Design of A Self-Healing Mechanism for Wireless Sensor Networks

Sannidhi P[1], Sathwik R. Gutti[1], R Shamanth M[1], Sai Charan R[1], Manjunath kotari S[2]

[1]*Student, Department of Computer Science Engineering, Alva's Inst. of Engg. and Tech., Moodbidri, India.*
[2]*Assosiate Professor, Department of Computer Science Engineering, Alva's Inst. of Engg. and Tech., Moodbidri, India.*
Corresponding Author: sathwikrgutti@gmail.com

Abstract: - A sensor network consists of multiple detection stations called sensor nodes, each of which is small, lightweight and portable. Self-healing in Sensor Networks are increasingly becoming important. Especially in wireless sensor network, interference is anything which modifies, or disrupts a signal as it travels along a channel between a source and a receiver .Successful communication occurs in a wireless sensor network only in the absence of interference which is usually achieved by assigning non- interfering channels to the pairwise links (edges) that are necessary for good connectivity To overcome this, self-healing mechanism is used when the interference occurs, while communicating with each other. In this regard designing a self-healing routing mechanism for sensor networks, which restore connectivity after a node failure. This can be achieved by using the MATLAB tool for creating a base-level accessible, open-source, real- time ad-hoc routing scheme simulations, here we are targeting the ad-hoc on-demand distance vector (AODV) routing protocol.

Key Words: — Wireless sensor networks, security, self-healing.

I. INTRODUCTION

The per-packet routing path serves as the meta-information for understanding detailed Wireless Sensor Networks (WSNs) behaviours in many network maintenance and diagnosis situations, e.g., routing dynamics [33], detections on wormholes [9] or packet loss holes [32], end-to-end packet transmission delay [29] or even perhaps per-packet transmission delay [13], network diagnosis [18] [26], etc. Reconstructing per-packet routing path information, however, has been known non-trivial. WSNs are self-organized and usually deployed in dynamic environments. The underlying network topology constantly changes and no fixed routing path can be expected for each node [30]. A straightforward solution to reveal the packet\ path is to record the complete path during packet forwarding, e.g., storing the ID sequence of all relay nodes, in each packet. The introduced overhead linearly grows with the routing path length, far scalable. The key insight of our design is as follows. The length of a routing path is usually much smaller than the network size. As a concrete example, the maximum path length reported in City See [22] is only 20 hops in comparison with its network size of 1200 nodes. Therefore, we can construct a path representation space, the number of whose dimension's equals to the total number of nodes in the network. In such a representation space, an arbitrary routing path can be represented by a path vector, where each element corresponds to a node in the network. The path vector sets the hop numbers for nodes on the path and zeros for those not involved in the path. As the path length is much smaller than the network size, such path vectors are thus sparse, i.e., the majority of elements are zeros. The path reconstruction becomes a problem of unveiling all existing path vectors hidden in the representation space. If all nonzero elements of a path vector can be encoded (with few bytes) into the packets forwarded along the path, we can recover the path vector (and thus the represented routing path) based on a small amount of packets using compressive sensing technique [5] [12].

In this paper, we propose a Compressive Sensing based Path Reconstruction method, CSPR, which formalizes the sparse path representation and leverages compressive sensing to recover per packet routing path. CSPR lets intermediate nodes briefly annotate the transmitted packets and classifies packets travelling along different paths into different groups. For a particular path, the forwarded packets encode independent observations and CSPR performs compressive sensing to recover the path when a certain amount of pack etc. (and the annotations) are collected at the sink. The path reconstruction by CSPR requires no inter-packet correlations and utilizes only a small number of received packets. CSPR is thus invulnerable to topology dynamics and lossy links. On the protocol level, CSPR introduces only small and fixed overhead in annotating each packet, which could be optimized accordingly for practical WSNs (e.g., 8 bytes per packet for a network with 245 nodes). In addition to the basic design, we further propose a set of optimization techniques to gradually shrink the representation space and heuristically scan possible paths for all unrecovered path vectors through the network topology learnt from already reconstructed routing paths. The numbers of packets needed for remaining path reconstructions are lowered and processing is thus accelerated. To examine the performance of CSPR, we first evaluate our method using a AODV testing method. The

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Food Distribution During Flood Using Q-Learning Algorithm

Mohammad Ashfan[1], Albin Francis[2], T. R. Deekshith[3*], Ameen Ahmed[4], Sayeesh[5]

[1,2,3,4]*Student, Department of Computer Science and Engineering, Alva's Institute of Engineering and Technology, Moodbidre, India*

[5]*Professor, Department of Computer Science and Engineering, Alva's Institute of Engineering and Technology, Moodbidre, India*

*Corresponding author: deekshithtr11@gmail.com

Abstract: During Emergencies, when we want to distribute food to different localities it is not always possible to use airways. In such cases when we have no other option other than roadways, we can implement Q-Learning to reach the localities. In this algorithm, the localities act as nodes or vertices and the routes acts as edges. A satellite image is fed to the system of the flood affected area. Starting from the first node, it decides the action to be performed in each stage as it proceeds. Solving, a valid solution would need to represent a route where every location is included at least once and only once. If a route contains a single location more than once, or missed out a location completely then it wouldn't be valid.

