A Project Report

On

DETECTING EMPLOYEE ATTRITION USING ML WITH WEB INTERFACE

Submitted to

VISVESVARAYA TECHNOLOGICAL UNIVERSITY BELAGAVI, KARNATAKA- 590014

In partial fulfilment of the completion of Eighth semester

Bachelor of Engineering

in

Information Science and Engineering

By

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KSHAMA	4AL17IS023
MAYURESH KUNDER	4AL17IS024
PRATHIKSHA PATKAR	4AL15IS028

Under the guidance of

Mr. Jayantkumar A Rathod

Associate Professor

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2020-21

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CERTIFICATE

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Name of the Examiners

1. Mr. Manjunath H.R

2. Mr. Jayantkumar A.R

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ABSTRACT

Human resource is the backbone of any company. Employees leaving organizations is referred to as attrition. It is very expensive as acquiring new employees is not easy and even when acquired, the new employees will have a learning curve to become fully productive.

A good understanding of the reasons why employees leave is important so that organizations can frame appropriate policies to enable employee satisfaction and retention. There are several factors which are considered to be contributing to employee attrition.

Various prediction models have been developed and used to address this critical issue. This project is an attempt to survey the various modeling techniques that have been and are being used in academia and industry to determine the significant factors that contribute to employee attrition and estimating the chance of an employee leaving an organization. Also with the aim to create an web app for HRs and Project managers to determine the factors that contribute to employee attrition.

This will help the organization to focus efforts to address concerns of those employees who are at a higher risk of leaving the organization. The suitability of the techniques used will be discussed and few of those techniques will be implemented and validated on available dataset from an organization in the software industry. The outcome of this project is likely to be a useful reference to the organization and the software industry at large.

A Project Report

On

STUDENT INFORMATION MANAGEMENT SYSTEM

Submitted to

VISVESVARAYA TECHNOLOGICAL UNIVERSITY
BELGAUM, KARNATAKA- 590014

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Bachelor of Engineering

in

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ABSTRACT

The administration of student connected information in an informative institute gets more boring with every transient year as all schemes in today's creation are being hi-tech, there is a need for an automatic system for handling such info. Student Information Management System delivers a simple interface for conservation of student info. It can be used by educational institutes or colleges to continue the records of students easily.

Student info system deals with all kind of student details, educational related reports, college details, course details, office details, examination details, department details and other store related details too. It tracks all the details of a student from the day one to the end of the sequence which can be used for all journalism purpose, following of attendance, growth in the course, finished semesters, years, exam details, project or any other task details, online interface rooted in the college's website. It also facilitate us explore all the events happening in the college, Different intelligences and Queries can be produced based on huge options related to students, batch, course, faculty, exams, semesters and even for the entire college.

A Project Report

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FRUIT CLASSIFICATION USING CONVOLUTIONAL NEURAL NETWORK

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in

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By

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ABSTRACT

Agriculture has usually been an essential financial and social region for humans. Therefore, using progressive technology is of essential significance for the agri-meals region. As fruits play a major role in our day to day lives, fruit classification has become the need of the hour especially in wholesale and retail markets.

Automatic fruit classification is a difficult problem because there are so many types of fruits and the large inter-class similarity. Automatic fruit category is a hard hassle due to the fact there are such a lot of forms of end result and the big inter-elegance similarity. This fruit classification technique could assist the human to lessen the effort and time wanted for sorting of end result at supermarkets and gets rid of the want for direct touch with a variety of the farm produce alongside the supply chain. In this, a technique for classification of varieties of a fruit, which is most commonly available in the market primarily based on convolution neural network (CNN) is proposed, by creating a user interface and utilizing IDLE Python platform. The aim is to build an accurate, fast and reliable fruit detection system using machine learning facts. Size and colour appearance is the main source for fruit classification.

For fruit image detection, CNN also showed significantly higher accuracy than a conventional method did. Besides, this approach is also much quicker to deploy for new fruits. We have proposed a fruit classification model, which basically classifies 7 types of fruits. On the basis of convolutional neural network, several research experiments were conducted by considering various parameters, and achieved the highest average classification accuracy of 92%.

