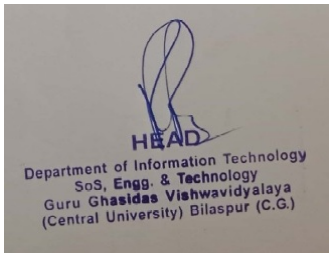
Department : Information Technology		
Academic Year : 2021-22		
Sr. No.	**Programme Code**	**Name of the Programme**
01.	216	B.Tech. – Information Technology

Following students have carried out their Project work/ Internship/ Field Project/Industrial Training for the academic session 2021-22

S.No.	**Name of the Students**	**Page No ……. To ……..**
1	SANJEET KUMAR	4-14
2	PUSHPRAJ SINGH	4-14
3	AMIT KUMAR PAWAR	4-14
4	ADITI SHUKLA	15-25
5	PRANAV PANKAJ	15-25
6	NEESHU	15-25
7	ADITYA KUMAR GOPAL PRAMANIK	15-25
8	ANMOL SAHU	26-33

9	RAKSHIT SRIVASTAVA	26-33
10	RAJEEV SAHU	26-33
11	HARSHVARDHAN PARDESHI	34-50
12	TANYA OHRI	34-50
13	ANAND PRAKASH RAW	34-50
14	SANJANA TIWARI	34-50
15	SHIVAM GUPTA	51-60
16	PRASHANT KUMAR	51-60
17	ADITYA SANTOSH SHENDE	61-71
18	SEJAL VERMA	61-71
19	MANSI CHANDRAKAR	61-71
20	HARSH RANGLANI	72-83
21	HIMANI	72-83

22	HRIDAY JAIN	72-83
23	AMAN KUMAR VERMA	84-92
24	KHILENDRA SINGH THAKUR	84-92
25	ANIL SINGH	84-92
26	PRANAY SINGH THAKUR	93-100
27	SAURAV DEY	93-100
28	FARDEEN JALEES	93-100
29	PRAMOD SHARMA	101-112
30	RAJA KUMAR VISHWAS	101-112
31	NITISH KUMAR	101-112



Signature and Seal of the Head

A Novel Image Steganography Method for Industrial Internet of Things Security

A MAJOR PROJECT REPORT

Submitted in partial fulfilment for the Degree of

BACHELOR OF TECHNOLOGY

in

INFORMATION TECHNOLOGY

Submitted by

AMIT KUMAR PAWAR

SANJEET KUMAR

PUSHPRAJ SINGH

Under the supervision of

Mr. AMIT KUMAR DEWANGAN (Assistant Professor)

Mrs. ARADHANA SONI (Assistant Professor)

TO

DEPARTMENT OF INFORMATION TECHNOLOGY

SCHOOL OF STUDIES IN ENGINEERING & TECHNOLOGY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR(C.G.)

(A Central University established by the Central Universities Act 2009 No. 25 of 2009)

SESSION: 2021-2022

A Novel Image Steganography Method for Industrial Internet of Things Security

A MAJOR PROJECT REPORT

Submitted in partial fulfilment for the Degree of

BACHELOR OF TECHNOLOGY

in

INFORMATION TECHNOLOGY

Submitted by

AMIT KUMAR PAWAR

SANJEET KUMAR

PUSHPRAJ SINGH

Under the supervision of

Mr. AMIT KUMAR DEWANGAN (Assistant Professor)

Mrs. ARADHANA SONI (Assistant Professor)

TO

DEPARTMENT OF INFORMATION TECHNOLOGY

SCHOOL OF STUDIES IN ENGINEERING & TECHNOLOGY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR(C.G.)

(A Central University established by the Central Universities Act 2009 No. 25 of 2009)

SESSION: 2021-2022

DECLARATION

We hereby declare that the work presented in this dissertation entitled **"A Novel Image Steganography Method for Industrial Internet of Things Security"** has been done by us under the supervision of Asst. Prof. Mr. AMIT KUMAR DEWANGAN and Asst. Prof. Mrs. ARADHANA SONI and this dissertation embodies our own work.

Amit Pawar Signature

AMIT KUMAR PAWAR (18107004)

Sanjeet kumar Signature

SANJEET KUMAR (18107039)

Pushpraj Singh Signature

PUSHPRAJ SINGH (18107029)

DEPARTMENT OF INFORMATION TECHNOLOGY
SCHOOL OF STUDIES IN ENGINEERING & TECHNOLOGY
GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR(C.G.)
(A Central University established by the Central Universities Act 2009 No. 25 of 2009)

CERTIFICATE

This is to certify that the project entitled **"A Novel Image Steganography Method for Industrial Internet of Things Security"** carried out by **"AMIT KUMAR PAWAR, SANJEET KUMAR** and **PUSHPRAJ SINGH"** under my supervision at department of Information Technology, School of Studies in Engineering & Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.).

