector in the not-too-distant future. Although The review is structured like a survey. Because the purpose is to give a cohesive "narrative" of HRI, several well-written, fascinating, and impactful studies will inevitably be left out. We recount the HRI tale from many viewpoints with the goal of discovering trends that span applications, rather than trying to survey every publication. The survey aims to include articles from a diverse range of institutions, government initiatives, corporate laboratories, and nations that contribute to HRI, as well as a diverse range of disciplines that contribute to the area, such as human factors, robotics, cognitive psychology, and design.*

Keywords: Human–Robot Interaction

I. INTRODUCTION

From factory automation to service applications to medical care and entertainment, robots are ready to perform a rising range of roles in today's society. While robots were first utilised in repetitive work where all human guidance is supplied a priori, they are rapidly being used in more complicated and less organised tasks and activities, which include interaction with people [1]. This intricacy has driven the creation of a brand-new field called Human-Robot Interaction (HRI), which studies how people interact with robots and how to best design and operate robot systems capable of doing so. [2]

1.1 Definition

Human-robot interaction (HRI) is the multidisciplinary study of human-robot interaction dynamics. HRI researchers and practitioners come from a wide range of backgrounds, including engineering (electrical, 1computer science (human-computer interface, artificial intelligence, robotics, etc.), mechanical, industrial, and design social sciences (psychology, cognitive science, communications, anthropology, and human factors), and humanities (natural language comprehension and computer vision) (ethics and philosophy).

II. HISTORY OF ROBOTICS AND HUMAN–MACHINE-INTERACTION

In this part, we take a quick look at the events and efforts that have paved the way for current HRI. Clearly, developing robots was the first and most important step. Although robot technology was predominantly created in the mid- and late-twentieth century, it is crucial to highlight that the technology has been around for a long time. The concept of robot-like behavior and its ramifications for humans have received a lot of attention recently.Religion, mythology, philosophy, and literature have all used it for millennia. The term "robot" comes from the Czechoslovak word "robota," which means "labor." The term "robot" appears to have been coined first. Though this is not the case in Karel Chapek's 1920 drama Rossum's Universal Robots, was far from the first example of a machine that resembled a person. Indeed,Around 1495, Leonardo da Vinci drew a mechanical man. In contemporary times, it has been assessed for viability.The first robots were remote-controlled machines with little or no autonomy (Figure 2.1). Nicola Tesla

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Review Paper on Cyberbulling

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Abstract: *This article become stimulated with the aid of using the pinnacle ten guidelines that Sameer Hinduja and Justin W. Patchin advised to educators engaged in cyberbullying prevention. The first step for prevention of cyberbullying is the know-how acquisition of what cyberbullying is and the way it happens inside a selected context. This isn't an clean task , for the reason that cyberbullying is a complicated and pretty new phenomenon, a lot that researchers' opinion is regularly divided on its definition and there isn't settlement at the quantity of its diffusion. However, cyberbullying represents an real risk, particularly for the web technology that is regularly not able to differentiate among digital and real-reality. Moreover, the Internet is a truely wide, exciting world, hard to penetrate in depth, wealthy with dissimulations, complete of beneficial and additionally evil things, which might be constantly changing. Literature stresses at the important function of schooling for fighting cyberbullying; there's a standard settlement approximately the duty that faculties have on this hard battle. But, growing powerful applications isn't simple, thinking about the several implications and the need of integrating multifarious domain names of know-how. This article analyses how contextual know-how acquisition, instructional sports and technical helps can make a contribution to address and save you cyberbullying dangers amongst younger students.*

Keywords: Cyberbulling

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5G Mobile Communication Network's Key Technology

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Abstract: *This article describes what a 5G network is and the direction in which 5G network technology is headed on the basis of information about 5G networks released by various organizations and communication companies. The major focus of this article is an analysis of the prospective wireless technology for the 5G network. It also explains the fundamental ideas, benefits, and difficulties of large-scale antenna technology, ultra-dense networking technology, and the use cases for full-spectrum access technology.*

Keywords: Full spectrum access technology; large scale antenna technology; 5G mobile communication network

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Review Paper on the Light Weight Directory Access Protocol

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Abstract: *External LDAP directories currently use directory servers such as MS Active Directory, OpenLDAP, OpenDJ, etc. to store user, group, and authorization information and then provide that information organization's enterprise applications. This is considered a standard technique. Most organizations prefer external LDAP because the authentication protocol is very simple. The proposed system uses an external Lightweight Directory Access Protocol (LDAP) to manage and authenticate user information inside and outside the organization. This external LDAP directory stores various user information. This information can be later retrieved by other users, depending on their access level. Various applications also use this technology to ensure that authenticated users provide correct authentication data. This data must match the information stored on your LDAP server.*

Keywords: LDAP; client; server; authentication; database; synchronization

I. INTRODUCTION

External LDAP is designed in such a way that it should provide a directory where it can store all the information related to users or groups or permissions which will be the sameas a telephone directory. In the same way that a telephone directory functions, external LDAP is created to offer a directory where all user, group, and permission-related data can be stored. It resembles a file system hierarchy and functions as a database that can store all user-related data in a tree-structured format. External LDAP offers a strong layer of services, including looking for sophisticated filters that demonstrate robustness Entity with characteristics that permit limited data access. Several programs rely on external LDAP for authentication. In External LDAP, processes like queries perform very quickly, and a large, complicated system can use LDAP for a variety of write and update actions. The flexibility is provided through external LDAP.

II. THE LDAP FRAMEWORK

LDAP operations are based on a client-server model. Each LDAP client uses the LDAP protocol running over TCP/IP to retrieve data stored in the directory server database. LDAP clients are either directly controlled by servers installed on LDAP or managed by applications that interact with LDAP. on figs.

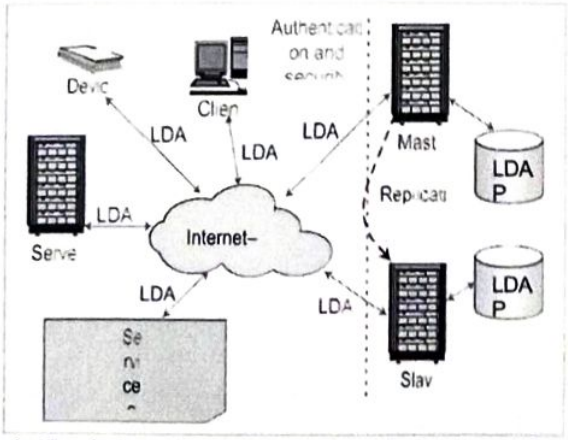

Figure 1. The LDAP framework. Devices and servers use the LDAP protocol to access a stored in LDAP server databases.

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Review Paper on Educational Data Mining

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Abstract: *Education and computer science are both involved in the burgeoning inter-disciplinary research field known as Educational Data Mining (EDM). EDM uses data mining software and ways to extract meaningful and practical data from big educational databases. EDM introduces better and more efficient learning techniques in an effort to enhance educational processes. The term "EDM methods" refers to a group of techniques for creating models and applications. This page provides a thorough literature review on EDM techniques. The essay also covers EDM research problems and trends.This EDM insight aims to provide researchers interested in furthering the field of EDM with useful and valuable information.*

Keywords: Educational Data Mining (EDM); Prediction; Relationship Mining; Structure Discovery are some keywords

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A Review on Smart Agriculture using IoT

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Abstract: *The Internet of Things (IoT) is a mechanism that enables everything to be managed over a computer network. By 2020, there could be over 30 billion connected gadgets, according to estimates. The calls for IoT in agriculture are directed at conventional agricultural businesses to meet rising demand and reduce waste production. IoT in agriculture uses equipment, drones, and sensors. Using IoT technology, a computerized agricultural system is developed to track and manage key farming factors like climate, moisture, soil humidity content, and sunshine. To feel the concepts, the sensors must be placed in the proper locations and orientations. Using clever approaches, it is possible to alter the automated structure's water availability, humidity, and temperature. Numerous approaches should be discussed.*

Keywords: Internet of Things

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Rousseau, L.; Le Sommer, N. Contribution of the Web of Things and the Opportunistic Computing to the Smart

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Review Paper on Radio Sensors

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Abstract: *The creation and widespread use of human-centric applications, such as health monitoring, assisted living, etc., are made possible by recognizing human actions in daily life. To recognize user behaviors at an aggregator, traditional activity recognition approaches frequently are used on physical sensors (camera, accelerometer, gyroscope, etc.) that continuously collect sensor data. Although standard activity identification techniques have been shown to be useful in earlier research, they are not without privacy, energy, and implementation cost issues. Recent years have seen the development of a brand-new activity recognition method that makes use of wireless radio's body attenuation and/or channel fading. Compared to conventional activity recognition techniques, radio-based techniques make use of wireless transceivers as infrastructure and take use of radio communication features to achieve high Accurate recognition, lower energy costs, and protection of user privacy. ZigBee radio-based activity recognition, Wi-Fi radio-based activity recognition, RFID radio-based activity recognition, and other radio-based activity recognition are the four categories into which radio-based approaches are divided in this work. Each category's body of work is introduced and thoroughly reviewed. Then, we contrast a few example techniques to demonstrate their benefits and drawbacks. Finally, we highlight some potential future avenues for this new study field.*

Keywords: Radio, Sensors

I. INTRODUCTION

Based on a preset activity model, activity recognition seeks to accurately identify human daily activities. It is a Widely employed in several human-centric applications, including health and fitness monitoring, assisted living, context-enabled gaming and entertainment, social network Physical sensors (camera, accelerometer, gyroscope, etc.) are frequently used in environments, attached to objects, or worn by people to continuously collect sensor readings to recognize human behaviors. Then, at an aggregator for upper layer applications, the activity kinds are detected based on predefined pattern recognition models.

In this paper, these sensor-based techniques are referred to as classic activity recognition techniques. They fall into three categories: camera sensor-based methods, which use cameras to record video sequences and identify activities using computer vision algorithms. wearable motion sensor-based methods, which use on-body motion sensors (accelerometer, gyroscope, etc. to sense the movements of body parts, such as. The footage may vary depending on the type of camera raking, and sport tracking, ubiquitous computing is a popular area for research.

Physical sensors (camera, accelerometer, gyroscope, etc.) are used to identify human activities. are frequently used in environments to continuously collect sensor readings by being worn or attached to objects. The activity types for upper layer applications are then identified at an aggregator using predefined pattern recognition models.

In this paper, we refer to these sensor-based methods as traditional activity recognition methods. They fall roughly into the following three categories: 1) techniques based on wearable motion sensors , which make use of on-body motion sensors like accelerometers, gyroscopes, and so forth to detect body parts' movements, such as camera sensor-based methods , which make use of the camera to record the video sequence and use computer vision algorithms to identify the activities. The video may be RGB video (for example, depth video (for example, or RGB-D video (for example methods based on environmental variables that make use of physical sensors (such as pressure, proximity, RFID, and so on) to deduce human activities from the condition of discarded items or changes in environmental variables, such as Traditional methods for recognizing activities perform well and are well-liked; however, they necessitate specific sensing modules and raise a number of concerns regarding privacy, energy consumption, and deployment costs.

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Discovering Repetitive Code Changes in Python ML Systems

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Abstract: *Over the years, academics have automated numerous software evolution jobs by taking advantage of the repetitive nature of software modifications. Python-based machine learning systems have become extremely popular, yet they do not profit from these developments. without specifying are the frequent updates made by ML developers, the missed chances for automation by academics, tool and library designers, and the failure of ML developers to understand and adhere to basic coding practises. We conducted the first and most thorough study on code modification trends across a broad corpus of 1000 top-rated ML systems totaling 58 million SLOC in order to close the knowledge gap and enhance the science and tooling in ML software evolution. We repurpose, modify, and enhance cutting-edge repetitive change mining approaches to carry out this investigation. R-CPatMiner, our cutting-edge tool.*
CCS CONCEPTS, Software and its engineering, Software maintenance tools; Computing methodologies, Machine learning

Keywords: Refactoring, Repetition, Code changes, Machine learning, Python

I. INTRODUCTION

The recurring nature of many software updates leads to the formation of change patterns. Machine Learning (ML) developers also undertake repetitive code updates, just like in conventional software systems. Listing 1 illustrates a typical modification where ML

Developers used np.sum, a highly efficient domain-specific abstraction offered by the package NumPy in place of a for loop that sums the list members. This modification is fine-grained because it affects programming paradigms at the sub-method level. It is a fine-grained code change pattern if this modification is repeated in several places or in multiple contributions.

Listing 1: Commit c8b28432 in GitHub repository NifTK/NiftyNet: Replace for loop with NumPy sum for elem in elements:

result += elem + result = np.sum(elements)

For example, code completion in IDEs , automated programme repair [6 , 9 , 50] , API recommendation , type migration library migration , code refactoring , and fine-grained understanding of software evolution are all examples of applications that rely on the repetitiveness of changes. Sadly, most of these are only accessible for Java and do not support Python or machine learning systems.

