

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

BELAGAVI - 590018

2020–2021



A

Phase 2 Project Report

on

“Face Detection and Recognition for Automatic Attendance System Using Artificial Intelligence for Real Time Applications.”

Submitted in the partial fulfillment of the requirement for the VIII Semester Project - 15ECP85 for the award of degree of

Bachelor of Engineering

in

Electronics and Communication Engineering

by

BHARATH J	1GV16EC007
CHANDANA G	1GV16EC010
KAVYA H N	1GV16EC019
SHUBHA M	1GV16EC056

Carried at

Dr.T.THIMMAIAH INSTITUTE OF TECHNOLOGY.

Under the guidance of

Dr. K M Palaniswamy, Professor, ECE Dept.

Mr. Jesudas J, Asst. Professor, ECE Dept.

Department of Electronics and Communication.



Dr.T.Thimmaiah Institute of Technology
Oorguam Post, K.G.F-563120



**(Approved by AICTE, New Delhi, Affiliated to VTU-Belagavi,
Approved by Govt. Of Karnataka and ISO 21001-2018
Certified)**



Dr. T. Thimmaiah Institute of Technology
Oorguam Post, K. G. F-563120

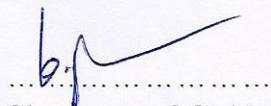


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**DEPARTMENT OF ELECTRONICS AND COMMUNICATION
ENGINEERING.**

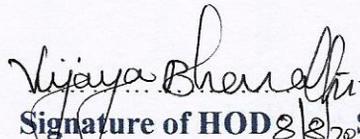
CERTIFICATE

Certified that the Project Work entitled "*Face Detection and Recognition for Automatic Attendance System Using Artificial Intelligence for Real Time Applications.*" is a bonafied work carried out by **Bharath J. -1GV16EC007, Chandana G. -1GV16EC010, Kavya H N. -1GV16EC019 and Shubha M. -1GV16EC056** in the partial fulfillment for the award of degree of Bachelor of Engineering in **Electronics and Communication Engineering of the Visvesvaraya Technological University, Belagavi** during the year 2020-2021. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the phase 2 report deposited in the departmental library. The Phase 2 Project report has been approved as it satisfies the academic requirement in respect of Project Work- 15ECP85 prescribed for the Bachelor of Engineering Degree.



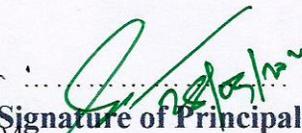
Signature of Guide

Dr. K M Palaniswamy
prof, Jesudas J Asst Prof



Signature of HOD

Prof. Vijaya Bharathi M



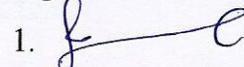
Signature of Principal

Dr. Syed Ariff

Name of Examiners

1. **INBALATHA K**
2. **R. VIJAYA GEETHA**

Signature with Date

1. 
2. 

SYNOPSIS

Face is the crucial part of the human body that uniquely identifies a person. Using the face characteristics as biometric, the face recognition system can be implemented. The most demanding task in any organization is attendance marking. In traditional attendance system, the students are called out by the teachers and their presence or absence is marked accordingly. However, these traditional techniques are time consuming and tedious. In this project, the Open CV based face recognition approach has been proposed. This model integrates a camera that captures an input image, an algorithm for detecting face from an input image, encoding and identifying the face, marking the attendance in a spreadsheet and converting it into PDF file. The training database is created by training the system with the faces of the authorized students. The cropped images are then stored as a database with respective labels. The features are extracted using LBPH algorithm.

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY
BELAGAVI - 590018
2020–2021**



**A
Project Report**

on

**“Fire Detection Using Surveillance Camera By
Deep Learning Techniques.”**

**Submitted in the partial fulfillment of the requirement for the VII
Semester Project - 17ECP75 for the award of degree of
Bachelor of Engineering
in
Electronics and Communication Engineering
by**

BHARATH K	1GV17EC004
HARI PRASHANTH B	1GV17EC010
RAKSHITHA S A	1GV17EC033
VIGNESH K	1GV17EC052

Carried at

Dr.T.THIMMAIAH INSTITUTE OF TECHNOLOGY

Under the Guidance of

Mr.SRINIVAS BABUN.

Assistant Professor,

Department of Electronics and Communication

Engineering



Dr. T. THIMMAIAH INSTITUTE OF TECHNOLOGY

Oorgaum, Kolar Gold Field - 563120

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Approved by Govt. of Karnataka and ISO 21001-2018 Certified)**



Oorgaam, Kolar Gold Fields – 563120

(Approved by AICTE, New Delhi, Affiliated to VTU-Belgavi,
Approved by Govt. of Karnataka and ISO 21001-2018 Certified)

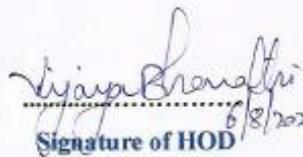
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING.

CERTIFICATE

Certified that the Project Work entitled “**Fire Detection Using Surveillance Camera by Deep Learning Techniques**” is a bonafied work carried out by **BHARATH K - 1GV17EC004, HARI PRASHANTH B - 1GV17EC010, RAKSHITHA S A - 1GV17EC033, VIGNESH K – 1GV17EC052** , in the partial fulfillment for the award of degree Bachelor of Engineering in **Electronics and Communication Engineering** of the **Visvesvaraya Technological University, Belgavi** during the year **2020 - 2021**. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the final report deposited in the departmental library. The final Project report has been approved as it satisfies the academic requirement in respect of **Project Work - 17ECP85** prescribed for the Bachelor of Engineering Degree.


Signature of Guide

Asst. Prof. Srinivas Babu N


Signature of HOD

Prof. Vijaya Bharathi M

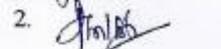

Signature of Principal

Dr. Syed Ariff

Name of Examiner

1. INBALATHA.K
2. R. VIJAYA GETHA

Signature with Date

1. 
2. 