Keywords: Disaster, Emergency, Food, Flood, Q-learning, Rescue, Shortest path.

1. Introduction

Natural disasters have always posed a critical threat to human beings, often being accompanied by major loss of life and property damage. In recent years, we have witnessed more frequent and intense natural disasters all over the world. At the times of emergencies, such as floods when we want to distribute food to different localities it is not always possible to use airways. In such cases when we have no other option other than roadways, we can implement Q Learning to reach the localities. In this algorithm, the localities act as nodes or vertices and the routes acts as edges. A satellite image is fed to the system of the flood affected area. Starting from the first node, it decides the action to be performed in each stage as it proceeds. Solving, a valid solution would need to represent a route where every location is included at least once and only once. The adverse impacts of a disaster can be substantially miti-gated if during the disaster accurate information regarding the available volunteers can be gathered and victims' locations can be determined in a timely manner, enabling a well-coordinated and efficient response. This is particularly apparent whenever there is a huge burst of requests for limited public resources. Since the phone line resource is limited, many phone calls did not get through and victims turned to social media to plead for help, posting requests with their addresses.

At the same time, many willing volunteers seeking to offer help during the disaster were left idle as no one knew where they should be sent. In the case of a hurricane, a major challenge is that without coordination, multiple volunteers with boats may go to rescue the same victim while other victims have to wait for extended times to be rescued. This mismatch between victims and volunteers represents an enormous waste of limited volunteer resources.
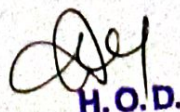
It is therefore imperative to improve the emergency services coordination to enable them to efficiently share information, coordinate rescue efforts and allocate resources more effectively, and offer guidance for optimal resource allocation.

The problem of resource coordination has drawn considerable attention in the computer science community, and several data mining frameworks have been developed to address this problem. Previous researchers have primarily focused on three approaches: supervised learning, adaptive methods, and optimization-based method. Traditional supervised learning models demand a dataset that is statistically large in order to train a reliable model for example by building regression models to predict needs and schedule resources accordingly.

2. Related Work

Different methods have been developed to solve the vehicle routing problem (VRP) and vehicle routing problem with time windows (VRPTW). The routes should be chosen to minimize the total distribution cost. A detailed description of these and other related problems including a literature review of the methods are provided. The solution is presented by one or more routes, each associated to one vehicle. Each customer must be assigned only to one vehicle and the load must not exceed the vehicle capacity. Various works address the transportation of foodstuffs, dealing with pertinent issues to our problem.

1. Tarantilis and Kiranoudis (2011) analyzed the distribution of the fresh milk. They formulated the problem as a heterogeneous fixed fleet vehicle routing problem; this is a VRP with vehicles that have different capacity. A threshold-accepting based algorithm was developed aiming to satisfy the distribution needs of the company, allowing them to schedule their distribution many times a week.

Smart Energy Meter Using IoT

Sheetal[1*], Shriraksha[2], Sumana Rehman[3], Vinutha[4], Sayeesh[5]

[1,2,3,4]*Student, Department of Computer Science and Engineering, Alva's Institute of Engineering and Technology, Moodbidri, India*

[5]*Professor, Department of Computer Science and Engineering, Alva's Institute of Engineering and Technology, Moodbidri, India*

*Corresponding author: sheetalshettigar40@gmail.com

Abstract: **Electricity plays a vital role in day to day life. Today keeping track of electricity consumption is a tedious task. Because one has to go for meter reading room to take down readings. The main problem of this system is that person has to go area by area and he has to read the meter of every house and handover the bills. Sometimes errors may occur such as extra bill amount, or notification from electric board even though the bills are paid. To overcome these problems the system can be automated by allowing users to monitor energy meter readings over the internet. In this paper the idea of smart energy meter using IoT and NodeMCU have been introduced. In this system NodeMCU is used because it is energy efficient i.e. it consumes less power, it is fastest. And a GSM module is used in this system for sending SMS to the user. As a whole this system is proposed to demonstrate its capability to check the current usage, sending message when reaching the limit, reset the limits through accessing GSM based mobile phone.**

Keywords: **GSM module, NodeMCU.**
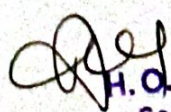
1. Introduction

Most of the daily activities such as education, shopping, banking requires electricity as a very important factor. Electricity will be used for lighting, heating, cooling and for operating appliances. A significant amount of the total electricity produced globally is used for household purposes. It is necessary to use the electricity in an efficient way because it allows people, governments and businesses to save money, and it lets power plants avoid costly upgrades.