1. As far as we are aware, we carried out the first and biggest analysis on 28,308 fine-grained code modification patterns on ML systems. We discovered trends in code alterations. We used thematic analysis to group the top 2,500 patterns into 22 themes that are specific to changing patterns, revealing four main trends.
2. To get insight into the causes driving those changes, the existing methods of implementing those changes, and their advice for tool designers, we created and administered a survey to 650 open-source ML developers.
3. To gather fine-grained change patterns used in the evolution history of Python-based ML systems, we created innovative methods.

We used these technologies on 1000 GitHub-hosted open-source projects. We release the tools and information we've gathered to the general public.

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An Analysis of 5G Wireless Networks

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Abstract: *Every major telecom in the globe is attempting to make it even faster because everyone loves speed and, more specifically, fast internet. More and more devices, including smartphones, watches, homes, and cars, need reliable internet connectivity. The fifth generation of technology is here to help us survive in a world where speed is changing every second and where we demand more and more technology. The 5G cellular network architecture and some of the key new technologies that can help the architecture become more human and better meet user demands are primarily the focus of this study. This essay provides information on 5G, with a particular emphasis on huge multiple input multiple output technologies and device-to-device connectivity (D2D).Over the past ten years, wireless networks and mobile communication have made incredible strides. The growth of 3G and 4G wireless networks has been aided by the continuously rising demand for resources, particularly for multimedia data with high quality of service (QoS) needs. However, technological advancements alone cannot provide the right level of enjoyment. Therefore, the concept of 5G networks, which stand for networks beyond 4G, has become urgently necessary. Due to the multiple difficulties that 4G networks faced, including the requirement for larger data rates and capacities, cheaper costs, lower end-to-end latency, andextensive inter device communication, 5G networks have been developed.*

Keywords: Wireless Networks

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A Review on Fast Convergence Scheme in OSPF Network

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Abstract: *In Open Shortest Path First (OSPF) networks, this research suggests a fast-convergence strategy to update metrics without looping. In OSPF networks, packets may occasionally be routed in a loop while metrics are being updated to enhance routing performance. As a result, network resources are inefficient and packets are lost. A traditional strategy gives each router precedence to update measurements in order to prevent transitory loops. When the updated metrics differ from the ones before to the update in terms of both larger and smaller values, it requires two updating methods, each of which contains either bigger or smaller values. Convergence to update all the metrics in the typical method takes time. This paper covers an introduction, benefits, drawbacks, and applications. It also compares OSPF with RIP and discusses its areas, routers, network kinds, and convergence technique.*

Keywords: Open Shortest Path First

I. INTRODUCTION

The Open Shortest Path First (OSPF) routing protocol is used in IP networks to determine which path packets should travel. It operates within a single autonomous system, utilises a link state routing algorithm, and belongs to the class of interior routing protocols(AS). After identifying topological changes, such as link failures, OSPF quickly settles on a new an OSPF network may be organised, or separated, into routing areas. For route flooding on a broadcast domain, OSPF employs multicast addressing.

1.1 Benefits

- Variable Length Subnet Masks are supported by OSPF (VLSM).
- More compact routing tables
- An OSPF network propagates changes fast.
- Due to the open standard, multi-vendor integration is made simpler. Redistribution amongst suppliers is not necessary. If utilising hardware from a different vendor, it can be less expensive.

1.2 Limitations

- OSPF keeps numerous copies of routing information, increasing the amount of memory required.
- OSPF is extremely processor-intensive.
- Using regions, OSPF may be logically divided (this has both positive and negative effects).

1.3 Applications

The first widely used routing protocol that could converge a network in just a few loop-free routing configuration. The shortest path tree for each route is calculated using the shortest path first algorithm, a Dijkstra's algorithm-based method. To streamline management and improve traffic and resource usage,
the kind that is more typical of ISP networks than business networks. Although there have been certain historical accidents that have made IS-IS the chosen IGP for ISPs, ISPs may now decide to employ the characteristics of the more effective OSPF implementations after carefully weighing the advantages and disadvantages of IS-IS in service provider contexts.
As previously indicated, OSPF can offer superior load-sharing on external lines compared to other IGPs. Other routers

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Review Paper on Data Mining Techniques and Applications

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Abstract: *Extraction of hidden and valuable patterns and information from data is known as data mining. A new technique called data mining aids firms in making proactive, knowledge-driven decisions by being able to forecast future trends and behaviors. The purpose of this study is to demonstrate the data mining process and how it can assist decision-makers in reaching better conclusions. Data mining is actually very beneficial for any firm that has a large volume of data. Data mining speeds up the performance of ordinary databases. Due to the wise choices made with the use of data mining, they also aid in boosting profits. This essay demonstrates the many procedures involved in data mining and how they can be applied by different data.*

Keywords: Data Mining

I. INTRODUCTION

Data mining is the process of obtaining accurate, previously undiscovered, and useful information from enormous sets of data. Making important business decisions using the information that has been collected from the data is the goal of data mining. In order to extract meaningful business information from a big volume of data, data mining assists end users. This expression is frequently used to refer to any type of extensive data processing. The outputs of the mining process ought to be reliable, original, practical, and clear. Exploratory data analysis, a subfield of statistics, and knowledge discovery and machine learning, a subfield of artificial intelligence, are all related to data mining. In the first half of this essay, data mining is briefly introduced. The second section provides examples of the data mining method, and the third portion examines several data mining methods. The fourth portion focuses on various Data Mining application areas, and the fifth section examines the conclusion and potential future applications.

II. REVIEW OF LITERATURE

KDD was defined as "a nontrivial process of recognising legitimate, unique, potentially helpful, and finally intelligible patterns in data" by Fayyad et al. (1996) in their work "From data mining to knowledge discovery in databases." Any collection of true facts that are available in an electronic format were used to expand the definition data. Patterns are models that are stated in a language as a subset of data. The patterns must be true and able to be modeled for any new data in order to be valid. The process consists of several processes, ranging from data preparation through knowledge augmentation, all of which are repeated until the desired results are obtained. Nontrivial suggests that, in order to distinguish it from the conventional computation of values, there should be some form of inference computation. In their study published in 1997[4], Fayyad and Stolorz described According to KDD, mining is just one phase of a broader technique for extracting priceless knowledge from data. This process also uses several additional algorithms. [5] Charles et al1998 In the current modern age, where conventional marketing channels like mass marketing are showing a decline trend, data mining has been advocated as a useful technique for direct marketing in order to boost product marketing. By using data mining, we may identify buying trends from a client list and identify potential buyers. Data mining as a direct marketing tool has proven to be more profitable than conventional mass marketing strategies because it only targets potential customers. In their article "A survey of data mining and knowledge discovery tools," Michael Goebel et al. (1999) presented a broad overview of typical knowledge discovery tasks and several approaches to address these.

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A Review Paper on Big Data Analytics in Mobile Networks

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Abstract: *Mobile cellular networks have evolved into both data producers and data carriers. Big data analytics can enhance the operation of mobile cellular networks while increasing operator income. We present a unified data model based on random matrix theory and machine learning in this study. Following that, we provide an architectural framework for implementing big data analytics in mobile cellular networks. Furthermore, we discuss numerous illustrative cases in mobile cellular networks, such as huge signalling data, big traffic data, big location data, big radio waveforms data, and big heterogeneous data. Finally, we outline many open research problems in big data analytics in mobile cellular networks.*

Keywords: Mobile, Networks, Big Data, Analytics, Networking

I. INTRODUCTION

Recent times have witnessed tremendous advances inwire-less cellular networks. With recent advances of wireless technologies and ever- adding mobile operations, mobile cellular networks have come both creators and carriers of massive data. When geo- locating mobile bias, recording phone calls, and landing mobile operations' conditioning, an enormous quantum of data is generated and carried in mobile cellular networks. Historically, the massive data in mobile cellular networks hasn't been paid important amenities. With data constantly accumulated in the database and the technologies of big data analytics fleetly developed, the great value slashed behind data has gradationally been revealed. It's desirable to make good use of this precious resource, big data, to ameliorate the performance of mobile cellular networks and maximize the profit of drivers. Traditional data analytics shows its in- adequateness when encountered with the big cellular data. First, traditional data analytics deals with structured data

II. LITERATURE SURVEY

In software-defined 5G mobile wireless networks, wireless network virtualization and information- centric networking (ICN) are two interesting solutions. These two technologies have always been treated separately. We demonstrate in this study how combining wireless network virtualization with ICN approaches may greatly increase end-to-end network performance. We propose an information-centric wireless network virtualization framework for integrating wireless networks in particular.

virtualization with ICN. We develop the crucial factors of this armature radio diapason resource, wireless network structure, virtual coffers(including content- position slicing, network- position slicing, and flow- position slicing), and information- centric wireless virtualization regulator. also we formulate the virtual resource allocation and in- network hiding strategy as an optimization problem, considering the gain of not only virtualization but also in- network hiding in our proposed information- centric wireless network virtualization armature. The attained simulation results show that our proposed information- centric wireless network virtualization armature and the affiliated schemes significantly outperform the other being schemes. Another new technology, called information- centric networking(ICN), has attracted great interests from both academia and assiduity(5). The introductory principle behind ICN is to promote the content to a first- class citizen in the network. A significant advantage of ICN is to give native support for scalable and largely effective content reclamation while enabling the enhanced capability for mobility and security. ICN can realize in- network hiding to reduce the duplicate content transmission in networks. The ICN- grounded air hiding fashion has been honored as one of the promising- seeker ways to efficiently apply the SDN- grounded 5G wireless networks(6). A number of exploration sweats have been devoted to ICN, including the EU funded design Publish- Subscribe Internet

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Review Paper on a Study on SQL Attacks and Defense

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Abstract: *In today's era, every person is utilizing websites and so many different web applications for online administrations, for example booking of railway tickets, movie ticketing, shopping, communication, and so forth. These websites consist sensitive and confidential information. With the linearity of web applications in the last decade, the unconstructive crash of security has also matured either. SQL injection attack is one such attack where the anonymous user can append SQL code to the input query. This research paper starts with developing criteria for a systematic literature review based on research questions, quality assessment, and data samples. The paper presents various SQL injection techniques with their intended attacks. Further studies explore different techniques to prevent attacks. Existing vulnerabilities of Web systems threaten the regular work of information systems. The most common Web system vulnerability is SQL injection. There are known approaches to protect Web applications against SQL injection attacks in the article. To improve the Web software security is developed defense mechanism that protects Web resources from SQL injection performing. To implement this software it is used PHP, JavaScript, and formal language theory known as regular expressions. As a result, it is received a software tool that allows protecting Web software from SQL injection vulnerability. The developed software tool allows users to protect their Web applications from an attack using SQL.*

Keywords: SQL Attacks.

I. INTRODUCTION

SQL injection is a code injection technique used to attack data-driven applications, in which malicious SQL statements are inserted into an entry field for execution (e.g. to dump the database contents to the attacker).SQL injection must exploit a security vulnerability in an application's software, for example, when user input is either incorrectly filtered for string literal escape characters embedded in SQL statements or user input is not strongly typed and unexpectedly executed. SQL injection is mostly known as an attack vector for websites but can be used to attack any type of SQL database.

SQL injection attacks allow attackers to spoof identity, tamper with existing data, cause repudiation issues such as voiding transactions or changing balances, allow the complete disclosure of all data on the system, destroy the data or make it otherwise unavailable, and become administrators of the database server.

In a 2012 study, it was observed that the average web application received four attack campaigns per month, and retailers received twice as many attacks as other industries.

Since the dawn of web programming, companies started putting their databases on the Internet for public access. These databases sometimes contained confidential and valuable information which were good targets of attack. SQL injection attacks (SQLIA) are among the most common database attacks which try to access the sensitive data directly. They work by injecting malicious SQL codes through the web application and cause unexpected behavior from the database. The 2002 Computer Security Institute and FBI revealed that on a yearly basis, over half of all database experience at least one security breach and an average episode results in close to $4 million in losses [4]. We have presented six SQL injection prevention techniques in this paper which will cover a wide range of SQL injection attacks. A combination of these prevention techniques may lead to a more secure and reliable database system.

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Review Paper on 5G Network

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Abstract: *Everyone loves speed and besides speedy internet so it is not surprising that all the major telecommunications companies in the world is working to make it even faster. Smartphones, watches, homes and cars require more and more stable internet connections. In order to survive in the world where in every second the speed changes and where we ask for more and more technology, here comes the fifth generation technology: 5G. In future any world beyond 4Gsome of the main goals to be achived are increased capacity, improved data rate, decreased latency, and quality service. To meet these demands, large-scale improvements in the cellular architecture of 5G network is required for This paper basically emphasizes the 5 th generation i.e. 5G mobile network architecture and some of the emerging essential technologies that can provefruitful in humanizing the architecture and meeting the demands of users. This paper contents with 5g related details with the prime focus on the massive technology of multiple input and multiple output and device-to-device communication (D2D). 5G with public credible cellular network architecture is being proposed with the guideline taken from the internet books and by the detailed study of the topic.*

Keywords: 5G.