SYNOPSIS

The detection of manmade disasters particularly fire is valuable because it causes many damages in terms of human lives. With the current advancement of the Technologies, like deep learning models such as convolutional neural networks (CNN) are used. However, many of the existing research has only been assessed on balanced datasets, which can lead to the Unsatisfied Results and Mislead Real-World Performances as Fire is a rare and abnormal real-life event . To verify the effects of existing preprocessing and feature extraction methods on fire detection when combined with CNN.

The recognition performance and learning time are evaluated by changing the VGG-19 CNN structure while gradually increasing the convolution layer. In general, the accuracy is better when image is not preprocessed. Also that the preprocessing method and the feature extraction method have many benefits in terms of learning speed.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

BELAGAVI - 590018

2020–2021



A

Project Report

On

**“Printed Circuit Board Fault Detection using
Image Processing in MATLAB”**

**Submitted in the partial fulfilment of the requirement for the VIII
Semester Project - 17ECP85 for the award of degree of**

Bachelor of Engineering

in

Electronics and Communication Engineering

By

CHAITHRA R	1GV17EC006
KANIMOZHI S	1GV17EC013
KESHU MURTHY N	1GV17EC014
TEJAS M	1GV17EC045

Carried out at

Dr. T. THIMMAIAH INSTITUTE OF TECHNOLOGY

Under the guidance of

Mrs. VIJAYA GEETHA R,

Associate Professor,

Department of Electronics and Communication.



Dr. T. Thimmaiah Institute of Technology

Oorgaum Post, K.G.F-563120

**(Approved by AICTE, New Delhi, Affiliated to VTU- Belagavi,
Approved by Govt. of Karnataka and ISO 21001-2018 certified)**

DR.T.THIMMAIAH INSTITUTE OF TECHNOLOGY



(Formerly Golden Valley Institute of Technology)

Oorgaum Kolar Gold Fields – 563120

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

CERTIFICATE

Certified that the **Mini Project Work** entitled **“Face Recognition Using Haar Cascade Classifier”** is a bonafied work carried out by **UMA SHREE V – 1GV18EC039** , **USHA DEVI N-1GV18EC040**, **ARCHANA K - 1GV19EC400** and **BHAVYA M V - 1GV19EC401** in the partial fulfillment for the award of degree of Bachelor of Engineering in **Electronics and Communication Engineering** of the **Visvesvaraya Technological University**, Belagavi during the year 2020-2021. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the report deposited in the departmental library. The Project report has been approved as it satisfies the academic requirement in respect of **Mini Project Work -18ECMP68** prescribed for the Bachelor of Engineering Degree.

.....
02/08/21

Signature of Guide
Prof. Vijaya Geetha R

.....
03/8/21

Signature of HOD
Prof. Vijaya Bharathi M

.....
05/08/2021

Signature of Principal
Dr. Syed Ariff

Name of Examiners

1. Dr. Senthur A
2. Vijaya Bharathi M

Signature with Date

1. Senthur A
2. Vijaya Bharathi M

SYNOPSIS

Printed circuit board are blooming in current trends in the electronic field where it is easy to design with less cost. But there are design faults during the manufacturing of PCBs which may lead to huge losses in production. PCB fault detection is plays vital role; generally it's difficult to detect the faults in PCB manually. So many emerging technologies as came into existence to detect fault in PCBs. Since there are some drawbacks regarding accuracy and computation cost.

We are using Image processing based technologies which is feasible to the detect faults in PCBs with much accuracy and get the results faster compared with other technologies. By using these techniques we can group 14 defects in PCB that are breakout, pin hole, open circuit, under etch, mouse bite, missing conductor, spur, short, wrong side hole, conductor to close, spurious copper, excessive short, missing hole, over etch. This will be easy to analysis the fault and correct them.

We take the standard image and test image and classify the above defects based on the segmentation process like hole segment, line segment, thin line segment and thick line segment. Based on this four the 14 defects are classified which make the work easier to identify the defects. In we use the binary image so we get the exact output in the form of either level 0 or level 1 by varying the intensity level of RGB the binary image is obtained in MATLAB. And we use this MATLAB we can use the median filter to remove the noise from image and it also help to detect the edges of the PCB.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

BELAGAVI - 590018

2020–2021



A

Phase 2 Project Report

on

“Predicting COVID-19 from Lung Images using Deep Transfer Learning.”

**Submitted in the partial fulfillment of the requirement
for the VIII Semester Project - 17ECP85 for the award of degree of**

Bachelor of Engineering

in

Electronics and Communication Engineering

by

DEEKSHITHA N 1GV17EC056

HITESH T N 1GV18EC401

PAVITHRA H V 1GV16EC035

TEJAS N 1GV16EC066

Carried at

Dr.T.THIMMAIAH INSTITUTE OF TECHNOLOGY.

Under the guidance of

Mrs. Inbalatha K, Associate Professor,

Department of Electronics and Communication.



**Dr.T.Thimmaiah Institute of Technology
Oorguam Post, K.G.F-563120**



**(Approved by AICTE, New Delhi, Affiliated to VTU-Belagavi,
Approved by Govt. Of Karnataka and ISO 21001-2018
Certified)**

SYNOPSIS

The COVID-19 pandemic is causing a major outbreak in more than 150 countries around the world, having a severe impact on the health and life of many people globally. One of the crucial steps in fighting COVID-19 is the ability to detect the infected patients early enough, and put them under special care. Detecting this disease from radiography and radiology images is perhaps one of the fastest ways to diagnose the patients. Some of the early studies showed specific abnormalities in the chest radiograms of patients infected with COVID-19. Inspired by earlier works, we study the application of deep learning models to detect COVID-19 patients from their chest radiography images. We first prepare a dataset of 5000 Chest X-rays from the publicly available datasets. Images exhibiting COVID-19 disease presence were identified by board-certified radiologist.