A Project Report

On

ASSISTANCE FOR VISUALLY IMPAIRED IN OBJECT DETECTION AND RECOGNITION

Submitted to

VISVESVARAYA TECHNOLOGICAL UNIVERSITY BELGAUM, KARNATAKA- 590014

In partial fulfilment of the completion of Eighth semester

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in

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1. Mr. Nagesh U. B
2. Sharan. L Pais

ABSTRACT

Vision is one of the most important senses that help people interact with the real world. There are nearly 200 million blind people all over the world, and being visually impaired hinders a lot of day-to-day activities. Thus, it is very necessary for blind people to understand their surroundings, and to know what objects they interact with. This project proposes a deep learning application to help blind people see through handheld device like mobile phone and computer. It integrates various techniques to build a rich deep learning application that will not only recognize objects around visually impaired people in real time but also give an audio output to assist them as quickly as possible. Also, this algorithm Convolutional Neural Networks (CNNs) gives nearly accurate results for real time object detection and is proven to be faster than other relative algorithms. The application further uses tensor flow and TextToSpeech API to give audio output.

The ability of people who are visually poor or have significant visual impairments to read printed text and product packages will enhance independent living and foster economic and social self-sufficiency. The contribution of this proposed system is mainly on methodological aspect, presenting an effective method of object detection and recognition. In order to enhance the blind people to become independent socially and economically, assisting object is one of the helping hand for them. Today there are many systems available, it is very difficult for blind user or visually impaired person to get location of that object. So, this system is proposing to solve this problem of blind people. This system will easily detect the text patterns from the image the detected objects are given as speech output to blind person.

A Project Report

On

CROP YEILD PREDICTION USING MACHINE LEARNING

Submitted to

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in

Information Science and Engineering

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This is to certify that the project entitled **"Crop yield prediction using machine learning"** has been successfully completed by

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Name of the Examiners

1. Prof. Sudheer Shetty

2. Mr. Pradeep Nayak

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CHAPTER 1

INTRODUCTION

Agriculture is the backbone of every economy. In a country like India, which has ever increasing demand of food due to rising population, advances in agriculture sector are required to meet the needs. From ancient period, agriculture is considered as the main and the foremost culture practiced in India. Ancient people cultivate the crops in their own land and so they have been accommodated to their needs.

Machine learning can bring a great impact of profit in the agriculture field by implementing the technology. The prediction made by machine learning algorithms will help the farmers to decide which crop to grow to get the maximum yield.

Growth of agriculture depends on diverse soil parameters, crop rotation, surface temperature and also weather aspects which include temperature, rainfall, humidity etc. From past ten years of India have been considered making this dataset to ensure learning and training of the algorithm and increasing the accuracy rate of the prediction.

Crop yield prediction is an important agricultural problem. Each and Every farmer is always tries to know, how much yield will get from his expectation. In the past, yield prediction was calculated by analyzing farmer's previous experience on a particular crop. The Agricultural yield is primarily depends on weather conditions, pests and planning of harvest operation. Accurate information about history of crop yield is an important thing for making decisions related to agricultural risk management. The farmer will check the yield of the crop as per the acre , before cultivating onto the field.

1.1 WORKING DOMAIN: MACHINE LEARNING

Machine learning (ML) is the scientific study of algorithms and statistical models that computer systems use to perform a specific task without using explicit instructions, relying on patterns and inference instead. It is seen as a subset of artificial intelligence. Machine learning algorithms build a mathematical model based on sample data, known as "training data", in order to make predictions or decisions without being explicitly programmed to perform the task. Machine learning algorithms are used in a wide variety of applications, such as email filtering and computer vision, where it is difficult or infeasible to develop a conventional algorithm for

A Project Report

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ANALYSIS AND PREDICTION OF ROAD ACCIDENT USING MACHINE LEARNING

Submitted to

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In partial fulfilment of the completion of Eighth semester

Bachelor of Engineering

in

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This is to certify that the projectentitled **"Analysis and Prediction of Road Accidents using Machine Learning"** has been successfully completed by

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Assistant Professor	**Associate Professor**	
Project Guide	**HOD ISE**	**Principal**

Name of the Examiners

1. Mr. Nagesh U B

2. Mr. Sharan L Pais

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ABSTRACT

Road accidents are one of the most relevant causes of injuries and death. This is also one of the serious issues, which can possibly cause disabilities, injuries and even fatalities. With the exponentially increasing number of vehicles, road safety is a matter of huge concern. Road accidents kill 1.2 million people every year. It causes loss of lives and economical damage, due to which is a serious concern which needs to be solved.