I. INTRODUCTION

The " G" in 5G stands for " generation." and 5 is the progress indicated by a number. Wirelesscellular technology technically entered with 1G and in the early 1990s it was upgraded to 2G when companies allowed people to shoot textbook dispatches between two mobile bias that fascinated the world. Ultimately the world passed on to 3G, which gave the freedom to make phone calls, shoot textbook dispatches, and suds the internet at excellent speed. 4G bettered numerous of the capabilities that were made it's only with the third generation of wireless. Person could suds the web at lightning speed, shoot textbook dispatches, and can make phone calls and they could indeed download and upload large videotape lines easily and without long waiting. Also companies added LTE for a " long term elaboration," to 4G connectivity. LTE came the fastest and most harmonious variety of 4G and it started contending with the technologies like WiMax in the request. Both technologies redounded in analogous results, but it was vital to creating a standard for everyone to use. I only did LTE which, by making 4G technology indeed briskly and this laid the ground work base of 5G. 5G network will make it easier for people to download and upload Ultra HD and 3D videotape. So we can to say that there's a advancement in the speed of life. It would be fascinating to imagine upgrading your data connection from a vicinity sock to a dears sock. The difference will be conspicuous and worth perceptible. The coming generation mobile network alliances defines the followingpre-requisite for 5G networks

- Increased Data rates
- 1 Gb per alternate contemporaneously to numerous workers on the same office bottom
- SPECTRAL effectiveness more enhanced as compared to 4G
- Coverage speed
- Signaling effectiveness enhanced
- Heritage reduced significantly compared to LTE

A new generation of mobile devices has appeared roughly every 10 years from the introduction of the first 1G system, Scandinavian mobile phone in 1982. The first "2G" system commercially appeared in 1992, and the 3G system was started in the year 2001. Fully compatible 4G systems With IMT Advanced, it was first made identical in 2012. The development of 2G (GSM) and 3G (IMT-2000 and (UMTS) took an extended time of about 10 years the official initiative of R&D projects, and thus the development of 4G systems started in 2001 or 2002. The evolution of wireless

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Survey on Blockchain Technology

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Abstract: *The digital world has brought efficiencies, innovative new products and strong relationships with customers worldwide through the effective use of mobile devices, IoT (Internet of Things), social media, analytics, and cloud technologies to generate models for better decisions. Blockchain was recently introduced and revolutionized the digital world by bringing a new perspective on the security, resilience, and efficiency of systems. Although originally popularized by bitcoin, blockchain is much more than oneBase for cryptocurrency. It provides a secure way to share any kind of good, service or transaction. In addition, blockchain offers lower business costs with a trusted contract that is monitored without third-party intervention, which may not add direct value. It enables smart contracts, commitments and agreements with strong, inherent cyber security features. This paper contains a complete description of blockchain technology..*

Keywords: Blockchain, security, cryptocurrency, decentralization.

I. INTRODUCTION

The conception of a secure blockchain is not a new idea. It was proposed by Stuart Haber et al. 1991 as a means of digitally time-stamping electronic documents to protect against manipulation. However, recently it has gained popularity. Blockchain technology for storing offers of a cryptocurrency called "Bitcoin". The concepts of bitcoin and blockchain were first proposed in 2008 by someone using the pseudonym Satoshi Nakamoto, who described how cryptology and an open distributed ledger could be combined in a digital currency application (Nakamoto 2008). Initially, Bitcoin's extremely high volatility and many countries' attitudes towards its complexity somewhat limited its development, but the advantages of blockchain, which is Bitcoin's underlying technology, attracted increasing attention. Blockchain benefits include distributed ledger, decentralization, information transparency, tamper-proof construction, and openness. The development of the blockchain was an ongoing process. Blockchain is currently limited to Blockchain 1.0, 2.0, and 3.0 depending on your applications. Despite the growth, many questions surround the widespread adoption of Bitcoin. However, the underlying framework has drawn attention with application outside the financial world.

Blockchain innovation can tackle a few issues in each area of the country, which incorporates line control, government Identification, protection, transportation, land, publicizing, waste management, energy, tourism, and numerous others. It comprises of different algorithms, put away in the record, utilized in identifying blunders, additionally observes where the block blunder has happened. Numerous nations, for example, Estonia have carried out blockchain in a few areas and observed amazing outcomes inclining toward their development.

There are different types of Blockchains that supported their operation and distinct attributes: ie, Public blockchains Private blockchains, and Consortium blockchains. Public blockchains are truly localized and permit anyone to hitch the network and interact in managing them. Whereas in private blockchains solely invited individuals from one association will join the network and manage them. The institute Blockchain also appertained to as "Federated Blockchain" is between public and private Blockchain, in terms of permissions and operation. Invited people from multiple associations are allowed to join this Blockchain.

At the financial level, blockchain can fabricate a solid trust establishment for the two parties who don't know anything about exchanges with equivalent and trustworthy. In rundown, blockchain is an innovative coordination arrangement of various existing advancements that incorporates cryptography innovation, appropriated consistency protocol, network

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Robotic IP-Based Surveillance using IOT

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Abstract: *In contemporary world, the word "surveillance" has become increasingly important. Various articles with respect to expanding crime percentage has being eminent day to day, yet can't follow out because of absence of confirmations. . In such a circumstance, one must accompany extreme attention to detail and got with oneself, which can be given by Surveillance. Observation is only checking from a good ways through devices made by hardware, like even robots. IOT (web of things) stage associates these devices so clients can perform tasks with contraptions living anyplace on Earth. This canny security robot utilizing IOT will kept at central issues of home to really take a look at about the presence of any interloper. The camera fixed with robot gives the image of gatecrasher in a 'live-stream' strategy. The Node MCU joined GSM module tells about the presence of gatecrasher when PIR sensor connected to robot distinguishes a human and the bell at the client end begins sound in this way cautioning him against the gatecrasher. Every one of these are controlled, observed and directed under Raspberry pi board. With the given website page that connected to an IP address, one can work this robot by means of portable associated with Internet, which is a critical resource.*

Keywords: Raspberry Pi, esp8266, GSM module, PIRsensor, buzzer, webpage, IP address, Internet.

I. INTRODUCTION

Regarding security concerns, the term "surveillance" has become a very important and necessary part of everyone's life. We are learning about the news that the crime rate is continuing to rise daily. In order to implement surveillance, the main goals are to create high-level technology that operates at a rapid pace and to create a very sophisticated capability for controlling robots. To make them a reality, advanced control algorithms can be used to design a robot that is quick, accurate, and more intelligent. These technical advancements are also necessary to achieve high performance. Robots were previously managed using wired networks. They have been developed recently to make them more user-friendly, allowing user command to function. In order to meet the standards that we can use it in android as a multimedia control system for construction- related computer science Robotics operations and applications, as well as computer systems for controlling them. The accessibility and availability of low-cost, circuit board-style computers like the Raspberry pi have made it possible to build a finite number of low-cost automated and controlled systems. The intelligent robot employing IOT that is suggested in this study works in conjunction with the use of straightforward tools, wireless communication, and connectivity with the robot, as well as an effective control system and sophisticated controlled algorithm. Robotics is a discipline of engineering that entails developing a fine prototype, producing that prototype, and assigning an operation that may carry out an individual's or a group's activity. Even with basic mechanisms and parts, installation robotics using a robot that gets computerized or manually or automatically managed. The number one goal of this project is to reap a clever surveillance ecosystem in opposition to fake situations that happens. It is an interactive robotic with duplex communication technically i.e. it could talk with human, it can carry out the venture given through the consumer and informs the user about the appearance of intruders, if any. Robot is a gadget that was been assigned for doing particular task. It's far primarily based on program i.e. software program and hardware. Nowadays industry turning into present day and that they use automatic technology to carry out risky jobs. That is helpful to minimize lifestyles threat of human and animals. For domestic security in fashionable, we use digital camera, that's set up constant location which include doors, windows, partitions and ceilings also, however consists of some defects consisting of price efficiency, rigidness, infrastructure, being at a set role and robustness. Therefore, changing robotic with camera covers these defects at a most volume and performance. This robotic is manipulate by means of using laptop, Android cell or a laptop through internet site. The camera captures video and sends it lower back to controller's

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Review on Human Computer Interface

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Abstract: *Human-Computer Interaction (HCI) is the design and implementation of interactive computing systems that users can interact with. It includes desktop systems as well as embedded systems in different devices. Success of a technology simply results from the easiness with which the user can interact with it. If the interface is poor or hard to use then the user will simply ignore the product or the technology. A simple and easy way to use a system doesn't mean that a simple technology is behind such a system, on the contrary, a well advanced technology needed to build it. The most important concepts in HCI are functionality and usability. Services provided usually by a system are called functions. Usability is when a user utilizes the system's functions easily, properly and clearly. Functionality and usability may vary from one system to another. A system is said to be successful if there is a balance between both functionality and usability. In this paper we will look at existing HCI and the recent advances in the field.*

Keywords: Human-Computer Interaction.

I. INTRODUCTION

Humans and computers communicate in a variety of ways, and the interface between the two is critical to making this connection possible. Human–machine interaction (HMI), man–machine interaction (MMI), and computer–human interaction are all terms used to describe HCI (CHI). Today's graphical user interfaces (GUIs) are found in desktop applications, web browsers, mobile computers, and computer kiosks. Speech recognition and synthesizing systems use voice user interfaces (VUI), and evolving multi-modal and Graphical user interfaces (GUI) let humans to interact with embodied character agents in ways that previous interface paradigms cannot. The growth in human–computer interaction field has led to an increase in the quality of interaction, and resulted in many new areas of research beyond. Instead of designing regular interfaces, the different research branches focus on the concepts of multimodality over unimodality, intelligent adaptive interfaces over command/action based ones, and active interfaces over passive interfaces. The Association for Computing Machinery (ACM) defines human–computer interaction as "a discipline that is concerned with the design, evaluation, and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them". An important facet of HCI is user satisfaction (or End-User Computing Satisfaction). It goes on to say: "Because human–computer interaction studies a human and a machine in communication, it draws from supporting knowledge on both the machine and the human side. On the machine side, techniques in computer graphics, operating systems, programming languages, and development environments are relevant. On the human side, communication theory, graphic and industrial design disciplines, linguistics, social sciences, cognitive psychology, social psychology, and human factors such as computer user satisfaction are relevant. And, of course, engineering and design methods are relevant." Due to the multidisciplinary nature of HCI, people with different backgrounds contribute to its success. Poorly designed human-machine interfaces can lead to many unexpected problems. A classic example is the Three Mile Island accident, a nuclear meltdown accident, where investigations concluded that the design of the human-machine interface was at least partly responsible for the disaster. Similarly, accidents in aviation have resulted from manufacturers' decisions to use non- standard flight instruments or throttle quadrant layouts: even though the new designs were proposed to be superior in basic human-machine interaction, pilots had already ingrained the "standard" layout. Thus, the conceptually good idea had unintended results. Human-computer interaction (HCI) has been considered as computer-related cross-disciplinary domain that is strongly associated with design for information, interaction, and communication and technology. Researchers in HCI are frequently involved in designing research prototypes based on theories from the cognitive and social sciences, anthropology, and sociology in addition to computer science. They equally focus on HCI research and the analytic

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A Study on Li-Fi Technology and its Various Applications

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I. INTRODUCTION

Li-Fi (Light Fidelity) is a high speed, wireless communication using visible light. It is categorized under optical wireless communications. Transmission of data takes place through LED bulbs whose intensity varies.
The word Li-Fi was first coined by Harald Haas at the University of Edinburgh. This technology has vast applications where the use of Wi-Fi is limited or banned. It also reduces the health effects of using electromagnetic waves. Unless light is seen, data can't be hacked and so data transmission is secure. Data transmission is in terms of Gbps.

II. LITERATURE SURVEY

Li-Fi or Light fidelity is another wireless communication technology based on Visible Light Communication technique. It uses LED sources as a transmitter of data over the visible light spectrum, IR and UV. It is a new and efficient alternate of Wi-Fi as it serves higher bandwidth.
Many companies have taken up projects on Li-Fi technology. Companies like Phillips, Samsung, Signify, LVX etc. are currently working on this technology. According to a recent study, the maximum number of patents on Li-Fi has been submitted by Samsung. Oledcomm has been working on to merge big data and Li-Fi together to simplify tasks.
Oledcomm has developed a ceiling lamp- Li-Fi Max which offered internet connectivity to 16 users at the same time at a speed of about 100Mbps.
Pure Li-fi – the creator of Li-Fi has been working with Apple Inc. to introduce Li-Fi in iPhones. They have also introduced Li-Fi-X, a portable hotspot and dongle to enable internet browsing and connectivity in a confined space using Li-Fi.