Transfer learning on a subset of 2000 radiograms was used to train four popular convolutional neural networks, including ResNet18, ResNet50, SqueezeNet, and DenseNet-121, to identify COVID-19 disease in the analyzed chest X-ray images. We evaluated these models on the remaining 3000 images, and most of these networks achieved a sensitivity rate of 98% ($\pm 3\%$), while having a specificity rate of around 90%. Besides sensitivity and specificity rates, we also present the receiver operating characteristic (ROC) curve, precision-recall curve, average prediction, and confusion matrix of each model. We also used a technique to generate heatmaps of lung regions potentially infected by COVID-19 and show that the generated heatmaps contain most of the infected areas annotated by our board-certified radiologist. While the achieved performance is very encouraging, further analysis is required on a larger set of COVID-19 images, to have a more reliable estimation of accuracy rates.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

BELAGAVI - 590018

2020-2021



A

Project Report

on

**“Defective Coffee Bean Inspection with GA Based GAN
Optimizer Using TensorFlow.”**

**Submitted in the partial fulfillment of the requirement for the
VIII Semester Project - 17ECP85 for the award of degree of**

Bachelor of Engineering

in

Electronics and Communication Engineering

by

DIVYA K K	1GV17EC009
REVANSIDDA	1GV17EC034
SNEHA M	1GV17EC041
YASHASWINI G	1GV17EC055

Carried at

Dr.T.THIMMAIAH INSTITUTE OF TECHNOLOGY.

Under the guidance of

Dr. JENITHA A, M.E., Ph.D.,

Associate Professor,

Department of Electronics and Communication.

Dr. T. Thimmaiah Institute of Technology

Oorguam Post, K.G.F-563120



**(Approved by AICTE, New Delhi, Affiliated to VTU- Belgavi,
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Dr. T. Thimmaiah Institute of Technology

Oorguam Post, K.G.F-563120



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Approved by Govt. Of Karnataka and ISO 21001-2018 Certified)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING.

CERTIFICATE

Certified that the Project Work entitled ***“Defective Coffee Bean Inspection with GA Based GAN Optimizer Using TensorFlow.”*** is a bonafied work carried out by **Divya K K.-1GV17EC009, Revansidda.-1GV17EC034, Sneha M. -1GV17EC041 and Yashaswini G. -1GV17EC055** in the partial fulfillment for the award of degree of Bachelor of Engineering in **Electronics and Communication Engineering of the Visvesvaraya Technological University, Belagavi** during the year 2020-2021. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the project report deposited in the departmental library. The Project report has been approved as it satisfies the academic requirement in respect of Project Work- 17ECP85 prescribed for the Bachelor of Engineering Degree.

Jenitha A

Signature of Guide
Dr. Jenitha A

Vijaya Bharathi M

Signature of HOD ^{2/2/2021}
Prof. Vijaya Bharathi M
Head of the Department

Syed Ariff

Signature of Principal
Dr. Syed Ariff

Dept. of Electronics and Communication Engg.
Dr. T. Thimmaiah Institute of Technology

Oorguam, K.G.F.- 563120

Name of Examiners

Signature with Date

1. *Dr. Bhuvanendhiram*

1. *Dr. Ariff*

2. *Rajesh Kumar Kaushal*

2. *Ariff*

SYNOPSIS

The quality of a coffee bean is determined by several factors which includes color, texture and size. This evaluation is done by human inspector, but the decision-making capabilities of humans are subjected to external influence such as fatigue, environment, light, emotions, etc. In the process of production of green beans to packaging coffee bean, the defective bean removal stage is one of most labor-consuming stage to automate this task, in order to minimize human effort. A deep learning-based defective bean inspection scheme (DL-DBIS), together with a GAN (generative adversarial network)-structured automated labeled data augmentation method (GALDAM) is used to automation degree of bean removal with robotic arms can be further improve for coffee industries.

We proposed a defective bean inspection using deep-learning with CNN classifier, together with an automated labeled data GAN-structured augmentation method to enhance the proposed scheme, so that the automation degree of defective bean detection is improved for coffee industries. We have also used SVM, KNN and Random Forest Classifiers to detect the defective beans.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY
BELAGAVI - 590018
2020-2021



A
Project Report

on

**“Convolutional Neural Network For
Human Activity Recognition In Videos: Littering
Activity Detection.”**

**Submitted in the partial fulfilment of the requirement
for the VIII Semester Project - 17ECP85 for the award of degree of**

Bachelor of Engineering

in

Electronics and Communication Engineering

by

K DOLLAR SINGH	1GV17EC058
NAGESH B V	1GV17EC020
BHARATH B V	1GV17EC003
RAHUL BALU KANBARKAR	1GV17EC032

Carried at

Dr.T.THIMMAIAH INSTITUTE OF TECHNOLOGY.

Under the guidance of

Mr. RAJESH KUMAR KAUSHAL,

Assistant Professor,

Department of Electronics and Communication.



Dr.T.Thimmaiah Institute of Technology
Oorguam Post, K.G.F-563120

Dr.T.Thimmaiah Institute of Technology

Oorguam Post, K.G.F-563120



DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING.

CERTIFICATE

Certified that the Project Work entitled "*Convolutional Neural Network For Human Activity Recognition In Videos: Littering Activity Detection.*" is a bonafied work carried out by **K. Dollar Singh - 1GV17EC058, Nagesh B V - 1GV17EC020, Bharath B V - 1GV17EC003 and Rahul Balu Kanbarkar - 1GV17EC032** in the partial fulfillment for the award of degree of Bachelor of Engineering in **Electronics and Communication Engineering of the Visvesvaraya Technological University, Belagavi** during the year 2020-2021. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the project report deposited in the departmental library. The Project report has been approved as it satisfies the academic requirement in respect of Project Work- 17ECP85 prescribed for the Bachelor of Engineering Degree.