There are many of reasons that contribute to accidents. Some of them are internal to the driver but many are external. For example, adverse weather conditions like rain, cloudy, and fog cause partial visibility and it may become difficult as well as risky to drive on such roads. This paper aims to provide an Overview of the area of the art in the prediction of road accidents through clustering techniques and machine learning algorithms.

We have used Clustering techniques and Machine Learning algorithms to prediction. we have used the k-means clustering as it's an unsupervised learning which is used for the unlabelled data therefore data are not labelled into any group of cluster. And also the techniques of regression with a large set of accident's data to identify the reasons of road accidents were used. Analysis is done for the identification of factors involved in the accident that occur together which is then plotted in a graph form. Factors like area, alarm type, time, weather condition, visibility, accident severity and pothole severity. This shares a lot in understanding the circumstances and causes of accident.

And this ultimately helps the Government to adapt the traffic safety policies with different types of accidents and situations. We have used Machine Learning tools such as Python, Scikit-Learn, Numpy, visual studio etc. And the road accident data provided by the kaggle and government websites. And we have chosen machine learning algorithm that's linear regression as it showed the highest accuracy of 86%.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI

A PROJECT REPORT ON

DETECTION OF PLANT LEAF DISEASE USING CNN IN MACHINE LEARNING

IN
INFORMATION SCIENCE & ENGINEERING

By

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2) Mr. Manjunath. H. R

ABSTRACT

The major problem that the farmers around the world face is losses, because of pests, disease or a nutrient deficiency. They depend upon the information that they get from the agricultural departments for the diagnosis of plant leaf disease. This process is lengthy and complicated. Here comes a system to help farmers everywhere in the world by automatically detecting plant leaf diseases accurately and within no time. The proposed system is capable of identifying the disease of majorly 5 crops which are corn, sugarcane, wheat, and grape. In this paper, the proposed system uses the MobileNet model, a type of CNN for classification of leaf disease. The database obtained from the Internet is properly segregated and the different plant species are identified and are renamed to form a proper database then obtain test-database which consists of various plant diseases that are used for checking the accuracy and confidence level of the project .Several experiments are performed on the dataset to get the accurate output. This system ensures to give more accurate results than the previous systems.

ii

A Project Report

On

DETECTING AND COUNTING THE BACTERIAL COLONIES USING IMAGE PROCESSING APPROACH

Submitted to

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This is to certify that the project entitled **"Detecting and Counting the Bacterial Colonies Using Image Processing Approach"** has been successfully completed by

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ABSTRACT

The counting of microbial colonies is important due to its applications in the field of medical microbiology. To search or detect the causes of diseases it is important to quantify the amount of bacteria present. While different tasks are performed, the counting process is done either manually or by a common software available. The manual counting of bacteria colonies is tiresome, eye-straining, and time consuming and difficult even for well-trained technicians since there might exist hundreds or thousands of colonies on a Petri dish, it is difficult to get the result quickly and accurately.

Fully automated and high throughput hardware imaging instruments are also available but they are highly expensive and not affordable by most of the labs. Also there are some android application available but tends to have high error rate. The aim of this study is detecting and counting bacteria colonies without having these limitations. Here an image processing approach is used to count the number of microbial colonies in the sample. The whole process includes detecting dish/plate region identifying colonies, separating aggregated colonies and finally reporting consistent and accurate counting results. The proposed system is using an edge detection technique where it takes an image as input and produce the colony count as output.

i

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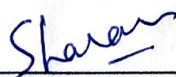
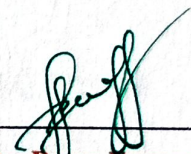## DEPARTMENT OF INFORMATION SCIENCE & ENGINEERING
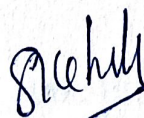
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Name of the Examiners

1. Sharan L. Pais

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11/8/21

ABSTRACT

Sign language and spoken language, both are generated from the same human brain, but their linguistic and physical transmission varies greatly from each other. Sign language is an indispensable communication means for deaf-mute people because of their hearing impairment. At present, sign language is not popular communications method among hearing people, hence most of the hearing are not willing to have a talk with the deaf-mute.