III. HOW LI-FI WORKS?

- As light is present everywhere it will be useful if we use it to transmit data. Li-fi can be used exactly for this purpose.
- Digital data transmission takes place using LED bulbs with varying intensity controlled by varying currents.

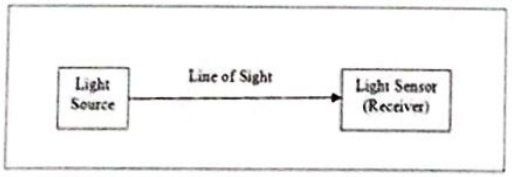

Fig 1: Data communication using Li-Fi

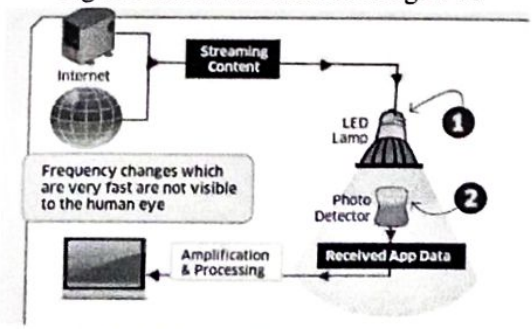

Fig 2: Working of Li- Fi technology

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A Review on Cyber Security

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"Cybersecurity, within the context of road vehicles, is the protection of automotive electronic systems, communication networks, control algorithms, software, users, and underlying data from malicious attacks, damage, unauthorized access, or manipulation."

Abstract: *Virtual simulation experiment teaching is an important content of higher education information construction and experimental teaching demonstration centre construction, and is the product of the deep integration of discipline and information technology. At present, traditional crimes in China are gradually shifting to the Internet, and cybercrimes are frequently and frequently occurring, seriously endangering national security, social order and people's interests. The forging of a team of high-quality professionals in network security and law enforcement is the inevitable path to effectively crack down on network crimes and realise the comprehensive governance of network crimes, and also provides a new examination question for the teaching of network security law enforcement. In view of the network security law enforcement routine practice teaching cannot cover all types of the experiment, especially some reach or irreversible operations (such as electronic data on-site inspection, etc.), and need high cost, large comprehensive experiments training (such as a variety of types involved network crimes probing experiment, etc.), virtual simulation experiment teaching has become an important method in the teaching of network security law enforcement Therefore, combining with the characteristics of network security law enforcement major, exploring the establishment of virtual simulation experimental teaching platform for network security law enforcement plays a crucial role in the teaching of network security law enforcement experiment and practical training.*

Keywords: Cyber Security.

I. INTRODUCTION

With these first regulatory programs for cybersecurity and software updates in the automotive sector, the regulator will require automotive OEMs – the responsible parties for vehicle homologation – to demonstrate adequate cyber-risk management practises throughout development, production, and postproduction of their vehicles, including the ability to fix software security issues after the sale of vehicles and over the air. In this context and based on our extensive research and analyses, we offer a perspective on three key questions for the automotive industry:

- Engine power, fuel consumption, driving comfort, and the precision of a car's chassis and body are just a few dimensions that define the quality of a car. With more and more core vehicle functions enabled by software running on specialised hardware chips, the security of those components – cybersecurity – will become yet another dimension of quality in the automotive industry, in much the same way that physical safety is a major concern and quality parameter today.
- This measure of quality is underpinned by regulatory activities that impose minimum standards for managing cybersecurity risks and require OEMs to have the ability to fix security issues via software updates. Cybersecurity will become non-negotiable for the industry. In order to excel at cybersecurity, new processes, skills, and working practices along the automotive value chain will be required. This includes identifying cyber risks, designing secure software and hardware architectures, and developing and testing secure code and chips, ensuring that issues can be fixed – even years later – via software updates.
- The rising need for cybersecurity will trigger investments over the next few years. We expect to see the market

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ALOHA Protocol

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Abstract: *The throughput of a 2-D optical code-division multiple-access (OCDMA)/unslotted ALOHA (U-ALOHA)/channel load sensing protocol network using an optical hard limiter and channel code was examined. This approach presupposed a constant message length and a single user class. However, multimedia traffic with variable frequency is the current and future focus of networks. message length and the distinction between real-time and non-real-time user classes. In this essay, we propose a 2-D OCDMA/U-ALOHA network with access control and two classes of variable users. message size We consider the number of fixed-length packets in a message to be geometrically distributed and carry out access control by allocating two user classes with various access probabilities of obtaining permission. The numerical results demonstrate the high priority user class, such as real-time data traffic) can sustain maximum. A possible alternative to local area networks (LANs) and broadband optical access networks for greater capacity in response to the rapidly increasing volume of multimedia data traffic, the suggested network protocol has the potential to achieve 100 Gbps. The scalability and stability of Lora networks have faced additional hurdles as a result of the exponential development of IoT devices. The Lora network's collision issue is major one right now. This is due to the fact that LoRa WAN's MAC layer protocol is mostly based on the Pure ALOHA is too-simple a mechanism to handle collisions. The flexible frame spacing The pure ALOHA algorithm is where ALOHA is optimised, and it can successfully minimise collisions.*

Keywords: ALOHA algorithm

I. INTRODUCTION

Larger-capacity local area networks (LANs) and broadband access networks are urgently needed to accommodate the massive quantity of developing multimedia data traffic as a result of the corporate sector's explosive development in demand for broadband services. An alternative to meet the needs is the gigabit passive optical network (PON). However, it necessitates network synchronization and raises the price of network deployment. Due to its asynchronous transmissions, which make network deployment simple, and its random access nature, which is adaptable to integrating heterogeneous data traffic, optical code-division multiple-access (also known as optical CDMA, OCDMA) is a promising replacement for LANs and broadband optical access networks. This paper's primary goal is to provide an energy-efficient, high-throughput, scalable MAC protocol for M2M communication. ALOHA-NOMA is a strong candidate for a MAC protocol that can be used for low complexity IoT devices because of its simplicity, superior throughput provided by non-orthogonal multiple access (NOMA) [4], and capacity to resolve collisions by employing successive interference cancellation (SIC) receivers. It is important to note that NOMA can get beyond ALOHA's fundamental drawbacks, which are its limited throughput and high collision rate. Wireless communication is used in electronic shelf labels (ESL) to constantly change the material on shelving displays. In place of traditional paper price tags, shops now use electronic shelf labels to display product prices, sales specials, and other information. They usually have a liquid crystal display or an e-paper display that shows the statistics, and they are affixed to the front edge of a shop shelf. They adhere to the dynamic pricing model to enable quickly fluctuating rates and synchronize the cost of the product across the nation, region, and city. They are appropriate for grocery stores, major utility store chains, and mega marts, among other types of retail establishments. They make tracking products more convenient. Promotions and adverts are simple to manage, and clients are drawn to the vivid display.

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The Hybrid Wireless Communication Link

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Abstract: *The paper describes the development of a wirelessly hybrid data connection that employs two channels of transmission using radio waves and optical radiation (FSO, free space optics) (RF - Radio Frequency). Its data range was established under various operating settings based on several factors (such as diode lasers, optics aperture, photodetector phototransistor, signal bandwidth, and beam divergence) of the connection components (visibility and turbulence). The Military Communication Institute in Poland conducted the first testing on the link prototype (TRL 6). The findings show that the employment of an FSO/RF information system may boost connection availability, data transmission security, and immunity to malicious interference. Given the characteristics of this technology, it was found to have a significant degree of military application potential.*

Keywords: Wireless Communications, Quantum Cascade Lasers, Free Space Optics, Data Transmission Security, Hybrid Data Link;

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True-Data Testbed for 5G/B5G Intelligent Network

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Abstract: *Future mobile communications will shift from supporting the internet of everything (IoE) to facilitating interpersonal communications beyond fifth-generation (B5G) and sixth-generation (6G) mobile communications. Intelligent communications with full integration of big data and artificial intelligence (AI) will play a key role in improving network efficiency and providing high-quality service. The AI-powered mobile communications require vast volumes of data to be collected from a real network environment for systematic testing and verification because it is a rapidly growing paradigm. As a result, we create the first true-data testbed for 5G/B5G intelligent networks (TTIN), which includes on-site experimental 5G/B5G networks, data collection and storage, and an AI engine and network optimization. True network data collecting, storage, standardisation, and analysis are possible in the TTIN, allowing for data-driven networks and system-level online verification of important B5G/6G technologies.*

Keywords: True-Data Testbed; Wireless Communication Networks; Artificial Intelligence (AI); Big Data; Internet of Everything (IoE).

I. INTRODUCTION

The widespread adoption and commercial use of fifth-generation (5G) mobile communication are currently accelerating. In the meantime, since 2018, a number of upcoming technologies, such as terahertz communication, six-generation (6G), and beyond 5G (B5G), have been considered and explored. Artificial intelligence (AI) has been envisioned as having satellite-territorial-integrated networks as potential key enablers[1--3]. Future B5G and 6G are anticipated to offer not only a noticeably higher network intelligence than current 5G, but also a wider frequency range, higher transmission rate, shorter delay, and wider coverage. In order for the B5G and 6G to be significantly more intelligent in their self-learning, self-optimizing, and self-managing capacities, data-driven AI technologies will play a crucial role. Numerous data-driven advancements in network management, optimization, and automation have been made during the last several years, significantly raising the degree of intelligence of wireless communication networks.

II. SYSTEM ARCHITECTURE

We have created the first true-data testbed in the world for real-time large datagathering, storage, analysis, and intelligent closed-loop control in order to enable true-data experimentation with techniques and schemes for intelligent mobile networks. the TTIN is made up of on-site 5G/B5G experimental networks, a data warehouse and data collecting system, and an AI engine and network optimization system. Commercially available instruments and equipment have been used in the TTIN. The NE20E-S routers, the Huawei AAU5613, the Huawei BBU5900, the Huawei NE20E-S servers, the Huawei disc arrays, and the Huawei optical transceivers are the main components of the on-site experimental 5G/B5G networks. Additionally, the data collection platform and the wireless big data platform, respectively, utilise commercial servers and the industrial Hadoop platform. The robust computer cluster of the intelligent computing platform is made up of Xeon servers with Tesla V100 GPUs and NVIDIA T4 GPUs. The unified network management platform uses Huawei's U2020 network management technology to provide sophisticated network management capabilities. Additionally, other terminal devices such as the Dingli pilot RCU, Huawei Mate30 smartphones, DH X1100 unmanned aerial aircraft, commercial robots, and automobiles are also available. Following a quick introduction of each essential module, Section 3 will provide further information.

III. 5G/B5G ON-SITE EXPERIMENTAL NETWORKS

The experimental 5G/B5G network uses the 3GPP R15 SA architecture, which includes a full set of core networks, transmission networks, macro base stations, active antenna units (AAUs), small stations, base band units (BBUs), and a

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Review Paper on Standard Ethernet

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Abstract: *Automation and other real-time applications that need systems with precise time synchronisation and high data throughput now depend on reliable connectivity. Recent developments have made Real-time Ethernet (RTE) protocols the industry standard for automation. For accurate motor control applications, EtherCAT is a real-time industrial field bus technology that offers exceptional performance at a reasonable price. Beckhoff Automation invented and first developed EtherCAT. The IEC has established the EtherCAT protocol as standard IEC61158. EtherCAT is capable of addressing the needs of numerous real-time applications as well as both hard and soft real-time systems in automation technology.*

Keywords: Synchronization; High-speed; Topological-flexibility; less-jitter; less cycle-time.

I. INTRODUCTION

EtherCAT's adoption rate is rising as a result of its fast data transfer speeds, superior performance, and affordable price. Using EtherCAT technology, it is possible to get around the constraints of conventional Ethernet [24]. The Ethernet packet is not received, understood, or copied as process data at every connection; rather, the data is processed as it is needed. This implies that the new EtherCAT packet should begin to transmit as soon as it can after the incoming data packet has been completely received. Each datagram in the frame that the EtherCAT master sends out comprises the process information specific to each slave.

The Ethernet family of networking technologies was initially created for the deployment of wired LAN networks. The first two tiers of the OSI reference model are covered by the networking technology known as Ethernet. Equipment that is affordable, simple to install, and to configure is what gives Ethernet its dominance. Since its launch approximately 40 years ago, Token Ring, FDDI, and Emulated LAN were among the (at the time) new and emerging technologies that were frequently cited as Ethernet's replacements.

II. IEEE 802.3 STANDARD ANDETHERNET EVOLUTION

Since its launch approximately 40 years ago, Token Ring, FDDI, and Emulated LAN were among the (at the time) new and emerging technologies that were frequently cited as Ethernet's replacements. Whatever the case, Ethernet has not only survived but has also undergone tremendous development and undergone a number of new implementations, making it the most extensively used wired networking technology at now.