Signature of Guide

Mr. Rajesh Kumar Kaushal

Signature of HOD

Prof. Vijaya Bharathi M

Signature of Principal

Dr. Syed Ariff

Name of Examiners

1. INBALATHA .K
2. R. VIJAYA GEETHA

Signature with Date

- 1.
- 2.

SYNOPSIS

The earth is what we all have in common. Many people have forgotten how to walk lightly on the earth as its other creatures do. Various organizations and individual volunteers focused on multidimensional work and solutions to stop humans from filling the world with trash. Litter has the potential to harm human health, safety, welfare, as well as the environment. The mass production of disposable goods also produced a growing mountain of waste. The environment can be kept clean and hygienic only through human activities. In this project, a technique to recognize humans littering is proposed and the activity is detected.

A convolutional neural network is used to resolve and extract the patterns from video framework and validate with the threshold to make a decision. In this technique, various sample videos are validated and persons with and without littering activities are identified.

PROBLEM STATEMENT

- 1) Environmental pollution due to litters created by humans.
- 2) Unable to monitor activities of large number of people at the same time.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

BELAGAVI - 590018

2020–2021



A

Project Report

On

“Depression Detection From Social Network Data Using Machine Learning Techniques”

Submitted in the partial fulfilment of the requirement for the VIII Semester Project phase 2 - 17EC85 for the award of degree of Bachelor of Engineering

In

Electronics and Communication Engineering

By

S LAVANYA	1GV17EC035
VENILA B N	1GV17EC050
FELSY FLORANCE W	1GV17EC400
ISHWARYA R	1GV17EC402

Carried at

Dr.T.THIMMAIAH INSTITUTE OF TECHNOLOGY

Under the Guidance of

Dr.T.Bhuvanendhiran

Associate Professor,

Department of Electronics and Communication.



Dr. T. Thimmaiah Institute of Technology

Oorgaam Post, K.G.F-563120

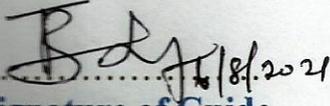
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Oorguam Post, K.G.F-563120

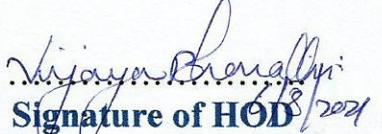


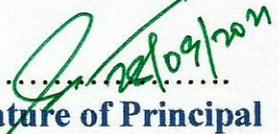
**DEPARTMENT OF ELECTRONICS AND COMMUNICATION
ENGINEERING.**

CERTIFICATE

Certified that the Project Work entitled "**Depression Detection From Social Network Data Using Machine Learning Techniques**" is a bonafied work carried out by S Lavanya-1GV17EC035, Venila BN-1GV17EC050, Felsy Florance W-1GV17EC400 and Ishwarya R-1GV15EC402 in the partial fulfillment for the award of degree of Bachelor of Engineering in **Electronics and Communication Engineering of the Visvesvaraya Technological University, Belagavi** during the year 2020-2021. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the phase 2 project report deposited in the departmental library. The Phase 2 project report has been approved as it satisfies the academic requirement in respect of Project Work - 17ECP85 prescribed for the Bachelor of Engineering Degree.


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Signature of Guide
Dr. T. Bhuvanendhiran

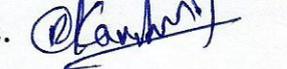

.....
Signature of HOD
Prof. Vijaya Bharathi M


.....
Signature of Principal
Dr. Syed Ariff

Name of Examiners

1. Dr. Bhuvanendhiran. T
2. Rajesh Kumar Kevshul

Signature with Date

1. 
2. 

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

BELAGAVI - 590018

2020–2021



A

Project Report

On

**“BITCOIN PRICE PREDICTION USING MACHINE
LEARNING TECHNIQUE ”**

**Submitted in the partial fulfilment of the requirement for the VIII
Semester Project - 17ECP85 for the award of degree of**

Bachelor of Engineering

in

Electronics and Communication Engineering

By

MAMATHA N	1GV17EC016
PREETHI T	1GV17EC026
SIRISHA SHREE NAGATHI S	1GV17EC014
THEJENDRA K E	1GV17EC045

Carried out at

Dr . T. THIMMAIAH INSTITUTE OF TECHNOLOGY

Under the guidance of

Mr, SHASHIKIRAN .S

Associate Professor,

Department of Electronics and Communication.



**Dr. T. Thimmaiah Institute of Technology
Oorgaum Post, K.G.F-563120**



**(Approved by AICTE, New Delhi, Affiliated to VTU- Belagavi,
Approved by Govt. of Karnataka and ISO 21001-2018 certified)**

Dr.T.Thimmaiah Institute of Technology

Oorguam Post, K.G.F-563120



DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING.

CERTIFICATE

Certified that the Project Work entitled "**Bitcoin price prediction using machine learning technique**" is a bonafied work carried out by **MAMATHA N-1GV17EC016, PREETHI T-1GV17EC026, SIRISHA SHREE NAGATHI S -1GV17EC014, THEJENDRA KE -1GV17EC046** in the partial fulfilment for the award of degree of Bachelor of Engineering in **Electronics and Communication Engineering** of the **Visvesvaraya Technological University, Belagavi** during the year 2020-2021. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the report deposited in the departmental library. The Project report has been approved as it satisfies the academic requirement in respect of Project Work 17ECP85 prescribed for the Bachelor of Engineering Degree.