Persons having hearing and speaking impairment are often incapable of communicating their statements appropriately. So, they use sign language to communicate with each other and with the rest of the world. As a result, sign language recognition (SLR) has become one of the most interesting topics in computer vision and machine learning recently. Researchers are trying to improve this language to use in a large-scale though it is not an international language

This report documents the implementation of Sign Language Recognition (SLR) system, which aims to translate sign language into text from the image input given to it. Using the sign language recognition system, the deaf and dumb people would be able to communicate by their natural form of communication which would then be converted into its respective text so that it would be understood by the non-signers. This system would make the life of deaf-mute people much easier by allowing them to communicate without any restrictions and lead a normal life like others.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY
JNANA SANGAMA CAMPUS, BELGAVI-590018

PROJECT REPORT
On
"DETECTION LACK OF NUTRIENTS IN COFFEE AND BANANA UING IMAGE PROCESSING"
Submitted by

AHIMSA JAIN	**4AL17IS001**
THANGSABAM BIKUMAR SINGH	**4AL17IS051**
ZEENAL MANOLA LOBO	**4AL17IS053**
VARADA	**4AL16IS058**

In partial fulfillment of the requirements for the degree of
BACHELOR OF ENGINEERING
In
INFORMATION SCIENCE AND ENGINEERING
Under the Guidance of
Mr. PRADEEP NAYAK
Assistant Professor

DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING
ALVAS INSTITUTE OF ENGINEERING AND TECHNOLOGY
Moodbidri-574225, Karnataka
2020– 2021

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY
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KARNATAKA

DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING
CERTIFICATE

Certified that the project work entitled *"DETECTION LACK OF NUTRIENTS IN COFFEE AND BANANA UING IMAGE PROCESSING"* is a bonafide work carried out by

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in partial fulfilment for the award of BACHELOR OF ENGINEERING in **INFORMATION SCIENCE AND ENGINEERING** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM** during the year 2020–2021. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of project work prescribed for the Bachelor of Engineering Degree.

Mr. PRADEEP NAYAK	**Mr. SUDHEER SHETTY**	**Dr. PETER FERNANDES**
Project Guide	**Head of Department**	PRINCIPAL
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Name of the Examiners		**Signature with Date**

1. Mr. Pradeep Nayak

2. Mr. Jayantkumar A Rathod

ABSTRACT

The main Aim of this project is to help the coffee and banana growing farmers to classify and recognize the nutrient deficiency in coffee and banana. Presently farmers taking help of the experts to take decision but it is again problem for the farmers because of consultancy fees and unavailability of experts. The project proposed farmers to take time to time decision. There are different nutrients, lack nutrient like Boron & Magnesium in Banana and Calcium and Phosphorous in Coffee can be detected and providing required nutrients to plants which will help in improving quality of the products.

The project proposed website, which the farmer can directly access. Front End consists of upload photo (testing data) & predicted result and Back End consists trained model, preprocessed testing data and compared both trained model and testing data.

To trained the model, Mobile camera is used to collect the images which is training datasets. The datasets were collected from Coffee and Banana farms. For Coffee Calcium & Phosphorous nutrient deficiency images were taken and for Banana Boron & Magnesium deficiency were taken. The system uses the image processing technique to trained model, Image processing is done by several process such as Collecting the training datasets, Pre-processing data & converting the image data to array by OpenCV, Stored the array to Pickle module and Trained the model by CNN algorithm. Then the model will stored in tensorflow.keras.model.

The farmers need to captured the photo and upload to the website. Then the upload image will be converted into array & preprocess. After preprocess the image will compare with trained model by tensorflow.keras(predict). And the result (about lack nutrient and correct measures) will be display in same page.