Various technologies have been developed and used to measure the electrical consumptions. In the present billing system, at the end of the month a person from the meter board billing will visit every house to read the meter reading and at the same time, give the bill to the users. An electricity meter or energy meter is a device that measures the amount of electric energy consumed to residence or business. In the existing system it is difficult to keep track of changing maximum demand of consumers. And also there some problems associated with this system like due bills for bills that have already been paid or poor reliability of electricity supply and quality even if bills are paid regularly or the consumer may not be able to know about the usage of electricity on daily basis. So, it is important to find a solution to overcome these problems. This paper mainly focuses on the system that helps to solve the problems of existing system. Internet of Things (IoT) is an emerging field and IoT based devices have created a revolution in electronics and IT. The very important objective of this system is that to create awareness about energy consumption which helps in efficient use of home appliances for energy savings. This smart system will provide the information about meter readings, the cost according to the meter readings and it gives alert message when the set limit is exceeded. This idea can reduce the human dependency to collect meter readings and bills. And the consumers can keep track of energy consumption.

This paper proposes a new network communication system for energy meter reading by internet communication technology and software system along with the existing meters. An IoT modem will be integrated with an electronic energy meter to read the usage of electricity and uploaded on a server or website. Energy meters deliver the reading details and it is uploaded on the website instantly. This communication system is further useful for electricity regional/sub-regional office, who can monitor the value and power consumption. And they cut the power supply for any specific house, who had not paid the electric bill. Here each customer is differentiated using address or Id, this ID are used for identification by the consumer and as well as by office to monitor the reading and payment detail. It is secured by any network standards. Energy meter deliver the reading details and it is uploaded on the website instantly. Moreover, this power cut control system is done by using same website which is used for monitoring. In this project each customer is differentiated using address or Id, this ID are used for identification by the consumer and as well as by office to monitor the reading and payment detail.

Electricity is one of the vital requirements for sustainment of the contents of life. It should be used very judiciously for its proper utilization. But in our country we have a lot of locality where we have surplus supply for the electricity while many areas do not even have access to it. Our policies of its distribution are also partially responsible for this because we are still not able to correctly estimate our exact requirement and still power theft is prevailing. On the other hand, consumers are also not satisfied with the services of power companies. Most of the time they have complaints regarding statistical errors in the monthly bills. With this we can monitor the meter and track

Modified U-Net Models for Coarse Tumor Segmentation

Rakshith Rai[1], Pavan Kamath[2], Prasanna[3], Rakesh Kotian[4], Vivek Sharma[5]

[1-4]Student, Dept. of CSE, Alvas Institute of Engineering and Technology, Moodubidri, India.
[5]Assistant Professor, Dept. of CSE, Alvas Institute of Engineering and Technology, Moodubidri, India.

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Abstract - *U-net is a state of architecture which is used for biomedical image segmentation. It consists of contracting path and a expanding path. As the u-net architecture goes deeper vanishing gradient problem occurs which affects the context and the precise localization resulting in poor segmentation results. In this paper we propose two architectures named U-net+Resnet and U-net+Densenet. The proposed models involves the fusion of residual blocks and dense blocks to u-net architecture. By using resnet blocks in the contracting and expanding part of u-net the network can be essentially deeper and by using dense blocks in the contracting part of u-net the feature-maps of all preceding layers are used as inputs, and its own feature-maps are used as inputs into all subsequent layers. The modified architectures have several advantages as compared to u-net as network goes deeper they lighten the vanishing-gradient problems, encourage feature reuse which results in good segmentation accuracy. We evaluate the modified u-net models on coarse breast tumor data sets. The modified u-net models obtain good improvements than the u-net model.*

Key Words: Gradient, Localization, Segmentation, Relu, Pooling

1. INTRODUCTION

Convolutional neural networks[12] a class of deep neural networks cause expectional results in natural and biomedical classification and segmentation tasks they have become the dominant machine learning approach for visual object recognition. However the abnormal use of convolutional networks is on classification tasks, where the output to an image is a single class label .However to process biomedical image processing, the desired output should include localization which is a class label that is supposed to be assigned to each pixel. To solve this problem an architecture U-net[1] convolutional neural network was introduced which consisted of contracting path and expanding path which provided good localization of pixel. This network won the EM segmentation challenge at ISBI 2012. As cnn networks goes deeper a new problem arises as information about the input or gradient passes through many layers, it can vanish till it reaches the beginning or end of the network. More layers is better but the network goes deep the model weights cannot be updated through back propagation of the error gradient. When the network depth increases, accuracy gets saturated and then degrades rapidly and adding more layers to a suitably deep model leads to higher training error. This can be accomplished by using Resnet's[2] shortcut connection which can be be substantially deeper, more accurate, and efficient to train. Another deep network DenseNets[5] have several advantages they lighten the vanishing-gradient problem, strengthen feature propagation and encourage feature reuse. This network enables maximum information flow between layers because each layer is connected to another in feed-forward fashion.

In this paper, we build upon a more elegant architectures, so called U-net+Resnet and U-net+Densenet. We modify and extend this architectures such that it works with very few training images and yields more precise segmentations. The main idea in U-net+Resnet is to use shortcut connection which is used to skip one or more layers and use two residual block at each contracting path and expanding path of the u-net architecture. In U-net+Resnet we combine features through summation before passing into the next layer. In U-net+Densenet we use denseblock at the contracting path of the u-net unlike in resnet the features maps are summed here the layers are concatenated. Each layer reads the state from its preceding layer and writes to the subsequent layer. This help for better improved flow of information and gradients throughout the network, which yields good segmentation accuracy then u-net.