Signature of Guide

Prof. Shashikiran S

Name of Examiners

1. INBALATHA .K
2. R. VIJAYA GEETHA

Signature of HOD

Prof. Vijaya Bharathi M

Signature of Principal

Dr. Syed Ariff

Signature with Date

1. [Signature]
2. [Signature]

SYNOPSIS

With the introduction of Bitcoin in the year 2008 as the first practical decentralized crypto currency, the interest in crypto currencies and their underlying technology, Block chain, has skyrocketed. Their promise of security, anonymity, and lack of a central controlling authority make them ideal for users who value their privacy. Academic research on machine learning, Block chain technology, and their intersection have increased significantly in recent years. Specifically, one of the interest areas for researchers is the possibility of predicting the future prices of these crypto currencies using supervised machine learning techniques.

In this project, we investigate their ability to make one day ahead price prediction of several popular crypto currencies using five widely used time-series prediction models. These models are designed by optimizing model parameters, such as activation functions, before settling on the final models presented in this project. Finally, we report the performance of each time-series prediction model measured by its mean squared error and accuracy in price movement direction prediction.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY
BELAGAVI-590018
2020-2021



A
Project Report

On

**“Deep Learning for Recognizing Human Activities Using
Motions of Skeleton Joints”**

**Submitted in the partial fulfilment of the requirement
for the VIII Semester Project – 15ECP85 for the award of degree of**

Bachelor of Engineering

In

Electronics and Communication Engineering

By

MANIVANNAN S	1GV15EC027
REENASHREE R	1GV16EC043
SUCHITRA G	1GV16EC061
DEVAIYANI R	1GV16EC071

Carried at

Dr. T. THIMMAIAH INSTITUTE OF TECHNOLOGY

Under the guidance of

Prof. Ruckmani Divakaran (Dean Administration)

Mrs. Nandini G N Asst. Professor

Dept. of ECE, Dr. TTIT, KGF



Dr. T.Thimmaiah Institute of Technology
Oorgaum Post,K.G.F-563120

Dr. T.Thimmaiah Institute of Technology
Oorgaum Post,K.G.F-563120



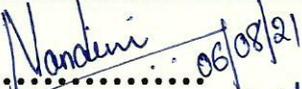
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

CERTIFICATE

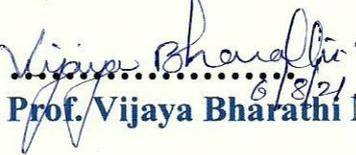
Certified that the **Project Work** entitled "**Deep learning for recognizing human activities Using motions of skeletal joints**" is a bonified work carried out by **MANIVANNAN S-1GV15EC027, REENASHREE R-1GV16EC043, SUCHITRA G-1GV16EC061, DEVAIYANI R-1GV16EC071** in the partial fulfilment for the award of degree of Bachelor of Engineering in **Electronics and Communication Engineering** of the **Visvesvaraya Technological University, Belagavi** during the year 2020-2021. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the report deposited in the departmental library. The Project report has been approved as it satisfies the academic requirement in respect of **Project Work- 15ECP85** prescribed for the Bachelor of Engineering Degree.

Signature of Guides


.....
Prof. Ruckmani Divakaran


.....
Asst. Prof. Nandini . G. N

Signature of HOD


.....
Prof. Vijaya Bharathi M

Signature of Principal


.....
Dr. Syed Ariff

Name of Examiners

- 1) **INBALATHA.K**
- 2) **R. VIJAYA GRESTHA**

Signature with Date

- 1) 
- 2) 

SYNOPSIS

With advances in consumer electronics, demands have increase for greater granularity in differentiating and analysing human daily activities. Moreover, the potential of machine learning, and especially deep learning, has become apparent as research proceeds in applications such as monitoring the physically challenged people and surveillance for detection of suspicious people and objects left in public places. Although some techniques have been developed for Human Action Recognition (HAR) using wearable sensors, these devices can place unnecessary mental and physical discomfort on people, especially children and the elderly. Therefore, research has focused on image-based HAR, placing it on the front line of developments in consumer electronics. This technique proposes an intelligent human action recognition system which can automatically recognize the human daily activities from depth sensors using human skeleton information, combining the techniques of image processing and deep learning. Moreover, due to low computational cost and high accuracy outcomes, an approach using skeleton information has proven very promising, and can be utilized without any restrictions on environments or domain structures. Therefore, this technique discusses the development of an effective skeleton information based HAR which can be used as an embedded system. The experiments are performed using two famous public datasets of human daily activities.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

BELAGAVI-590018

2020-2021



A

Phase 2 Project Report

on

“Grading of Harvested Mangoes based on Quality Evaluation and Maturity Prediction using Machine Learning Technique”

Submitted in the partial fulfillment of the requirement for the VIII Semester Project Phase 2 – 17ECP85 for the award of degree of

Bachelor of Engineering

in

Electronics and Communication Engineering

by

MOHAMMED SHOAIB 1GV17EC018

MOHAN BABU M 1GV17EC019

PAWAN 1GV17EC022

SAJJAD AHMED A 1GV17EC036

Carried out at

Dr. T. THIMMAIAH INSTITUTE OF TECHNOLOGY

Under the guidance of

Ms. Mohana C, M. Tech,

Asst. Professor,

Department of Electronics and Communication.



Dr. T. Thimmaiah Institute of Technology

Oorgaum Post, K.G.F-563120.

**(Approved by AICTE, New Delhi, Affiliated to VTU- Belagavi,
Approved by Govt. of Karnataka and ISO 21001-2018 certified)**

Dr. T. Thimmaiah Institute of Technology



Oorgaum Post K.G.F – 563120

(Approved by AICTE, New Delhi, Affiliated to VTU- Belagavi,
Approved by Govt. of Karnataka and ISO 21001-2018 certified)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING.