All Ethernet upgrades had to maintain the CSMA/CD (Carrier Sense Multiple Access / Collision Detection)-based 802.3 media access controller (MACability)'s to handle 802.3 Ethernet frame format.

Since 1985, the IEEE 802.3 standard has included additional media possibilities, new operation speeds, and new functionalities. For instance:

- IEEE 802.3x specified full duplex operation and a flow control protocol, while
- IEEE 802.3u included 100 Mb/s operation, also known as Fast Ethernet.
- IEEE Std. 802.3ae added 10 Gbit/s operation (commonly known as 10 Gigabit Ethernet),
- IEEE 802.3ah specified access network Ethernet, and
- IEEE 802.3z added 1000 Mb/s operation (also known as Gigabit Ethernet) (also called Ethernet in the First Mile).

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Error Correction and Error Detection in Network

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Abstract: *Errors manipulation explains how errors are handled and determined using the network, specifically on the data connection layer. We offer a top level view of error manipulate in this paintings, including mistakes detection and mistakes restore. Information hyperlink layer mistakes manipulate takes place there. We specially communicate approximately the varieties of error detection algorithms used to locate faults and the way to repair them so the receiver can get the real statistics. The essential requirement of each communique system in the realm of wi-fi conversation these days is the potential to ship and receive errorless statistics over any noisy channel. The assets of noise and interference have also grown as a result of the development in records transmission. Engineers have made several tries to address the demand for more dependable and effective strategies for detecting and correcting errors within the acquired statistics. Various techniques are hired to pick out and attach information transmission faults. This evaluation paper affordan a extensive range of error detection and correction strategies thathave been around for a while. More than one tend error in SRAM memory rise whilst the technology scaled down, inflicting unmarried cellular and more than one cellular upsets to emerge. Blunders-correcting codes, such the preliminary approach of the (7,four) hamming code, wherein 7 stands for the overall code word, four stands for statistics bits, and 3 stands for parity bits, had been positioned into use and their encoding and decoding processes have been examined. The main drawback of this hamming code is that it's far handiest suitable forsingle-bitt errors detection and rectification.*

Keywords: Error Correction

I. INTRODUCTION

Errors correction and detection (EDAC)is the use of in information concept and coding idea with software in laptop technology and telecommunications that allows reliable shipping of digital data thru volatile communication links .Because channel noise affects many communications channels,an error can be despatched from source to receiver .Such flaws can be locate through the use of blunders detection techniques , and that i many situation,error restoration make it possible to recreate the authentic facts. There are numerous elements, like noise etc., that contributeon to information.

That corruption at some stage in transmission. For the reason that they're blind to real hardware information processing, the top layers of the network function consistent with a few generalized community architectures. As a result, the better layers assume errors-free machine conversation. Most applications would no longer function as anticipated if they were given erroneous information. Packages like voice and video may not be considerably impacted or even with some problems still work properly.

The final layer of the TCP/IP model interprets and can provide offerings to the community layer (layer three), the use of the information as a movement of bits, and transfers them into services of the bodily layer (layer 1), appearing as the second layer inside the TCP/IP model, records hyperlink layer bodily layer [1]. One of the signals is directed onathe receiver. Inside the interim, errors detection and correction codes are uncovered to those bits offerings that are provided by the records connection layer as they transit from one hop to another. Any connection that transmits interference, along with an electrical connection the based totally on a community, is thought to have reference or thermal noise channels that are cha challenging go unpredictability: one used for visitors, the opposite for exchange [5, 6, 7]. While the usage of study-write operations inside the reminiscence section, hardware failure, noisy channels or each, EDAC

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Robotic IP-Based Surveillance using IOT

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Abstract: *In contemporary world, the word "surveillance" has become increasingly important. Various articles with respect to expanding crime percentage has being eminent day to day, yet can't follow out because of absence of confirmations. . In such a circumstance, one must accompany extreme attention to detail and got with oneself, which can be given by Surveillance. Observation is only checking from a good ways through devices made by hardware, like even robots. IOT (web of things) stage associates these devices so clients can perform tasks with contraptions living anyplace on Earth. This canny security robot utilizing IOT will kept at central issues of home to really take a look at about the presence of any interloper. The camera fixed with robot gives the image of gatecrasher in a 'live-stream' strategy. The Node MCU joined GSM module tells about the presence of gatecrasher when PIR sensor connected to robot distinguishes a human and the bell at the client end begins sound in this way cautioning him against the gatecrasher. Every one of these are controlled, observed and directed under Raspberry pi board. With the given website page that connected to an IP address, one can work this robot by means of portable associated with Internet, which is a critical resource.*

Keywords: Raspberry Pi, esp8266, GSM module, PIRsensor, buzzer, webpage, IP address, Internet.

I. INTRODUCTION

Regarding security concerns, the term "surveillance" has become a very important and necessary part of everyone's life. We are learning about the news that the crime rate is continuing to rise daily. In order to implement surveillance, the main goals are to create high-level technology that operates at a rapid pace and to create a very sophisticated capability for controlling robots. To make them a reality, advanced control algorithms can be used to design a robot that is quick, accurate, and more intelligent. These technical advancements are also necessary to achieve high performance. Robots were previously managed using wired networks. They have been developed recently to make them more user-friendly, allowing user command to function. In order to meet the standards that we can use it in android as a multimedia control system for construction- related computer science Robotics operations and applications, as well as computer systems for controlling them. The accessibility and availability of low-cost, circuit board-style computers like the Raspberry pi have made it possible to build a finite number of low-cost automated and controlled systems. The intelligent robot employing IOT that is suggested in this study works in conjunction with the use of straightforward tools, wireless communication, and connectivity with the robot, as well as an effective control system and sophisticated controlled algorithm. Robotics is a discipline of engineering that entails developing a fine prototype, producing that prototype, and assigning an operation that may carry out an individual's or a group's activity. Even with basic mechanisms and parts, installation robotics using a robot that gets computerized or manually or automatically managed. The number one goal of this project is to reap a clever surveillance ecosystem in opposition to fake situations that happens. It is an interactive robotic with duplex communication technically i.e. it could talk with human, it can carry out the venture given through the consumer and informs the user about the appearance of intruders, if any. Robot is a gadget that was been assigned for doing particular task. It's far primarily based on program i.e. software program and hardware. Nowadays industry turning into present day and that they use automatic technology to carry out risky jobs. That is helpful to minimize lifestyles threat of human and animals. For domestic security in fashionable, we use digital camera, that's set up constant location which include doors, windows, partitions and ceilings also, however consists of some defects consisting of price efficiency, rigidness, infrastructure, being at a set role and robustness. Therefore, changing robotic with camera covers these defects at a most volume and performance. This robotic is manipulate by means of using laptop, Android cell or a laptop through internet site. The camera captures video and sends it lower back to controller's

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Broadcasting Network and Multicasting Network

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Abstract: *Due to the increasing demand for video and broadcast applications, multicast and broadcast communications are expected to assume a awfully very important role in returning 5G systems. This research trend is attempting to use, extend, or adapt reference transmission ways in which already designed for the conventional 4G technology. withal, apart the 2 reference and standardized methodologies, i.e., Multimedia Broadcast/Multicast Service and Single Cell-Point To Multipoint, several technical extensions and novel solutions were written at intervals the literature to the current purpose. Therefore, so on manufacture a transparent define on accessible solutions (already commonplaceized or just extending normal approaches), this work provides a comprehensive survey on network architectures, communication protocols, transmission strategies, and improvement algorithms to spice up the performance of multicast communications over mobile radio systems. The core of the conducted study represents a structured taxonomy, able to properly classify scientific contributions supported their reference ancient, targeted goal, addressed methodology, considered application domain, and obtained. Taking into thought this taxonomy, quite one hundred of scientific contributions ar given, classified, and reviewed. The study of the state of the art is additional increased with the discussion on necessary lessons learned, that clearly highlight the execs and cons of any investigated approach. attention is also provided on the foremost problems on future Evolution multicasting that require to be higher investigated, and make sure the potential future analysis directions on this subject. the last word goal of this work is to support analysis activities dedicated to the identification of promising methodologies, that with efficiency support the delivery of quantity of some time and on-demand video contents in a TV..*

Keywords: Network, Multicasting Network

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A Review on Addresses Resolution Protocol

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Abstract: *Apparatuses that might be downloaded from the Internet have made it genuinely easy to block correspondence between two destinations on a LAN. These instruments utilize the Address Resolution Protocol (ARP) harming technique, it relies upon has reserving reactions even while the comparing demands aren't sent, yet rather the answers. Since message validation isn't offered, any LAN have can parody a message with risky information. In this paper, a protected variation of ARP is introduced that offers safeguard against ARP harming. Each host has a public/confidential key pair that has been endorsed by a LAN-based nearby reliable party that fills in as the Authenticator. Carefully marked messages from the source prevent data from being infused that is bogus or fashioned. The proposed method was placed into training on a Linux machine as evidence of idea. Execution assessments show that, gave the above to key legitimacy confirmation is kept to a base, PKI-based solid validation can be utilized to get even low-level conventions. In contemporary Ethernet organizations, the Address Goal Protocol is utilized to determine Layer 3 IP addresses to Layer 2 MAC addresses. Nonetheless, the convention has quite a large number deficiencies on account of its effortlessness. The ARP parcels are frequently communicated, bringing about restricted execution and versatility of the organization. With the appearance of programming characterized organizing, a few methodologies how to manage the issues were created. We propose another methodology that broadens the current ARP dealing with procedures in these organizations. Utilizing robotized insights gathering about the most often settled IP addresses, stream passages are set at switches, which then serve the job of an ARP goal reserve of a restricted size. The proposed arrangement can consequently mitigate both the information plane and the control plane of the majority of the ARP traffic without requiring changes by the same token to the convention stack or the hidden organization foundation..*

Keywords: Address Resolution Protocol.

I. INTRODUCTION

The most broadly utilized Local Area Networks today are IP over Ethernet organizations. They convert IP addresses into equipment, or MAC addresses, utilizing ARP, the Address Goal Protocol. The settled addresses are put away in a reserve on each host in the LAN. At the point when a store passage lapses or another IP address should be settled, ARP goal is utilized. The malevolent alteration of the connection between an IP address and its comparing MAC address is the ARP harming assault. The modern ARP harming attack can be done by supposed "script kids" utilizing an assortment of online instruments.ARP harming isn't simply an issue for Ethernet organizations, regardless of the way that this is the most generally utilized form. 802.11b organizations, Layer 2 exchanged LANs, and associations that are encoded are additionally in danger. A few situations where a remote assailant harms two wired casualties, a remote casualty and a wired casualty, or two remote casualties are examined in [3], either through isolated passages or on the other hand a solitary one. The utilization of encryption at the organization layer, like through Secure Shell (SSH) [20] or Secure Sockets Layer (SSL) [4,] doesn't safeguard against ARP harming in light of the fact that such an assault is completed at the layer underneath. An aggressor can force a host to convey parcels to an alternate MAC address by utilizing ARP harming of the expected beneficiary, empowering her to capture correspondences, change their substance (for model, by sifting it, presenting orders, or unsafe code), and capture the association. Moreover, ARP harming empowers an enemy to send off a "man in the centre"(MITM) assault when done all the while on two unique hosts. With MITM assaults, traffic between two hosts is unconsciously sent through a third PC, which fills in as the man in

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Slow Start Concept in Data Communication

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Abstract: *The Transmission Control Protocol(TCP) is one of the pillars of the Internet. As a result, a lot of research has been done to enhance its performance, primarily by improving the congestion control algorithm of TCP. In this work, we demonstrate that TCP's Slow-Start algorithm is increasingly turning into a bottleneck in contemporary high-speed networks, in addition to congestion control. By incorporating StopEG into Google's BBR congestion control algorithm, it is evaluated through simulations in ns-3. Results from simulations show that it is effective in BBR, with a 68% reduction in the bottleneck queue's length when new connections are made. We suggest a different method called Stateful-TCP to address the issue, in which the path bandwidth estimated in a prior flow is used to immediately increase the transmission rate of a subsequent flow to the same destination. As a result, conventional Slow-Start is no longer necessary, and TCP is able to utilise the available path bandwidth effectively right away.*

Keywords: Data Communication.