2. LITERATURE SURVEY

Jonathan Long, Evan Shelhamer, Trevor Darrell and UC Berkeley[3] they have defined a novel architecture that combines semantic information from a deep layers and fine layer to produce accurate and detailed segmentations. Vijay Badrinarayanan, Alex Kendall and Roberto Cipolla[4] proposed a novel and practical deep fully convolutional neural network architecture for semantic pixel-wise segmentation termed SegNet samples more efficiently. The u-net architecture consists two parts a contracting path which captures context and a expanding path which is symmetric that enables precise localization. In their work they show that u-net network can be trained end-to-end from very few images.

Simon J'egou, Michal Drozdzal, David Vazquez1, Adriana Romero1 and Yoshua Bengio[6] to deal with segmentation problem, extended Densenet network. Many improvements were done on the u-net architecture for improving accuracy like in[7][10]. Sachin Mehta, EzgiMercan, Jamen Bartlett,

Automatic Tonic Identification in Indian Art Music

Deeksha Poojary[1*], Ashwith Pinto[2], Abdulla Zahied[3], Anusha[4], Ankitha Shetty[5]

[1,2,3,4]Student, Department of Computer Science and Engineering, Alva's Institute of Engineering & Technology, Moodbidri, India

[5]Professor, Department of Computer Science and Engineering, Alva's Institute of Engineering & Technology, Moodbidri, India

*Corresponding author: deekshapoojari1111@gmail.com

Abstract: The Raga is the core of Indian Classical Music that is used in its composition, performance, improvisation and organization. Automatic Raga identification has potential use in various areas including music information retrieval, teaching music, learning of music, practicing of music, multimedia databases, interactive composition etc. Hindustani raga identification is a standard problem to artist that, over the years, have produced a detailed locution of Hindustani raga. In recent years the identification of Hindustani raga in the field can be made indirectly from its audio recorded tracks, using intelligent recording devices. This is an interesting form to monitor the Hindustani raga and its characteristics.

Keywords: Automatic raga, Music information retrieval, Audio recorded tracks.

1. Introduction

Human ear can perceive all the sounds and differentiating them from their source. But many times it is difficult to identify the types of a source. The Hindustani raga type is one such audio sound existing in our surroundings which is not easy to differentiate and hence a software-based product will help to overcome this limitation of human ear. Research on different kind's Eco environmental sounds will be beneficial in the study of the music and their development with time. Based on such research, development of an automatic system for Hindustani raga identification from their sample sound made in field conditions could be very useful.

2. Literature Survey

In paper [1] the author Ajay Jayswa, Hetal Guadani, Pranay Patel explains about the Singer Identification Systems which is used to identify the singer of the hindi songs. There are many of Indian Hindi Songs, and hence it is important to devise the system which can efficiently identify the singer from Hindi songs. They have abridge frequently used audio features and classification methods to identify a singer from audio song.

In paper [2] the author Rohith Joseph and Smitha Vinod identify the raga of the Carnatic music. The raga identification r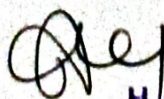eport uses the pitch determination, segmentation and the key note mapping technique to identify ragas in a song. Total ten ragas are considered in the dataset, composition of ragas are analyzed and the features are extracted before the classification. The system which is proposed is tested and different algorithms are used for the classification of the ragas. The proposed system used here is to identify the raga from the polyphonic music signal the best results were found to be achieved using K star algorithm with an accuracy of 93.38%.

In paper [3] Music Information Retrieval (MIR) is an active and growing body of research, with most of the music available today on the internet, whether in digital format. There has been a lot of work on Western classical music content analysis in terms of information retrieval, genre detection, and instrument recognition. Although Indian classical music is a major form of music, current literature is very limited compared to its Western counterpart. Indian classical music is known for its technical sound and its fine structure. The original music performance unit is a raga, similar to a song.

While a classical Indian musician can recognize the unique constituent patterns such as swaras, arohan, avarohan and pakad in performance, developing computational models have been the same for music researchers. The independence of Indian classical music to give an artist his / her personal tune makes it difficult for novices to distinguish between two different performances of the same raga. Another major challenge is that swaras are only different in terms of correlation, and decisions must be made by sound patterns rather than their full frequency structure.

Our approach to tune recognition relies heavily on the theoretical grounding of Indian classical music. The whole work has the premise that Indian classical music has a good structure. The whole concept of a complex tune made up of small substructures of Arohan, Avrohan and Pakad is made of vowels, which can be modeled as efficiently if treated and analyzed using these tiers. Splitting the ragas into swaras and a successful identification helps develop more precise applications for automated tagging, raga teaching, music recommendation and perhaps raga production.