CERTIFICATE

Certified that the **Project Work** entitled **“Grading of Harvested Mangoes Based on Quality Evaluation and Maturity Prediction using Machine Learning Technique”** is a bonafied work carried out by **Mohammed Shoaib. – 1GV17EC018, Mohan Babu M. - 1GV17EC019, Pawan. - 1GV17EC022, and Sajjad Ahmed A. - 1GV17EC036** in the partial fulfilment for the award of degree of Bachelor of Engineering in **Electronics and Communication Engineering** of the **Visvesvaraya Technological University, Belagavi** during the year 2020-2021. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the phase 2 report deposited in the departmental library. The Phase 2 Project report has been approved as it satisfies the academic requirement in respect of Project Work- 17ECP85 prescribed for the Bachelor of Engineering Degree.

Mohana.C
02/08/2021
.....
Signature of Guide
Ms. Mohana C

Vijaya Bharathi
2/8/2021
.....
Signature of HOD
Prof. Vijaya Bharathi M

.....
Signature of Principal
Dr. Syed Ariff

Name of Examiner

1. Dr. B. R. J. (Bhuvaneshwari T)
2. Rajesh Kumar Karshah

Signature with Date

1. B. R. J.
2. R. Karshah

SYNOPSIS

It is very important to do proper Grading of fruits to increase the profit of Agriculture. Nowadays sorting of the fruits like Mango, Banana, Dates and Grapes is performed manually, for this getting adequate manual expert during the period is difficult. This process is time and money consuming also face problem like inconsistency, inaccuracy, inefficiency, lack of objectivity and it is labor intensive process. By using Machine Vision Technique, Several Image Processing Techniques are applied to collect features which are sensitive to Maturity and Quality. For Maturity prediction SVR (Support Vector Regression) technique, for estimation of Quality MADM (Multi Attribute Decision Making) is adopted. Finally, Fuzzy Incremental Learning Algorithm has been used for Grading of Mangoes.

In this system mangoes are graded in three types like Green Mango, Yellow Mango and Red Mango which are based on machine learning method. This system considers RGB values, size and shape of mangoes. Posterior analysis is used to obtain good probability. This helps to train system to detect appropriate maturity of mangoes. This experiment is conducted based on Naive Bayes to compare the performance of both based on accuracy and defective pixels. From the previous system, this system gives the more accuracy as posterior analysis is used. Here we are going to use MATLAB Tool version R2018a.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY
BELAGAVI - 590018
2020-2021



A
Project Report

on

**“Design a Millimeter Wave with an Array of Microstrip Patch
Antenna for 5G Applications”**

**Submitted in the partial fulfillment of the requirement
for the VIII Semester Project - 17ECP75 for the award of degree of**

Bachelor of Engineering

in

Electronics and Communication Engineering

by

NIKHILA PATIL	1GV17EC021
TABBASSUM F	1GV17EC044
UMERA PARVEEN	1GV17EC048
VENKATESH A	1GV17EC051

Carried at

Dr.T. THIMMAIAH INSTITUTE OF TECHNOLOGY

Under the guidance of

**Ms. TAMIL VANI R., Assistant Professor,
Department of Electronics and Communication.**



Dr.T. Thimmaiah Institute of Technology
Oorgaum Post, K.G.F-563120

**(Approved by AICTE, New Delhi, affiliated to VTU-Belagavi, Approved
by Govt. Of Karnataka and ISO 21001-2018 Certified)**



Dr.T. Thimmaiah Institute of Technology

Oorgaum Post, K.G.F-563120

(Approved by AICTE, New Delhi, affiliated to VTU-Belagavi,
Approved by Govt. Of Karnataka and ISO 21001-2018 Certified)

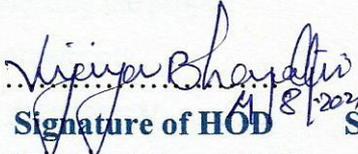
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING.

CERTIFICATE

Certified that the Project Work entitled "*Design a Millimeter Wave with an Array of Microstrip Patch Antenna For 5G Applications*" is a bonafied work carried out by Nikhila patil-1GV17EC021, Tabbassum F-1GV17EC044, Umera parveen-1GV17EC048 and Venkatesh A-1GV17EC051, in the partial fulfillment for the award of degree of Bachelor of Engineering in **Electronics and Communication Engineering of the Visvesvaraya Technological University, Belagavi** during the year 2020-2021. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the report deposited in the departmental library. The Project report has been approved as it satisfies the academic requirement in respect of Project Work- 17ECP75 prescribed for the Bachelor of Engineering Degree.


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4/8/2021

Signature of Guide
Prof. Tamil vani R


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4/8/2021

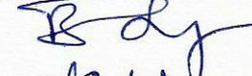
Signature of HOD
Prof. Vijaya Bharathi M


.....
4/8/2021

Signature of Principal
Dr. Syed Ariff

Name of Examiners

Signature with Date

-  Dr. Bhuvanendra D. 
- Rajesh Kumar Kaushal 

SYNOPSIS

Antenna is an electrical device which converts electric power into radio waves, the radio waves are electromagnetic waves which carry signals through the air at a speed of light with no transmission loss.

There is a rapid increase of mobile data growth, high speed communication and efficiency in carrying the data has been dropping considerably due to the network congestion, to avoid data dropping and congestion designing an millimeter wave with an array of microstrip patch antenna for 5G application.

The designing work covers two aspects of microstrip patch antenna design, the first is to design of a single rectangular microstrip patch antenna for 5G application and it resonates at 46GHz. The second is to design the arrays of rectangular microstrip patch antenna using corporate feed technique with Series feed and Parallel feed Array Antenna. By making use of Rogers RT Duroid 5880 substrate with standard thickness of 0.787mm having relative dielectric constant (ϵ_r) =2.2 and $\tan\theta=0.0013$, which resonates at the frequency 46GHz with the better performance in bandwidth, Gain, return loss and VSWR is obtained. The simulation process is done through the HFSS (High frequency structure simulator) tool [1][8].