I. INTRODUCTION

Since it is used by the majority of applications to transport data, the Transmission Control Protocol (TCP) is one of the Internet's pillars. Due to this, numerous studies have been conducted to enhance its performance in a variety of network environments (e.g., [1]– [20]). A TCP flow begins in a Slow-Start phase [21] with a relatively low initial transmission rate, which is gradually increased as packets are correctly delivered. This Slow-Start phase is common to almost all TCP variants. Today's networks have a wide range of bandwidth (from Kbps to Gbps, for example), so transmitting too aggressively in the beginning could cause severe congestion in networks with limited bandwidth. However, TCP's Slow-Start mechanism could seriously hinder the protocol's performance, especially in networks with high bandwidth-delay products (BDP). This restriction is well-known, and in the current Linux kernel [1], the initial CWnd of TCP has been increased from 2 MSS in TCP Reno to 10 MSS. Although increasing the initial CWnd can partially alleviate the limitation, many Internet flows are still affected.Themajority of Internet applications start several subsequent TCP flows within a single application session, in contrast to TCP's original design, where each TCP flow is independent. Since the network conditions that these TCP flows are likely to encounter are very similar, much can be inferred from a prior TCP flow to the same peer host. This prompts the development of a novel Stateful-TCP mechanism in which the path bandwidth of a previous flow is estimated to instantly increase the transmission rate of a subsequent flow to the same destination. This completely eliminates the need for Slow-Start, allowing TCP to utilise the available bandwidth effectively from the start.

II. BACKGROUND AND RELATED WORKS

Since its introduction, the Transmission Control Protocol has undergone significant development. For instance, Linux Kernel 4.20 implements a total of 17 TCP variants created for various network environments, with Cubic [2] serving as the current default and displacing TCP Reno [22] as a result of Cubic's superior performance over large-BDP networks [2]. Many new TCP variants have been developed over the years. For instance, Westwood [3], Veno [4], and BBR [5] were created to lessen the effects of random loss in mobile networks; TCPHybla [6] was created for a satellite network with a high loss rate and a long delay; DCTCP [7] was created for datacenter networks; Sprout [8] was created for delay-sensitive applications in mobile networks; PCC [9] was created to change its congestion control behaviour based on in-band network measurements; and Most earlier works concentrated on the TCP congestion control algorithm.

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Cloud Radio Access Network

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Abstract: *In the mobile Internet era, mobile carriers are under pressure from rising operational and capital costs and significantly slower income growth. Next-generation radio access network (C-RAN) is anticipated to be a candidate. strategies for generation access networks that can answer operators' conundrums. In this piece, We provide a novel logical framework of C-RAN based on a thorough study of a physical plane.*

Keywords: Cloud Radio

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A Detection Method Against DNS Cache Poisoning Attacks using Machine Learning Techniques

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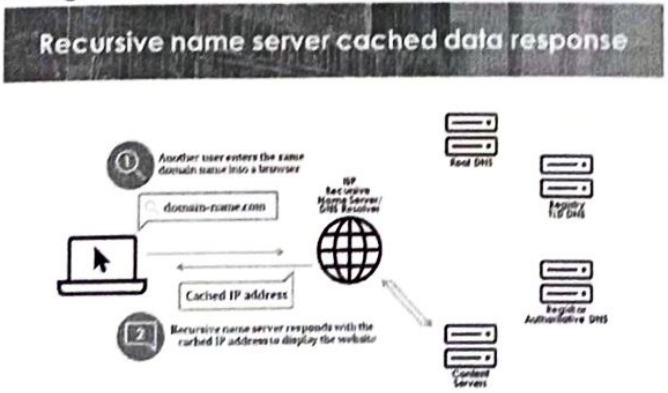
Abstract: *In this paper, we offer a machine learning-based enhanced detection strategy for DNS cache poisoning attacks. In addition to the standard DNS packet's five basic tuples, we plan to include numerous specific features that were extracted based on The heuristic components, such as the common DNS protocols "trigger," "time related features," and "GeoIP related features" of DNS cached data," etc.[1] By mapping IP and domain name, DNS's principal job is to lead users to the right computers, programmes, and data. Due to some DNS security weaknesses, attackers frequently use DNS-based malware, DNS-amplification, false-positive triggering, DNS tunnelling, etc. as a means of attack.[2] The upcoming effort comprises training with DNS traffic data and evaluations in both a small-scale experimental network and a large-scale real network environment.*

Keywords: DNS, Machine Learning.

I. INTRODUCTION

The majority of name resolution issues on the Internet have been resolved using DNS (Domain Name System) infrastructure. When there are security problems involving the DNS infrastructure, the situation is made significantly worse by the Internet's reliance on DNS-based name resolving services. DNS cache poisoning attack is one of the serious risks. The Kaminsky attack is depicted in broad strokes and has been recognised for more than ten years . All computers using a local DNS cache server's name resolution service will be subject to security threats due to the possibility of being directed to erroneous or malicious servers once that server has fallen victim to cache poisoning attacks.[2]

The three fundamental servers for TLD servers are the root DNS server, the TLD, and authoritative DNS. gov, edu, com, and org are examples of generic domain names. TLD server enables the matching authoritative DNS to receive the record. The IP address of the webpage is returned by the DNS server. DNS is susceptible to numerous threats because of the vital roles it plays. Various attack types are frequently observed on DNS. The most significant DNS amplification, DNS cache poisoning, and DNS tunnelling, NXDomain assault, and hijacking



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Exploring the Hypertext Transfer Protocol

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Abstract: *This paper, HTTP Explorer, an interactive tool for investigating the Hypertext Transfer Protocol, is presented. The tool will be used in a course on web-based applications to help the study of HTTP, the most important protocol now in use on the internet. Students can send requests to any HTTP server connected to the internet using a web-based user interface, making the data flow between the client and the server clearly visible. Beginners can use the tool to experiment with HTTP, while advanced users can use it to test out more complicated capabilities. We also discuss some preliminary findings from using HTTP Explorer in a live classroom.*

Keywords: HTTP, Simulator, WWW, e-learning

I. INTRODUCTION

Because of the Web's popularity and ubiquity, as well as the nature of its capabilities, a wide range of new, complicated distributed applications are emerging in the Web ecosystem. The web provides an information representation that allows for the interlinking of various types of content from many sources as well as quick access for end users to a wide range of information.

Due to the popularity and ubiquity of the Web itself, and the nature of its nature, a wide range of new and complex distributed applications are emerging in the Web environment. The Web provides a representation of information that supports linking all types of content from various sources and makes it easily accessible to end users using the tools available. Successful development, deployment, operation, and maintenance of such applications require a deep understanding of the underlying protocol, HTTP. Misconceptions about cache control and transport encoding slow down your application's responsiveness. Familiarity with content and language negotiation chunked encoding and byte ranges will help you use the web smarter. Familiarity with cookies is a prerequisite for personalized, session-aware applications and is ubiquitous in commercial web-based systems. To make learning HTTP easier, an interactive tool called HTTPExplorer was developed. This tool allows you to try HTTP from any internet-connected web server. This gives you full visibility of the flow of data between client and server. Compared to HTTP simulators, which use HTTP-compliant implementations according to RFC 2616, this approach has the advantage of providing real-world experience of her HTTP implementations, allowing you to see differences in individual server implementations. The tool also allows the user to see how her HTTP server reacts when faced with syntactically or semantically incorrect or incomplete requests.

Two usage types are supported:

- Applications can be written in plain text with input masks and will be sent unchanged from then on
- You can use the help menu to build your request based on previous requests and responses. This allows you to quickly compose complex requests and reduces the chance of syntax errors

Two usage modes are suitable for beginners and advanced users respectively. This tool is intended as a supplement to courses on HTTP. In other words, it is not a standalone lesson on HTTP. It contains many exercises that can be used in combination. The work presented is part of the research project Knowledge Workshop Computing Systems, a joint project of 12 German universities. This tool integrates well with the learning materials developed in this project. This is accomplished through hyperlinks that join HTTPExplorer entities and relevant sections of the learning material via HTTP. The next section describes the functionality and implementation of the tool and its integration into your learning environment.

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Review Paper on Cyber Security and Types of Cyber Attacks

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Abstract: *Cyber attacks have become increasingly dangerous and quite common in world of internet.so the demand of cyber security has been increased to safeguard the information personal data and computer network .now a days everything has been computerized and transaction are done online thus economic reimbursement are increasing due to cyber attacks as the technological evolution comes the progress of cyber-crime increases thus develops the new types of attacks are reported throughout the study the exact number of attack type determination is quite difficult however the most common cyber attacks are described in this article .the aim of this study is to survey and convincing manner review the strength and weakness presented in the field of cyber security. the article aim is to analyze various type of attacks existing to understand the state of being exposed to the possibility of being attacked. The main goal is to handle cyber attacks.*

Keywords: types of cyber attacks, goals of cyber security, importance of cyber security, awareness, protection.

I. INTRODUCTION

Digital protection is a technique for outer dangers. Network protection experts a by and large recruited by organizations to get restricted intel, safeguard staff efficiency, and lift client trust in items and administrations. The business standard of privacy, respectability, and accessibility, or CIA, oversees the field of network safety. Just approved clients can get to information; just approved clients can add, change, or eliminate data. The utilization of validation frameworks is a critical part of Cyber Security. A client name, for instance, shows a record that a client needs to get to, however a secret word is a security component. The essential objective of cybercrime is to upset ordinary organization tasks and fundamental foundation. Cybercriminals habitually use taken information to benefit monetarily, cause monetary misfortune, hurt an individual's standing, accomplish defending organizations and gadgets from military points, or spread strict or political philosophies. A few programmers needn't bother with motivation to hack; they simply need to flaunt their abilities. Network safety is the method of forestalling digital assaults or advanced assaults on PC frameworks, organizations, projects, and information.

The expression "digital" alludes to the investigation of robotics. The expression "digital" is a prefix or descriptive word that alludes to or portrays data innovation (IT), PCs, and computer generated reality. The study of correspondences and programmed control gadgets or machines, as well as living organic entities, is known as robotics. The expression "digital" was instituted in the mid 1980s as a shorthand for "computer science."

Thus, network safety envelops anything that shields PCs, data innovation, computer generated reality, and other comparative gadgets.

II. CATEGORIES OF CYBER SECURITY

The act of getting a PC network against gate crashers, whether designated aggressors or crafty malware, is alluded to as organize security. Application security is worried about keeping dangers from entering programming and gadgets. A hacked application could give others admittance to the data being careful. Security begins with the plan stage, some time before a program or gadget is sent

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Review Paper on Cyber Security

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Abstract: *In the current world that is run by technology and network connections, it is crucial to know what cyber security is and to be able to use it effectively. Systems, important files, data, and other important virtual things are at risk if there is no security to protect it.[1] Whether it is an IT firm not, every company has to be protected equally. With the development of the fresh technology in cyber security, the attackers similarly do not collapse behind. They are consuming better and enhanced hacking techniques and aim the weak points of many businesses out there. Cyber security is essential because military, government, financial, medical and corporate organizations accumulate, practise, and stock unprecedented quantities of data on PCs and other devices. An important quota of that data can be sensitive information, whether that be financial data, intellectual property, personal information, or other various kinds of data for which illegal access or acquaintance could ensure negative concerns.*

Keywords: Cyber Security.

I. INTRODUCTION

Cyber security is the name for the safeguards taken to avoid or reduce any disruption from an attack on data, computers or mobile devices. Cyber security covers not only safeguarding confidentiality and privacy, but also the availability and integrity of data, both of which are vital for the quality and safety of care. Security breaches can occur when we use paper records, send information using fax machines and even verbally. However, the consequences of security breaches with digital information are potentially far more severe, as information can be distributed more easily and to a far wider audience.[1] Cyber- breaches are costly – in terms of expense, recovery time and through damage to reputation. In a Government Cyber Breaches Survey in 2017, 46% of businesses reported a cyber-breach or attack. That is why cyber security is a high priority for business and why all staff must be aware of how to implement protective measures. Individuals should also be aware of basic cyber security safeguards for personal use and when participating in the management and coordination of their care and support. Cyber threats are not limited to private enterprises; government-oriented organizations are equally vulnerable targets. On obtaining access to any operating system, any malware can easily encrypt the victim's files. This is further complicated by the growing sophistication of modern encryption techniques, making it extremely difficult to retrieve encrypted files without a decryption key.[2] Now, as the ransomware host is the only person with access to this key, the victim is forced to pay the ransom in return for the key and release the information withheld by the malware operator. In such cases, the losses incurred are not just limited to the ransom amount but also include the cost of fixing the compromised system, business operations being brought to a sudden standstill, and the urgent need to install further anti-malware to tighten the security.[3] To counter the catastrophic outcome of a cyber-attack, having a cyber risk insurance plan is the need of the hour for businesses. Without a dedicated cyber policy, recovering from the results of a cyberattack, such as business disruption, loss of revenue, and reputational damage, can prove expensive and time consuming. Organizations are also advised to develop a comprehensive cybersecurity roadmap, besides designing and testing a business continuity and an incident response plan.

Cyble, a cybersecurity services provider, empowers its clients with dark web and cybercrime monitoring capabilities to discover vulnerabilities in their digital footprint to help them effectively combat emerging potential cyber threats – even in the early stages of the development of cybercrime.