Most early methods use tune audios, which are typically used

Cyber-Bullying Detection using Machine Learning Algorithms

Anvitha Keni[1], Deepa[2], Prof Mangala Kini[3], Deepika K V[4], Divya C H[5]

Abstract— Modern young people ("digital natives") have grown in an era dominated by new technologies where communications are pushed to quite a real-time level, and pose no limits in establishing relationships with other people or communities. The fast growing use of social networking sites among the teens have made them vulnerable to get exposed to bullying. Comments containing abusive words effect psychology of teens and demoralizes them. In this work we have devised methods to detect cyberbullying using supervised learning techniques. Cyber bullying is the use of technology as a medium to bully someone. Although it has been an issue for many years, the recognition of its impact on young people has recently increased. Through machine learning, we can detect language patterns used by bullies and their victims, and develop rules to automatically detect cyber bullying content. The data we used for our work was collected from the website kagle.com, it contains a high percentage of bullying content.

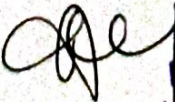*Keywords—cyber-aggressive; supervised; machine learning;*

I. INTRODUCTION

SOCIAL Media is a group of Internet based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user-generated content. Via social media, people can enjoy enormous information, convenient communication experience and so on. However, social media may have some side effects such as cyberbullying, which may have negative impacts on the life of people, especially children and teenagers. Cyberbullying can be defined as aggressive, intentional actions performed by an individual or a group of people via digital communication methods such as sending messages and posting comments against a victim. Different from traditional bullying that usually occurs at school during face to face communication, cyberbullying on social media can take place anywhere at any time. For bullies, they are free to hurt their peers' feelings because they do not need to face someone and can hide behind the Internet. For victims, they are easily exposed to harassment since all of us, especially youth, are constantly connected to Internet or social media. As reported in [2], cyberbullying victimization rate ranges from 10% to 40%. In the United States, approximately 43% of teenagers were ever bullied on social media [3]. One way to address the cyberbullying problem is to automatically detect and promptly report bullying messages so that proper measures can be taken to prevent possible tragedies.

To add up a social media called Twitter, Social media a powerful platform where you can have full freedom on what one wants to express or say; whether a negative or a positive one.

Suicide is the act of taking one's own life. Suicide is the second leading cause of death globally among people 15 to 29 years of age, according to the 2014 global report on preventing suicide by the World Health Organization [3]. Close to 800,000 people die due to suicide every year. For every suicide, there are more

An Anti-fraud System for Car Insurance Claim Based on Visual Evidence

Assistant Prof Harshitha G .M[1], Parikshith Adiga[2], Rasik Shetty[3], Sanath Shetty[4], Veekshith Shetty[5]

[1-5]Department of Computer Science and Engineering, Alva's Institute of Engineering and Technology

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Abstract: Automatically scene understanding using machine learning algorithms has been widely applied to different industries to reduce the cost of manual labor. Nowadays, insurance companies launch express vehicle insurance claims and settlements by allowing customers uploading pictures taken by mobile devices. This kind of insurance claim is treated as a small claim and can be processed either manually or automatically in a quick fashion. However, due to the increasing number of claims every day, systems or people are likely to be fooled by repeated claims for identical cases leading to big losses to insurance companies. Thus, an anti fraud checking before processing the claim is necessary. We create the first data set of car damage images collected from the internet and local parking lots. In addition, we proposed an approach to generate robust deep features by locating the damages accurately and efficiently in the images. The state-of-the-art real-time object detector YOLO is modified to train and discover damage regions as an important part of the pipeline. Both local and global deep features are extracted using the VGG model, which are fused later for more robust system performance. Experiments show our approach is effective in preventing fraud claims as well as meet the requirement to speed up the insurance claim prepossessing.

1. Introduction

The anti-fraud or fraud detection system is coupled with the claim history database. Each user has their own record in the database after they have a claim for the first time. The fraud claim could happen in two ways, one is that the same vehicle re-claim and another is cross-vehicle reclaim. Same vehicle reclaim happens when the user tries to make a quick insurance claim by uploading a similar image which is collected during the same case. Another fraud claim would happen when the user uses a similar image taken from another car as his or her own vehicle claim. Both formats could lead to reclaim for the same cases that actually have been issuing the settlement. Traditional insurance claim is handled manually by representatives which is necessary when the claim value is above a certain threshold.

However, when the claim number increases each day and some of the claims are only about small damages such as scratches, dent etc. Manually handling all these claims decrease the efficiency of insurance company's service and increase the cost of staffing. In this case, a system that can help to detect the fraud claims is needed when we want to make the system more automatically. The user is required to upload several images following the requirement in order to open a new claim. The anti-fraud system will then use algorithms to extract features to search in the enrolled history database. If the system reports a high score suspicious of a certain claim, humans can take into the loop and manually retrieve the history to do the loss assessment. To make the system more accurate and fast, we need a robust feature which is based on accurate locating the damages in the image. We adopt two state-of-the-art real-time detectors for damage detection and propose an approach to form robust features for the anti-fraud searching. Anti-fraud system for car insurance claim based on visual evidence. Automatically scene understanding using machine learning algorithms has been widely applied to different industries to reduce the cost of manual labor. Nowadays, insurance companies launch express vehicle insurance claim and settlement by allowing customers uploading pictures taken by mobile devices. This kind of insurance claim is treated as small claim and can be processed either manually or automatically in a quick fashion. However, due to the increasing number of claims every day, systems or people are likely to be fooled by repeated claims for identical cases leading to big losses to insurance companies. Thus, an anti-fraud check before processing the claim is necessary. The creation of the first data set of car damage images collected from the internet and local parking lots. In addition, proposing an approach to generate robust deep features by locating the damages accurately and efficiently in the images. The state-of-the-art real-time object detector YOLO is modified to train and discover damage regions as an important part of the pipeline. Both local and global deep features are extracted using the VGG model, which are fused later for more robust system performance. Experiments show the approach is effective in preventing fraud claims as well as meet the requirement to speed up the insurance claim prepossessing. The whole system consists of two parts: a real-time damage detector to provide accurate damage locations in the picture and a deep feature extractor to generate combined global and local deep features for anti-fraud matching in the claim history database. The