A Project Report
On

FEATURES IDENTIFICATION FOR GROWTH OF CERTAIN CROPS IN INDIAN AGRICULTURE

Submitted to

VISVESVARAYA TECHNOLOGICAL UNIVERSITY BELGAUM, KARNATAKA- 590018

In partial fulfilment of the completion of Eighth semester

Bachelor of Engineering

in

Information Science and Engineering

By

DIVYASHREE	4AL17IS015
GANGOTHRI N V	4AL17IS016
LOKESH P	4AL17IS025
CHAITANYA B N	4AL17IS054

Under the guidance of

Dr. Kiran B Malagi

Associate Professor

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2020-21

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CERTIFICATE

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the bonafide students OF **DEPARTMENT OF INFORMATION SCIENCE & ENGINEERING, Alva's Institute of Engineering and Technology**, Moodbidri affiliated to **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI** during the academic year 2020–21. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of project work prescribed in partial fulfillment of awarding Bachelor of Engineering degree.

Dr. Kiran B Malagi	**Prof. Sudheer Shetty**	**Dr. Peter Fernandes**
Associate Professor	**Associate Professor**	PRINCIPAL
Project Guide	**HOD ISE**	Principal

Alva's Institute of Engg. & Technology,
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Name of the Examiners   **Signature with Date**

1. Dr Kiran B Malagi

2. Mr. Nagesh. U.B

ABSTRACT

In India agriculture is the main source of employment and contributes approximately 20% of GDP with an employed workforce of 41%. India is the second-largest producer of agriculture crops which contributes to the Indian economy and also a major source of raw materials. In order to have good income, farmers must know the crop to be grown for a particular region and time. Common predictions would not work in the present situation because of the changes in the climatic conditions. The technological contribution may help the farmers to get more yield. The research focuses mainly on South Indian agricultural crops from Karnataka, Kerala, Tamil Nadu and Andhra Pradesh. The dataset is resourced by gathering data from Kaggle and climate-data.org.

The crop cycle for summer, kharif, rabi, autumn and the whole year is used. The experimental parameters considered for study are cultivation area, crop, state, district, season, year, rainfall, soil pH and temperature Machine learning is the domain which helps for such prediction. In that we have used Random Forest Regressor to predict the crop based on the parameters entered by the user along with other crops suitable for that region. The concept of this paper is to implement crop selection method by identifying the features responsible for growth in order to help farmers with their production.

A Project Report

On

AUTONOMOUS CROWD MANAGEMENT SYSTEM IN SMART CITY

Submitted to

VISVESVARAYA TECHNOLOGICAL UNIVERSITY BELGAUM, KARNATAKA- 590014

In partial fulfilment of the completion of Eighth semester

Bachelor of Engineering

in

Information Science and Engineering

By

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This is to certify that the project entitled **"Autonomous Crowd Management System In Smart City"** has been successfully completed by

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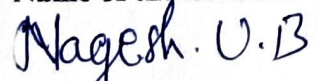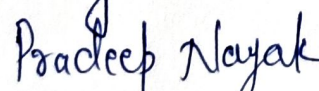
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Name of the Examiners

1. Nagesh. U. B

2. Pradeep Nayak

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ABSTRACT

The development of technology related to Internet of Things (IoT) provides a new perspective on application pertaining to smart cities. Smart city application focus on resolving issues facing by people in everyday life. The Crowd management is an important research area due to its impact on significant numbers of people in society. The typical issue encountered in such places of daily use such as stations, shopping mall and stadiums is crowd dynamics management.

In this model, the problem of queue in convenient stores is considered. We propose a low cost automatic queue monitoring system by using an Internet-of-Things (IoT) platform. Manually calculating the number of people who enter and exit the supermarket and updating this data in real time is not possible. So this model will provide the count of crowd present in a particular store to the public.

The count of the people will be stored in Thingspeak cloud, which is an IoT dashboard or a platform service that allow you to aggregate, visualize and analyse live data streams in the cloud. It provides the instant visualization of data posted by your devices to Thingspeak. It is used for prototyping and proof of concept IoT systems that require analytics. The main purpose of Thingspeak here is that, as the count of people increases in the cloud, the data is fetched and made available to the public, where they can get access to the crowd count and decide whether to go or not.