Cybele's core product, Cyble Vision, equips organizations with detailed analyses on data leaks, potential cyber threats, and malware, besides aiding them with actionable intel and a real-time view of the threat landscape. Instead of last-minute alerts, Cyble notifies its clients of potential threats way before they can cause damage. These massive

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Additive Manufacturing: A Review

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Abstract— **Added substance producing innovations can now be utilized to make metallic parts. This leap forward in assembling innovation makes conceivable the manufacture of new shapes and mathematical elements. The assembling practicality of test leaves behind these cycles has been the subject of a few examinations, the forward leap in assembling is yet to be followed by a forward leap in planning process. The paper focusses on three significant parts of added substance producing late advances on material science, process improvement, and upgrades on plan thought. The primary target of the paper is to order the ongoing information on added substance producing and to feature its expected purposes.**

1. INTRODUCTION

Added substance fabricating normally known as 3D printing permits the immediate change of plan development records into completely useful items. It is a course of joining materials to make object from 3D model information normally layer upon layer. In this the material is joined or set under PC control to make a three-layered object, with material being included, for example, fluid particles or powder grains being melded together normally layer by layer.[12]

The fourth modern era, to be specific Industry 4.0, is the new development on keen mechanization innovation. In this new time, the usage of current assembling abilities inside the setting of coordinating book data advancements assumes a significant part on monetary seriousness. As outlined in, Industry 4.0 offers digital and actual frameworks to coordinate productively, intending to assemble industrial facilities by rethinking the job of people. [1]

To recognize the attributes of these cycles, the survey guideline of current metallic added substance fabricating. We will then, at that point, center on the qualities of most elevated significance for the architects. We will, specifically, bargain with the assembling requirements and capacities of these cycles. Then, at that point, propose a four-stage planning approach to exploit these new fabricating processes in light of the age of an introductory shape, its investigation to characterize a bunch of mathematical boundaries, the adjusting of these boundaries to get an improved shape and the approval of this shape. At the end, we will close this review and talk about some possibilities on the eventual fate of added substance fabricating. [3]

2. DESIGNING AND MATERIALS IN ADDITIVE MANUFACTURING

The maximum capacity of additive manufacturing, in any case, we should alter the way we plan things as well. As configuration engineers, our most memorable test is to break out of the calculated obstructions made by traditional creation procedures. Analysts in mental brain research and designing plan have illustrated that planners experience a strong inclination to stick to plans they have experienced already. The trouble is that most creators have essentially and frequently only noticed, picked apart, and planned ordinarily created parts. Those parts are dependent upon all of the plan for assembling rules furthermore, limitations that go with infusion shaping, projecting, machining, furthermore, other normal assembling strategies.[2]

When given a fresh start and an added substance producing machine, it is hard for the vast majority of us to consider attractive plan that can't be made in differently. For example, the ones in the going with are significant devices for evolving viewpoints, as are Added substance fabricating schooling drives that present new ages of designers to these instruments furthermore, strategies. [21]

The developing number of added substances producing processes accessible with various cycles to join material. Each interaction is restricted to one kind of material and just few can handle more than one material thermoplastics of various variety. Somewhat recently the development of these cycles was generally expanded because of exploration on new materials, improvement of better hardware and a more profound comprehension of the cycles which prompted hearty and stable cycles. From an modern viewpoint processes equipped for delivering powerful leaves behind high strength and long haul solidness are generally applicable, in light of the fact that they permit the immediate creation of end client parts. [17]

The subsequent stage applies every one of the principles and imperatives characterized by the necessities, considering a few viewpoints topological advancement, material, mechanical properties, and so forth. Prior to that, nonetheless, pivotal choices should be made concerning practical deterioration and useful reconciliation. This underlying choice suggests the vital arrangement of parts and starts the meaning of individual articles in the framework.[4]

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Benefits of Rice Husk Ash used in Cement Concrete: A Review

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Abstract*—The use of rice husk ash as a partial substitute for cement is one of several initiatives being taken to lessen the negative impact of the global construction industry. As of yet, there isn't a way to forecast the strength properties (SP) of mixed rice husk ash. Concrete (RHAC). In this study, of RHAC was predicted using sophisticated machine learning methods (artificial neural networks, artificial neuro-fuzzy inference systems). Considering the published using leftover industrial and agricultural materials to make alkali-activated concrete (AAC). has a chance to significantly advance sustainability objectives. The construction business demands a building material that satisfies the necessary strength and other propertystandards as outlined in Experimental research was done on theeffectiveness of a sustainable green concrete made of fly ash (FA), rice husk ash (RHA), and stone dust (SD) in place of some of the cement and sand. FA and RHA are naturally quitepozzolanic, contain a lot of silica, and have a lot of surface area. These by-products exhibit filler effects that increase the density of concrete. The results demonstrated that the FA and RHA ingredients efficiently build strength at a young age of concrete and have good hydration behavior. Concrete may be made stronger in compression and bending by using SD as a stress- transfer medium within the concrete. As a result, sustainable concrete's capacity to absorb water was less than that of regularconcrete. However, a slight loss of strength.

Keywords*— *Rice Husk Ash. Concrete (RHAC), Strength Properties (SP), Alkali-Activated Concrete (AAC). Stone Dust(SD), Fly Ash (FA.)

I. INTRODUCTION

The goal of this study is to put it to good use. Rice Hush Ash (RHA), a regional supplement, has been discovered to be extremely pozzolanic in a positive the high expense of structural repairs concrete. [1] How to get rid of rice husk ash (RHA), an agricultural waste product, is a concern. Issue for garbage managers. Today, concrete has surpassed all other construction materials in terms of global consumption. The binder (cement) is the most expensive component of concrete; thus, replacing it in part with a more natural, inexpensive local substance like RHA would not only address the issue of waste management but also lower the issue of the high cost of concrete and Housing. The binder (cement) is the most expensive component of concrete; thus, replacing it in part with a more natural, inexpensive local substance like RHA would not only address the issue of waste management but also lower the issue of the high cost of concrete and Housing. The significance is rising. The rise in emissions of greenhouse gases (EHG) in the air is blamed for climate change. The equivalent of 54 rigatonis of in 2017, the total yearly GHG emissions were measured as carbon dioxide equivalents (CO2-eq). [1,2] Due to the increasing growth of the construction sector, it is anticipated that both the consumption of concrete and the demand for cement will rise in the future. Due to economic and environmental factors, sustainable construction is progressively becoming more difficult. Due to the primary user of natural Resources being the construction industry, which generates a significant amount of garbage [1].

Concrete is a widely used building material that is expensive to produce since it needs a lot of different elements. Approximately 5% to 8% of the world's carbon dioxide emissions are produced. The concrete used by the building industry is used globally. Is enormous. The crucial component of concrete is cement, which is commonly used. The production of regular Portland cement (OPC) results in significant emissions that pollute the environment and produce large amounts of CO2 gas [1]. By-products, including fly ash (FA). RHA) are generated in huge quantities in India, and their waste handling contributes to environmental problems. Utilizing such a by-product as a partial substitute for OPC in concrete is one way to address this issue. Most of these byproducts were pozolanic in character. You may get RHA by eating paddy rice. The yearly the melting of the Antarctic is a consequence of increased greenhouse gas (GHG) emissions. [3,4,5] Ice caps in the Arctic. Due to this, there are now serious environmental issues on Earth. The production of large amounts of GHG is required for the installation and development of structures, as well as for the manufacturing and transportation of building materials. Buildings in the member nations of the European Union use about 50% of the entire energy used over their life cycle, which entails construction, operation, and destruction, and contribute to roughly 50% of the CO2 emissions in the environment. The demand for concrete in the construction industry is still rising.

A significant part of concrete that significantly increases GHG emissions is regular Portland cement (RPC). [7,8] OPC manufacturing causes around 5% to 8%. The high-performance cement (HPC) type called calcium aluminate-cement concrete is produced using calcium aluminate cement (CAC) as the primary binder material in the cement matrix (CACC). Additionally, the chemical makeup of CAC and regular Portland cement (OPC) differs in that CAC has a higher alumina concentration. And it has less silica than OPC does. Superior characteristics of CAC, such as its quick strength growth and strong fire resistance, make it ideal for use in environments where chemical resistance and refractoriness are required. Consequently, using CAC is a practical technique to increase fire resistance. Several elements, including the

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Crop Protection from Wild Animals

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Abstract:

Nowadays, there are several fields in the form of crop yields all over the world. This project estimates any crop or animal-related issue in order to find the best possible solution. The attacks of wild animals on crops in agriculture are lowering agricultural yield. Animal attacks in agriculture are one of the most pressing problems we face today. The attacks by animals cause great suffering to farmers. While trying to evict animals from their homes, people have occasionally also perished. Due to deforestation and a lack of water resources in the forested areas, animals move into agricultural land. After addressing these issues, we came up with the following idea Although India is one of the countries that is quickly urbanising, the majority of Indians (61%) still live in rural regions, making rural development crucial for the efficient growth of the nation. Rural areas also make up 46% of the country's total income. The vast majority of India's rural areas are plagued by a variety of issues that are preventing them from developing. This research paper's primary goal is to examine and comprehend the issues and difficulties that rural communities currently face, as well as to explore and outline the causes of these issues there. The people's living situations are being negatively impacted by these issues, which as a roadblock to expansion and improvement. This study aids in our comprehension of the factors contributing to rural regions' underdevelopment and directs us toward the government's necessary actions to raise citizens' quality of life and promote the development of the rural system as a whole. There are many obstacles in the way of rural areas developing, so it is important to research the issues in order to alert decision-makers, policy-makers, and planners to the concerns [1]

I. INTRODUCTION

1.1 Introduction to instruments

A One type of computer system called Texas Instruments is primarily made to carry out several activities, including accessing, processing, storing, and controlling data in various electronics-based systems. Texas Instruments (TI) is a manufacturer and designer of analogue and digital semiconductor integrated circuits (ICs). TI creates and manufactures semiconductor solutions for analogue and digital embedded, application processing, and education technology in addition to analogue technologies, digital signal processing (DSP), and microcontroller (MCU) semiconductors [1].

Texas instruments' traits include: The following traits of an embedded

a. **Speed (bytes/sec): Must be swift**

b. **Low power dissipation: Power (watts)**

c. **Size and Weight: As tiny as feasible and light in weight.**

d. **Accuracy: Must be extremely accurate (%error)**

e. **Flexibility: Accessibility and height flexibility • Reliability: Must be dependable for a long time.**

In order to be used for real-time applications, Texas Instruments must operate at a high rate of speed, consume very little power, and have a system size that is as tiny as is practical. Readings must also be accurate with a minimum amount of error. The system must be flexible enough to accommodate various scenarios. The following traits define an embedded system.

The main issues in many rural communities, according to a literature assessment, are poverty, illiteracy, unemployment, and Homelessness, crime, social ills, a reduced standard of living, a lack of amenities and services, and poor health. from India's last 20 years. The primary cause of out-migration from rural areas is that there is significant growth and development in cities and urban areas but not in rural communities. Metropolitan areas from rural ones. According to the World Bank, India's rural economy must expand for the country's economy to be robust. Being hampered by a number of issues, including unemployment, illiteracy, and a lack of basic facilities like hospitals, colleges, and schools,cleanliness, etc. Government entities execute numerous policies and activities with the primary goal of boost rural communities' well-being, yet some of these issues are either directly or indirectly to blame for the poor management of plans, strategies, and initiatives. If these issues are not appropriately treated, they worsen and completely impact the negatively affect the entire balance of the nation's development and the rural system

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A Review on Vapour Absorption Solar Refrigeration System

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Abstract

An up-to-date overview of various technologies which are existing to provide refrigeration from the solar energy is provided. This review covers some evolving technologies in the field of solar absorption refrigeration. Solar thermal systems include thermos-mechanical, absorption, adsorption technology. Comparisons between different refrigerants are made in terms of both efficiency of the energy and feasibility of the economic. Solar electrical and thermo-mechanical systems appear to be more expensive than thermal absorption systems. The total cost of the NH3-H2O water absorption system is estimated to be less expensive than the Li-Br. Solar Vapor absorption systems uses a source of heat to facilitate cooling, distinct from vapor compression systems. The two LPG absorption chillers use a generator attached to the heating element and it operates at single system pressure which doesn't exist any moving parts such as pumps or compressors. This paper compared the performance of VARS used for refrigeration which is below ambient temperature. The most common NH3-H2O solution vapor absorption refrigeration system uses H2O as the absorbent and NH3 as the refrigerant.