A REVIEW ON SMART HOME AUTOMATION SYSTEM

Shanbhag Atish Manoj[*1], Sinchana[*2], Rohan Mahaveer[*3], Vidya[*4]

[*1,2,3]Student, Department Of Cse, Alva's Institute Of Engineering And Technology,
Mijar, Karnataka, India.

[*4]Assistant Prof, Dept Of Cse, Alva's Institute Of Engineering And Technology, Mijar, Karnataka, India.

ABSTRACT

The low cost and user-friendly remote in this paper using Arduino, the regulated home automation system is presented Board module for Bluetooth, smartphone, sensor for Ultrasound Sensor of moisture. In the suggested application, a mobile app is used. A software that enables users to monitor up to 18 devices, including Home Appliances and Bluetooth technology sensors. Nowadays, the majority of traditional systems for home automation are Although the suggested system is a general system developed for particular purposes. There are more features to the suggested framework than Conventional devices for home automation, such as ultrasound, the sensor is used to detect the water level and the soil moisture sensor is used for the automatic irrigation method of plants. Also, this paper defines the system's hardware and software architecture, prospective work and scope. The suggested home prototype, the automation framework is implemented on hardware and tested as it has provided the exact and expected outcomes.

Keywords: Home Automation, Home Appliances, Arduino, Smartphone, Bluetooth, Wi-Fi.

I.   INTRODUCTION

The use of information technology in the home automation system is method of monitoring and control to eliminate human labor. The rapid development technology influences us to remotely use smartphones monitor the appliances in your house. The skill of automated devices is to function with flexibility, diligence and with the lowest rate of error. The design of a home automation system is a big problem for researchers and enterprises with home appliances. The automation method not only aims to minimize human labor, but it also helps to save time and resources. Early systems of home automation were used in labor-saving machines, but today their primary machines aim is to provide elderly and disabled people with facilities. To carry out their regular routine duties and regulate the home remotely the equipment. The Knowledge of Allied Industry (ABI) Research estimates that nearly 1.5 million automatic homes are reported Equipment has been introduced in the United States of America (USA) In 2012, their rate of growth is 45.2 percent. Wireless in Different types of technologies focused on home automation systems such as ZigBee, Z-Wave, Global Framework for Mobile (GSM), GPRS (General Packet Radio Service), Infrared Radio Service Wi-Fi and Bluetooth are wireless fidelity (Wi-Fi) and as used, each technology has its own pros and cons. It is possible to introduce a wireless home automation system based on It's a low price and easy to build in an existing home. A Study work has shown that the Bluetooth device is faster than wireless and GSM system. Bluetooth program is capable of serially transmitting data within a physical range of up to 3 Mbps depending on the form of Bluetooth unit, 10m to 100m.

The approach proposed presents the specification and design and the method proposed Robust, low-cost and user-friendly home implementation Kit for automation using Bluetooth technology. The architecture of the proposed method is based on the Arduino board, the Bluetooth module, Sensors and software for smartphones. HC-06 Bluetooth module, the Arduino board is interconnected and home appliances are Connected via relay with the Arduino board. Smartphones The software is used for serial communication between the additional linked smartphone and Bluetooth module with the Arduino panel. The method proposed has the capacity not only to controls the appliances remotely, but it also tracks the sensors. Most traditional home automation systems nowadays are Built for the elderly, people with disabilities or for any special intention. The approach suggested is not only acceptable for elderly people. People with disabilities, but it also offers a general reason. Kit for home automation, which can easily be implemented in existing residence. For the water level, an ultrasonic sensor is used for the soil moisture sensor is used for automatic detection and detection.

II.   LITERATURE SURVEY

Yadnya Adhiya et.al [1] have introduced the home is controlled through a Wireless home automation system. On input, the Arduino BT board is connected to appliances. Output ports controlled by Arduino Institute of

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Fake News Detection in Twitter

Ainab[1]*, Megha D. Hegde[2], S. Akash Kumar[3], Dhanush Shetty[4], M. S. Venkata Chandrashekar[5]

[1,3,4,5]Student, Department of Computer Science and Engineering, Alva's Institute of Engineering and Technology, Moodbidri, India

[2]Assistant Professor, Department of Computer Science and Engineering, Alva's Institute of Engineering and Technology, Moodbidri, India

*Corresponding author: ainab456@gmail.com

Abstract: Mass media sources, specifically the news media, have traditionally informed us of quotidian events. In modern times, social media services such as Twitter provide an extensive amount of user-generated data, which have great potential to contain informative news related information. For these resources to be useful, we must find a way to filter noise and only capture the information that, based on its similarity to the news media, is considered prized possessions. To achieve categories, information must be ranked in order of estimated importance considering two factors. First, the temporal widespread of a topic in the news is an element of importance can be considered the media focus of a topic. Second, the temporal prevalence of the topic in social media indicates its user awareness.