VISVESVARAYA TECHNOLOGICAL UNIVERSITY
BELAGAVI - 590018
2020-2021



A
Project Report
on

**“A DEEP LEARNING TECHNIQUE FOR IMAGE
BASED PLANT DISEASE DETECTION AND CROP
YIELD PREDICTION”**

**Submitted in the partial fulfillment of the requirement
for the VIII Semester Project - 17ECP75 for the award of degree of**

Bachelor of Engineering

in

Electronics and Communication Engineering

by,

POOJA SREE K

1GV17EC023

PREETHI P

1GV17EC025

RACHEL RHEMA RICHARD

1GV17EC030

SUVEDITTA B

1GV17EC043

Carried at

Dr.T. THIMMAIAH INSTITUTE OF TECHNOLOGY

Under the guidance of

Mrs. MANJUSHREE K CHAVAN

Asst Prof., Dept. of ECE, Dr.TTIT., K.G.F



**Dr.T. Thimmaiah Institute of Technology Oorgaum Post,
K.G.F-563120 (Approved by AICTE, New Delhi, affiliated to VTU-
Belagavi, Approved by Govt. Of Karnataka and ISO 21001-2018 Certified)**

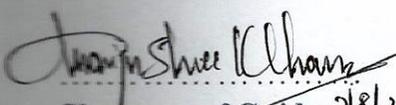
Dr.T. Thimmaiah Institute of Technology
Oorgaum Post, K.G.F-563120

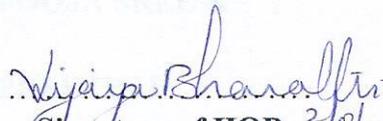


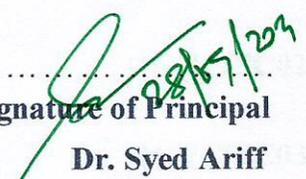
**DEPARTMENT OF ELECTRONICS AND COMMUNICATION
ENGINEERING.**

CERTIFICATE

Certified that the **Project Work** entitled **"A DEEP LEARNING TECHNIQUE FOR IMAGE BASED PLANT DISEASE DETECTION AND CROP YIELD PREDICTION"** is a bonafied work carried out by **POOJA SREE K-1GV17EC023, PREETHI P-1GV17EC025, RACHEL RHEMA RICHARD-1GV17EC30 and SUVEDITTA B-1GV17EC043**, in the partial fulfillment for the award of degree of Bachelor of Engineering in **Electronics and Communication Engineering of the Visvesvaraya Technological University, Belagavi** in the year 2020-2021. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the project report deposited in the departmental library. The Project report has been approved as it satisfies the academic requirement in respect of Project Work prescribed for the Bachelor of Engineering Degree.


Signature of Guide 2/8/2021
Mrs Manjushree K Chavan

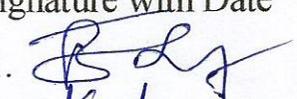

Signature of HOD 2/8/2021
Prof. Vijaya Bharathi M


Signature of Principal
Dr. Syed Ariff

Name of Examiners

1. Dr. Bhuvaneshwari T
2. Rajesh Kumar Kanthel

Signature with Date

1. 
2. 

SYNOPSIS

Modern technologies have given human society the ability to produce enough food, yet food security remains threatened by a number of factors including climate change, plant diseases and others. Plant diseases are not only a threat to food security at the global scale, but can also have disastrous consequences for farmers whose livelihood depends on healthy crops. Crops yield prediction is of great importance to global food production. Seed companies need to predict the performance of new hybrids in various environments to breed for better varieties. Farmers and growers also benefit from yield production to make financial decisions and suitable varieties to crop to be used for the food production.

Various efforts have been developed to prevent crop loss due to diseases. It is generally accepted that deep learning technique have recently been successfully applied in detecting the diseases in plants, predicting and checking the yields, yield difference of corn hybrids from genotype and environment data. This means that existing method for plant diseases detection and crop yield prediction is simply observed by experts through naked eye. This causes huge economic loss for farmers. But we propose a technique on deep learning which uses different classification on plant leaf diseases and also crop yield prediction. Digital camera or similar devices are used to take images of different types of leaves and then those are used to identify the affected areas in leaves.

We utilize two stages namely, training stage and testing stage. The first stage is image procurement, image pre processing, and DNN based preparing and the second stage is image procurement, image pre processing, classification and diseases distinguishing proof and crop yield prediction. For experimentation reason we will utilize plant village datasets. To develop this model Anaconda tool is used, as available tools are present and Python is the language used for coding the proposed method.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY
BELAGAVI - 590018
2020-2021



A Project Report
On

**“An Efficient IoT Based Covid-19 Monitoring
System Using CNN Classifier”**

Submitted in the partial fulfilment of the requirement
for the VIII Semester Project Phase 17ECP85 for the award of degree of

Bachelor of Engineering

In

Electronics and Communication Engineering

By

Priyanka D	1GV17EC027
Priyanka S	1GV17EC029
Vinutha S	1GV17EC053
Chandrakala V	1GV17EC057

Carried at

Dr.T.THIMMAIAH INSTITUTE OF TECHNOLOGY
Oorgaum, K.G.F-563120

Under the Guidance of

Mr. Jesudas J, Assistant Professor,
Department of ECE, Dr.T.T.I.T, K.G.F.



Dr.T.THIMMAIAH INSTITUTE OF TECHNOLOGY
(Formerly Golden Valley Institute of Technology)
Department of Electronics and Communication Engineering
Kolar Gold Fields – 563120.

DR. T. THIMMAIAH INSTITUTE OF TECHNOLOGY



(Formerly Golden Valley Institute of Technology)

Oorgaum Kolar Gold Fields -563120

DEPARTMENT OF ELECTRONICS AND COMMUNICATION
ENGINEERING.