Introduction

Sun is the main source for energy generated by water, fossil fuels and wind. Solar energy is the energy which dies not go extinct. Refrigeration and space cooling are both high-energy process. Preservation demands in cold temperature in various areas are highest in the time of daylight, when the demand for solar energy is widespread; this is especially true during the hot season. Most of the state in India receives plenty of sunlight during the entire year. Therefore the Solar refrigeration is the most applicable technology for India, specifically given the rapid increase in the requirement for energy and the scarcity of electrical power. Cooling is projected to consume approximately 35K MW of electricity for many different applications. Part of these energies are produced by the power plants in zones where electrical energy is readily obtainable, while the remainder is generated by Digital Generator, which will consume a significant amount of highly supported diesel which results in air, noise and high CO2 emissions[1].

A solar-powered system is the one that runs on electrical power generated with the help of sun. Solar-powered cooling systems can keep consumable goods like dairy and meat, cool in hot climatic conditions. Solar refrigerators are most usually used in countries which are developed to help eradicate poverty, to reduce climate change. Plug in refrigeration device with backup digital generators safely stores vaccine in the developed countries, but in countries which are developing, where electric supplies can be unpredictable, alternate refrigeration technology is required [2].

Methods of solar refrigeration

Three ways in which solar energy can be cast-off for preservation are. the solar thermal, solar mechanical, and solar electric methods.

Electric Method by using Solar

Sun light is straight away rehabilitated to DC current via array of solar cell identified as a Photovoltaic panel in the Solar Electric Method. Photovoltaic Cells are semiconductors that convert direct current from solar energy. The generated electric current is deposited in a lead acid battery, although the remaining powers the refrigerator's compressor. This Direct current can either be used to power the compressor's DC motor or converted to AC current and used to power the compressor via an inverter. To stabilise and level the current, a solar controller comprised of capacitors, sensor, and other components might be required. A typical Solar PV system is made up of several parts that are selected created on the structure type, position, and submissions. A charge director, inverter, battery-operated, secondary energy bases, and loads are the main components of a solar Photovoltaic system. PV which will convert the sunlight into direct current. Controls the current and voltage flowing from the PV panel to the battery, preventing overcharging and it will extend battery life. Inverter is a device that will convert the direct current output of the photovoltaic panels to alternating current which can then be used by AC purposes or nourished back into the power grid. A battery is a device that stores energy in order to power electrical appliances later on. Loads include lights, radios, televisions, computers, refrigerators, and other electrical appliances connected to a solar Photovoltaic organization.

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A review on Automation in Hydroponics

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Abstract - *Space has always been the big problem for those who live in urban areas. "HYDROPONICS" is the growing of plants in a liquid nutrient solution with or without the use of artificial media. The objective is to identify hydroponic system for those who are living in an apartment in an urban area. Livings in apartments have limited space to do farming activities. to help people so that they can farm in a small area and have limited space in the urban areas. Apart from that continuous use of traditional farming practices with conventional tillage and burning off the crop residues has reduced the soil resource base and intensified soil degradation with decrease in crop production capacity. also, escalating fuel, fertilizers and other input costs; necessitates the effective use of resources in agriculture. In Hydroponics, there is a challenge of precision agriculture, especially for some sensitive plants, e.g., Coriander and lettuce. These kinds of plants need a precise amount of nutrient and water every time to grow ideally. Internet-of-Things (IoT) is a technology that enables regular monitoring of every aspect of human life. By the use of these technologies, we can easily control the nutrients required for the plants to grow.*

***Key Words*: Internet-of-things, Hydroponics, Nutrients.**

1. INTRODUCTION

Agriculture is the most critical sector in India. With the increasing population every year, the food availability is a necessity that must always be achieved by the agricultural industry. However, with the increasing development, a lot of agricultural lands is converted for uses such as the construction of housing complexes, industrial estates, trade zones and public facilities which will undoubtedly have a negative economic, social and environmental impact. This agricultural land reduction will certainly also cause a decline in agricultural production capacity, thus making the government have to import agricultural products to meet domestic food needs. Agricultural technology is proliferating in urban areas now. One solution that can be done by the community is to develop an agricultural system that can be done with limited land availability or commonly called urban farming or urban agriculture. Urban farming or urban agriculture is one of the practical solutions to overcome the reduction of agricultural land. Urban agriculture uses land that is not used in urban areas, such as roofs, balconies, patios, even on walls of buildings. One of the agricultural techniques used in urban farming is hydroponics. Methods using hydroponics is one of the possible ways to be able to do agriculture even without agricultural land. Hydroponics comes from Greece, hydro means water, and ponies means work. Based on the problems above, one of the researchers tried to solve this by combining hydroponic methods, and IoT technology, and 'fuzzy' logic to make a smart controlling that can automatically control plants nutrition's and water needs. By utilizing internet of things (IOT) technology, the sensor device can communicate and send data to a cloud server to be processed and monitored in real time scenario. Each sensor is connected to Arduino board to control plant needs automatically by using fuzzy logic technology so that the control system will automatically add nutrients to the plant. The results of processing data from

2. History

The Greek words "hydro" (which means water) and "ponos," which means labor, are the origin of the name "hydroponics." This phrase was first used in 1929 by Dr. Gericke, a professor from California who was developing what had previously been a lab technique into a practical way to cultivate plants. During World War II, the U.S. Army used hydroponic culture to grow fresh food for troops stationed on barren Pacific islands. Commercially successful farms existed in America, Europe, Africa, and Asia by the 1950s.

3. Benefits of hydroponics include:

(1) Crops grown hydroponically have a high yield and are free from disease, weed infestation, and soil-borne insects and pests.

(2) Food grown in soilless cultures is organic, and no dangerous toxics or pesticides are used.

(3) Gardening requires less room since plants with short roots can be cultivated near to one another.

(4) Crops grown in hydroponic systems grow twice as quickly and produce twice as much, allowing for increased productivity in the same amount of space.

(5) There is no water waste because the process only applies 1/20th as much water to the crops as conventional farming does.

(6) Demands less work.

(7) Crops can be cultivated without concern for the varying seasons.

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Unbalanced Voltage Impacts and its Analysis on an Induction Motor

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ABSTRACT

Lacks like unequal voltages in the voltage source could bring about issues like extreme misfortunes, overvoltage mechanical motions, and impedance with control hardware. Recognizing these unique machine situations is crucial in the electrical machine's collaboration with the power matrix. This investigation studied the influence of unequal voltages on motor execution. Then, at that point, checking this unfortunate condition utilizing electrical machine boundaries is done. For this situation, the motor itself can go about as the sensor that distinguishes unusual circumstances. Furthermore, this paper studies the detrimental impacts of uneven This represents a sinusoidal voltage which is frequently seen in power supplies voltage, on acceptance motor presentation in terms of line flows, power element, and proficiency.

Keywords- Unbalanced voltage, Induction motor, Derating Curve.

1. INTRODUCTION

Induction motors are frequently employed in commercial and industrial settings. Ventures incorporate vehicle and semiconductor fabricating plants, emergency clinics, broadcasting offices, and so on. Uneven stock voltage makes unfriendly impacts on the electrical mechanical assemblies particularly the electrical motors. Asymmetrical transformer winding, unbalanced loads, or huge single- stage loads can all create voltage unbalance. Albeit the voltage unbalances is little, huge uneven current streams because are of moderately little negative arrangement impedance. This high current produces overheating, further accidents, vibrations, auditory disturbance, a loss in force, and a decrease in the life of an induction motor [6, 7].

The effects of uneven voltage on induction motor torque, speed, and current when the voltage size, stage point, or both are modified at the same time are discussed in this paper. The NEMA, IEEE, and power local area networks have specified the voltage imbalance. One of the definitions is frequently used for the induction motor test, and they are all presented here. At this point when no less than one of the stockpile qualities (abundance as well as stage point) goes amiss from the guidelines, the electrical framework is impacted by the unbalance voltage [11].

The induction motor (IM) is broadly utilized in the industry since it gives great execution as well as high unwavering quality and solidness [1, 2]. IMs can be located in numerous applications which makes strenuous conditions. Working under these circumstances antagonistically influences IMs execution [3].IMs shortcoming finding is vital, as it keeps away from sensational outcomes to the actual machine and to the general climate. The following are a some of the important flaws that can affect the operation of electrical machines:
(1) problems with the stator, caused by the opening or loosing of at least one turn; (2) unexpected affiliation of the stator windings; (3) broken rotor bars or broke rotor end-rings; (4) static or potentially strong air-hole impetuousness; (5) twisted shaft (similar to dynamic whimsy), which can cause serious damage to the stator core and windings; (6) shorted rotor field winding; and (7) failures with the headings and gearbox This essay focuses on the stator deficits, which are caused by a few various stressors and are primarily grouped into four categories. [5]

The legitimate utilization of the power by the induction motor as a framework to encounter burden prerequisites is always a subject of extreme interest [1]-[13]. Most modern motors have intended for 460 V activity, still, the utilization of the dissemination framework to intend for 480 V. So the reasoning over here is that the link voltage drop will permit the legitimate voltage of 460 V which is present at the motor load points. Estimations has appeared to be disregarding the link falls, the motor terminal voltages can be considerably more than the 460V in firm modern frameworks, while it could be well underneath the ostensible voltage, where the framework is vigorously stacked in powerless business

2. Losses in electric motor

By using the proper, similar circuit computations, the same stator and rotor flows and corresponding copper losses at each heap or slipknot are completely fixed. This contact and wind age losses which generally 1-2% of the evaluated output. The no heap primary losses are especially subject to quite a large number of highlights of the plan, yet an unpleasant normal 2-3% of the examined output is this number. In general, the rate of core losses decreases when the space openings, the ratio of the rotor to stator spaces, or the length of the air hole are reduced. A huge extent of this center malfunction and the wanderer load losses is J.

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Problems Related to Rural Areas in Agriculture

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Abstract:-

Although India is one of the countries that is quickly urbanising, the majority of Indians (61%) still live in rural regions, making rural development crucial for the efficient growth of the nation. Rural areas also make up 46% of the country's total income. The vast majority of India's rural areas are plagued by a variety of issues that are preventing them from developing. This research paper's primary goal is to examine and comprehend the issues and difficulties that rural communities currently face, as well as to explore and outline the causes of these issues there. The people's living situations are being negatively impacted by these issues, which as a roadblock to expansion and improvement. This study aids in our comprehension of the factors contributing to rural regions' underdevelopment and directs us toward the government's necessary actions to raise citizens' quality of life and promote the development of the rural system as a whole. There are many obstacles in the way of rural areas developing, so it is important to research the issues in order to alert decision-makers, policy-makers, and planners to the concerns.

I. INTRODUCTION

Generally speaking, a rural area or countryside is a region outside of towns and cities with few conveniences, such as services and utilities "all people, homes, and land that are not part of an urban area. Anything not urban is regarded as rural "(US HHS) Rural areas are typically defined as areas with a population of between 3 and 6 cities and less than 49,000. Small villages and a low population density characterise rural areas (RBI).

Rural areas in India, where about 70% of the population resides, are important for the economy of the nation. In rural areas, a sizable section of the population relies on agriculture as their primary source of income. Even though different countries have different definitions of rural for statistical and administrative purposes, all of these rural areas are equally important for the sustainable development of the nation, and the development of the rural system should be taken into consideration as part of the nation's development. People in these areas, however, are plagued by a variety of problems as a result of a lack of care for the rural system's expansion, and the rural system of the country is progressively getting more and more weakened. The implementation of policies and development projects must give rural areas more consideration.

The main issues in many rural communities, according to a literature assessment, are poverty, illiteracy, unemployment, and Homelessness, crime, social ills, a reduced standard of living, a lack of amenities and services, and poor health. from India's last 20 years. The primary cause of out-migration from rural areas is that there is significant growth and development in cities and urban areas but not in rural communities. Metropolitan areas from rural ones. According to the World Bank, India's rural economy must expand for the country's economy to be robust. Being hampered by a number of issues, including unemployment, illiteracy, and a lack of basic facilities like hospitals, colleges, and schools,cleanliness, etc. Government entities execute numerous policies and activities with the primary goal of boost rural communities' well-being, yet some of these issues are either directly or indirectly to blame for the poor management of plans, strategies, and initiatives. If these issues are not appropriately treated, they worsen and completely impact the negatively affect the entire balance of the nation's development and the rural system.

This review study primarily intends to analyse the issues facing rural areas, which may be divided into four primary categories: Humans, agriculture, infrastructure, economy, management, and leadership These issues lead to inferences about why the planning and development of rural areas, these issues must be taken into consideration.

II. AGRICULTURE-RELATED PROBLEMS

India is mostly a rural nation; 68.8% of the population and 74% of the labour force both resided there (2011 Census). The country's rural population, workforce, and GDP are all declining as a result of a continuous shift toward urbanisation over the years. Between 2001 and 2011, India's population grew by 31.8 percent (urban) and 12.18 percent (rural). Rural-urban migration and repopulation were responsible for 50% of the rise in the urban population during this time. Rural communities are categorised as urban. According to population projections, India will remain largely rural tillthe year 2050 when it is predicted that urban populations will surpass those in rural areas (UN).