Keywords: Media focus, Prioritization, Temporal prevalence, User attention.

1. Introduction

The mining of quotidian information from online sources has become an important research area in information technology in recent years. Historically, knowledge that inform the general public of daily events has been provided by mass media sources, specifically the news media. Many of these news media sources have either deserted their hardcopy publications and moved to the World Wide Web, or now produce both hard-copy and Internet versions simultaneously. These news media sources are considered dependable because they are published by professional journalists, who are held accountable for their content.

2. Literature Survey

In paper [1] the author Kai Shu, Huan Liu have told that Consuming news from social media is becoming increasingly popular day by day. Social media brings advantages to users due to the inherent nature of dissemination, less expensive and easy access. However, the quality of news is considered less than traditional news outlets, resulting in high amounts of fake news. Detecting fake news becomes very prominent and is attracting more attention due to the detrimental effects on individual person and the society. The performance of detecting fake news only from content is generally not contentment, and it is suggested to incorporate user social engagements as additional knowledge to improve fake news detection. Thus it

necessary to understand in-depth of the connection among user profiles on social media and fake news.

In paper [2] the author Cody Buntain, Jennifer Golbeck told that Informations quality in social media is a highly important issue, but web-scale data hinders experts' capacity to judge and rectify much of the inaccurate content, or "fake news," present in these platforms. This paper develops method for automate fake news detection in Twitter by learning to predict accuracy judgement in two credibility-focused Twitter datasets: CREDBANK, a crowdsourced dataset of correctness assessments for function in Twitter and PHEME a dataset of possible hearsay in Twitter and journalistic assessments of their correctness. We apply this method to Twitter contents sourced from Buzz Feed's fake news dataset and show models trained against crowdsourced workers perform models based on correspondents' assessment and models trained on a pooled dataset of crowd sourced workers and correspondent

All three datasets, lineup into a format, are also publicly available. A feature analysis that recognize features that are most auguring for crowd sourced and correspondent accuracy assessments, results of which are consistent with earlier work.

In paper [3] the author Akshay Jain and Amey Kasbe have told the method for fake news observations and ways to apply it on Social Media. This method uses Naive Bayes classification model to predict whether a post on Social Media will be denomination as REAL or FAKE. Naive Bayes classifiers are a related to simple probabilistic classifiers based on applying Bayes theorem. Bayes Theorem works on conditional possibility, which is the possibility that an event will happen, given that a certain event has already done. Using this concept, we can evaluate the probability of any event based on the likelihood of other event.

The dataset used to test the effectiveness of the model is produced by GitHub, containing 11000 news article tagged as real or fake. It has 6335 rows and 4 columns. Web Scraping is a method employed to extract high amount of data from websites.

In paper [4] the author Mario Cataldi, Luigi Di Caro, Claudio Schifanella have told that Twitter is a user generated information system that allows person to share text messages, called tweets, for a variety of reasons, including conversations,

STUDENTS COLLEGE SEAT ALLOTMENT PREDICTION MODEL USING MACHINE LEARNING TECHNIQUES

Charanaraj N[1], Dhanush V U[2], Jayanth S V[3], Deril Quadras[4], Associate Prof. Vasudev Shahapur[5]

[1,2,3,4,5] *Department of Computer Science and Engineering, Alva's Institute of Engineering and Technology, Mijar.*

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Abstract -The ease of making better choices and making better decisions in terms of selecting colleges is the main aim of this system. Our analysis of colleges for the students makes it easier for them to make an accurate decision about their preferred colleges. For such analysis, it requires future possibilities from record data, which can make predictions and recommendations for students. Our analysis with the machine learning classification methods would help to give probable accuracy, and this requires analytical methods for predicting future recommendation. Today, most students make mistakes in their preference list due to lack of knowledge, improper and incorrect analysis of colleges, and insecure predictions. Hence repent and regret after allotment. Our project will solve the general issue of the student community by using machine learning technology. In this system, the Random Forest and Decision Tree machine learning classification algorithm is going to use.

*Key Words:*Machine Learning, Decision Tree and Random Forest Algorithm.

1.INTRODUCTION

At present, there are sixteen IITs in India, for which admission is governed by DTE (Directorate of Technical Education). DTE carries out the admission through CAP (Centralized Admission Process). The process is done through the cap rounds and is very confusing for students to analyze the perfect college. The student's needed to verify the documents at Facilitation Centre and are supposed to give their preference list of colleges. Then based on their Subject marks, Category, and other attributes, college is allotted to them in three or more consecutive forms. It's very difficult for the students to and out suitable colleges for them based on their Subject score, Aptitude Test, Technical Skills, English Skills, Olympiads, reading and writing skills, memory capability score, etc. Various colleges provide a degree in IITs in various branches. Though analysis of colleges and their cut-offs are required to get the most correct preference list. It is a very tedious job for a student to understand the suitable colleges which provide preferred branch and to analyses, it's last year's cut-offs to predict whether that he can get one of those colleges in CAP.