CERTIFICATE

Certified that the Project Phase Work entitled ***“An Efficient IoT Based COVID-19 Monitoring System Using CNN Classifier”*** is a bonafied work partially carried out by **Priyanka D. -1GV17EC027, Priyanka S. - 1GV17EC029, Vinutha S - 1GV17EC053 and Chandrakala V. - 1GV15EC057** in the partial fulfillment for the award of degree of Bachelor of Engineering in **Electronics and Communication Engineering** of the **Visvesvaraya Technological University, Belagavi** during the year 2020- 2021. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the report deposited in the departmental library. The Project report has been approved as it satisfies the academic requirement in respect of **Project Work- 17ECP85** prescribed for the Bachelor of Engineering Degree.

Mr. Jesudas J
.....
3/8/2021

Signature of guide
Mr. Jesudas J

Vijaya Bharathi
.....
3/8/2021

Signature of HOD
Prof. Vijaya Bharathi M

Dr. Syed Ariff
.....
3/8/2021

Signature of Principal
Dr. Syed Ariff

PRINCIPAL
Dr. T. Thimmaiah Institute of Technology
Oorgaum, K.G.F. - 563 120,

Name of Examiners

1. Dr. JENITHA A
2. Dr. Bhuvanendhiran. T

Signature with Date

1. *Jenitha* 3/8/21
2. *Bhuvanendhiran* 3/8/2021

SYNOPSIS

As we are aware of the current pandemic situation that is Covid-19 which is spreading all over the world. Covid-19 spreads mainly by droplets produced as a result of coughing or sneezing of Covid-19 infected person, it can also spread from contact with infected surfaces or objects. Any person who comes into close contact with someone who has Covid-19 is at increased risk of becoming infected themselves.

As it is spreading widely it is difficult to get the report on required time, hence to detect Covid-19 “Positive or Negative” within 30minutes of time we are using an efficient IoT based Covid-19 Monitoring System Using CNN Classifier. In this process we are using sensors such as heart rate sensor, temperature sensor, and respiratory sensor to collect data from a person and it is transmitted wirelessly with the help of ESP8266 module and the data is received by using Arduino. These data are being processed using MATLAB and CNN Classifier is used to predict the result whether it is “Positive or Negative” based on this result, best accuracy and efficiency is achieved.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY
BELAGAVI - 590018
2020-2021



A

Project Report

on

“VLSI Implementation of Turbo codes for LTE Systems”

**Submitted in the partial fulfilment of the requirement for the VIII
Semester Project – 17ECP85 for the award of degree of**

Bachelor of Engineering

in

Electronics and Communication Engineering

by

SINDHU G

1GV17EC039

SPANDANA K. N.

1GV17EC042

V. PRACHI BOHRA

1GV17EC049

WAJIHA SULTANA

1GV17EC054

Carried at

Dr. T. THIMMAIAH INSTITUTE OF TECHNOLOGY

Under the Guidance of

Prof. VIJAYA BHARATHI M

HOD, Assoc. Prof. Dept. of E & C,

Dr. T. THIMMAIAH INSTITUTE OF TECHNOLOGY

Oorguam Post, K.G.F- 563120



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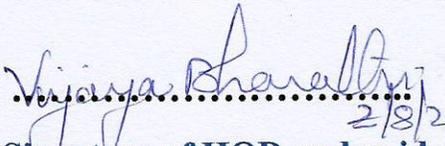
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Approved by Govt. Of Karnataka and ISO 21001-2018 Certified)

**DEPARTMENT OF ELECTRONICS AND
COMMUNICATION ENGINEERING.**

CERTIFICATE

Certified that the **Project Work** entitled **“VLSI Implementation of Turbo Codes for LTE Systems”** is a bonafied work carried out by **Sindhu G.- 1GV17EC039, Spandana K.N.- 1GV17EC042, V. Prachi Bohra- 1GV17EC049 and Wajiha Sultana – 1GV17EC054** in the partial fulfilment for the award of degree of Bachelor of Engineering in **Electronics and Communication Engineering** of the **Visvesvaraya Technological University, Belagavi** during the year 2020-2021. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the report deposited in the departmental library. The Project report has been approved as it satisfies the academic requirement in respect of **Project Work - 17ECP85** prescribed for the Bachelor of Engineering Degree.

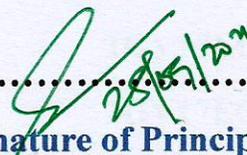

Signature of HOD and guide

Prof. Vijaya Bharathi M.
Head of the Department

Dept. of Electronics and Communication Engg.

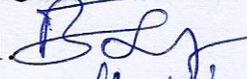
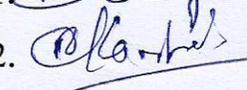
Dr. T. Thimmaiah Institute of Technology
K.G.F.- 563 120.

- Name of Examiners
1. Dr. Bhuvanendhiran. T
 2. Rajesh Kumar Kanhol


Signature of Principal

Dr. Syed Ariff

Signature with Date

1. 
2. 

SYNOPSIS

Communication is act of transmission of information. Everyone in the world experiences the need to receive information almost continuously. For communication to be successful, it is essential that sender and receiver understands a common language.

When signal is transmitted there are 3 sources of transmission errors, they are: Signal bit errors, burst errors and erasure. Errors in signal may lead to miscommunication between systems. So, error correction is required to retrieve the original message. In order to detect and correct the errors, turbo codes are used.

Turbo encoder and decoder is designed using the Verilog HDL Language. Turbo decoding is time consuming process. So, the SOVA Algorithm gives high throughput and less complexity output.

Xilinx Vivado 2020.2. tool is used which achieves simulation and synthesis of proposed turbo encoder and decoder.