Most of the students make mistakes in their preference list due to lack of knowledge, improper and incorrect analysis of colleges, and insecure predictions. Hence those students regret after what they get the college after allotment.

The main objective of this project is to predict the College and Department allocation for the students based on their marks and skills.

2. System Requirements and Specification

A Software Requirements Specification may be a complete description of the behavior of the system to be developed. SRS may be a document that completely describes what the proposed software should do without describing how the software will roll in the hay. It is a two-way policy that both the client and the organization understand the requirements at any given point of time. SRS document itself is precise and it provides the functions and capabilities of a system that it should provide. The purpose of SRS is to bridge the communication gap between the parties involved in the development of the software. It serves as an input to design specifications. It also serves as the parent document to subsequent documents. Therefore, the SRS should be easy to know and also should contain sufficient details within the system requirements so that a design solution is often devised easily.

The document gives a detailed description of both functional and non-functional requirements. The purpose of requirements and specifications to obviously and unambiguously articulate the product's purpose, features, functionality, and behavior.

Table -1: Hardware and Software Requirements

System Processor	Core i5 8th Gen.
Hard Disk	500GB.
RAM	4GB .
Operating System	Windows 10.
Programming Language	Python.
Framework	Anaconda.
IDE	Jupyter Notebook.

3. System Analysis and Design

The analysis is a process of collecting and interpreting facts, identifying the problems, and decomposition of a system into its components. System analysis is conducted to study a system or its parts to identify its objectives. It is a problem-solving technique that improves the system and ensures that all the components of the system work efficiently to accomplish its purpose. Analysis specifies what the system should do. A system must have three basic constraints:

2020-21

Donation Tracking System using Blockchain Technology

Ajeyashree K[1], Apeksha Rane[2], Asha R Totagi[3], Ashwini S J[4], Dr. Manjunath Kotari[5]

[1,2,3,4] - Student, [5] - Professor and Head

Department of Computer Science and Engineering,

Alva's Institute of Engineering & Technology, Moodbidri

Email: mkotari@gmail.com

Abstract-Maintaining transparency in collections of various funds and proper utilization of funds is one of the fundamental duties of any social organization/NGO. Most of the charity donations, donors were unaware of utilization of their donated funds. The donation tracking system is developed to yield more transparency on donors' funds and system builds more trust on social organizations. In this system, the social organization should initially request the trusted third party to approve the purpose of fund collection. Upon the approval of request, the social organization proceeds to send the request to donors about asking donation. The donors can view the approved donation request and can donate funds, further will get a token number to view the utilization of their donated funds. The system was implemented by using Blockchain technology. The blockchain technology delivering on its promise with seamless cross border payments now a days.

I. INTRODUCTION

Blockchain is a constantly growing ledger technology where records and data are stored permanently for all of the linked transactions having taken place in a secure, sequential, and irreversible manner. Secure transferring of digital money, possessions, contracts, etc. with no requirement of third-party go-between any bank or government can be done using this technology. A Blockchain is defined as a series of blocks in which each block contains transaction information. This method has been proposed to provide timestamps in digital documents so that it is not possible to revert them or change their metadata. This can be defined as a software protocol that cannot run without the Internet. This can also be called meta-technology as it influences other technologies, such as a database, software application, connected computers, etc. A Blockchain has as many blocks as transactions, and each block refers to the previous block, and all these blocks together are called a Blockchain. Blockchain technology is very effective because multiple copies of a Blockchain are spread across multiple computers via the Internet, due to which it is not possible to alter them.

Distributed Ledger: The Bitcoin blockchain protocol introduced a mechanism of making it expensive to copy digital values. A copy of the ledger is stored on multiple devices of a cryptographically secured P2P network. The ledger is a le, also called blockchain. It maintains a continuously growing list of transaction data records, chained in blocks that are cryptographically secured from tampering and revision. In order to change the contents of that ledger, network users need to reach a mutual agreement, also referred to as consensus. Blockchain can, therefore, be described as a shared, trusted, public ledger of transactions, that everyone can inspect, but which no single user controls. The ledger is built as a linked list – or chain of blocks – where each block contains a certain number of transactions that were validated by the network in a given timespan. Each block furthermore includes the cryptographic hash of the prior block in the blockchain, linking one block with another into a chain of blocks, which guarantees the integrity of the previous block all the way back to the first block, the genesis block. Since the ledger records transactions across many computers, data on the blockchain cannot be altered retroactively, without the alteration of all subsequent blocks. Unlike distributed databases, where data is distributed but managed and controlled by one single entity, blockchains allow for distributed control. Different people and institutions, that do not trust each other, share information without requiring a central administrator. Each independent node has the latest version of the ledger, which contains all transactions that have ever been made, and can verify transactions. This is particularly useful in inter-organizational setups where no institution wants to trust another institution with the management of their data. Like a