To the best of my knowledge and belief the report

1. Embodies the work of the candidates themselves/him/herself.
2. Has duly been completed.
3. Fulfils the requirement of the B. Tech degree of the University.

(Signature of the Supervisor)

Name: Mr. AMIT KUMAR DEWANGAN

Designation: Assistant Professor

(Signature of the Supervisor)

Name: Mrs. ARADHANA SONI

Designation: Assistant Professor

HEAD
Department of Information Technology
SoS, Engg. & Technology
Guru Ghasidas Vishwavidyalaya
(Central University) Bilaspur (C.G.)

CERTIFICATE BY THE EXAMINERS

The Project Report entitled **"A Novel Image Steganography Method for Industrial Internet of Things Security"** submitted by AMIT KUMAR PAWAR (18107004), SANJEET KUMAR (18107039) and PUSHPRAJ SINGH (18107029) has been examined by the undersigned as a part of the examination and fulfils the requirement of Bachelor of Technology in Information Technology of Guru Ghasidas Vishwavidyalaya, Bilaspur.

(Signature)

Examiner 1

Name: Panky Chandra

Designation: Asst. Prof.

Date:

(Signature)

Examiner 2

Name: Agnivesh Pandey

Designation: Asst. Prof.

Date:

ACKNOWLEDGMENT

The satisfaction that accompanies the successful completion of any task would be incomplete without the mention of the people who made it possible and whose constant guidance and encouragement crown all the efforts with success. This acknowledgement transcends the reality of formality when we would like to express deep gratitude and respect to all those people behind the screen who guided, inspired and helped us for the completion of our project work.

We express our deepest gratitude to our project guides **Mr. AMIT KUMAR DEWANGAN** and **Mrs. ARADHANA SONI** for their moral and technical support in completion of project.

We are thankful to **Dr. Rohit Raja**, HOD Information Technology Department for giving us an opportunity to do this project.

We also present sincere thanks to **Dr. Amit Kumar Khaskalam, Mr. Santosh Soni, Dr. Rajesh Mahule, Mr. Agnivesh Pandey, Mr. Deepak kant Netam, Mr. Anand Prakash Rawal, Mrs. Akanksha Gupta, Mr. Sohel Ahmed, Mr. Abhishek Jain, Mr. Pankaj Chandra, Mrs. Sudha Satyen** who were instrumental in helping us in various ways and for providing inspiration through these four years.

We extend our heartly thanks to our dear **Friends** and beloved **Parents** who were always there when we needed them to give their moral support and help in any possible ways.

TABLE OF CONTENTS

ABSTRACT

- Initially, the image is taken as input and pre-processing is performed by using the Pixel Repetition Method.
- Visual quality, payload capacity, and security against attacks.
- LSB information hiding algorithm of image using secret key is be proposed combining information hiding and cryptography, increasing the human eye visual features, and the identity authentication based on digital signature and encryption technology to improve the security of information hiding.
- It is based on hidden data is extracted by the receiver through the reverse process of System Using A* Algorithm.
- Finally, through the experiment and the comparison of the peak signal-to-noise ratio (PSNR) and safety. The improved LSB image steganography algorithm using the encryption technology is better than general LSB image steganography method with better security and higher PSNR.

INTRODUCTION

Image steganography comprises of transform domain, model relied steganography, spatial domain and spread spectrum. The spatial domain and transform domain contrasts with one another. Pixel value is directly used to embed a secret message in spatial domain. On the other hand, transform domain techniques accomplish embedding by initially transforming the particular image from STF (Spatial to Frequency) domain via the use of any of the mentioned transforms. They are DWT (Discrete Wavelet Transform), DCT (Discrete Cosine Transform), Ridgelet Transform, Hadamard Transform, DD DT DWT (Double Density Dual Tree DWT), Dual Tree, Curvelet Transform and so on. Then, embedding is performed in specific transform-coefficients. The recent progress in the communication and information technology generates easy and simple accessible data. In addition, establishing secure communication is the most important requirement. Various methodologies are generated to accomplish safe communication. One such methodology is steganography.

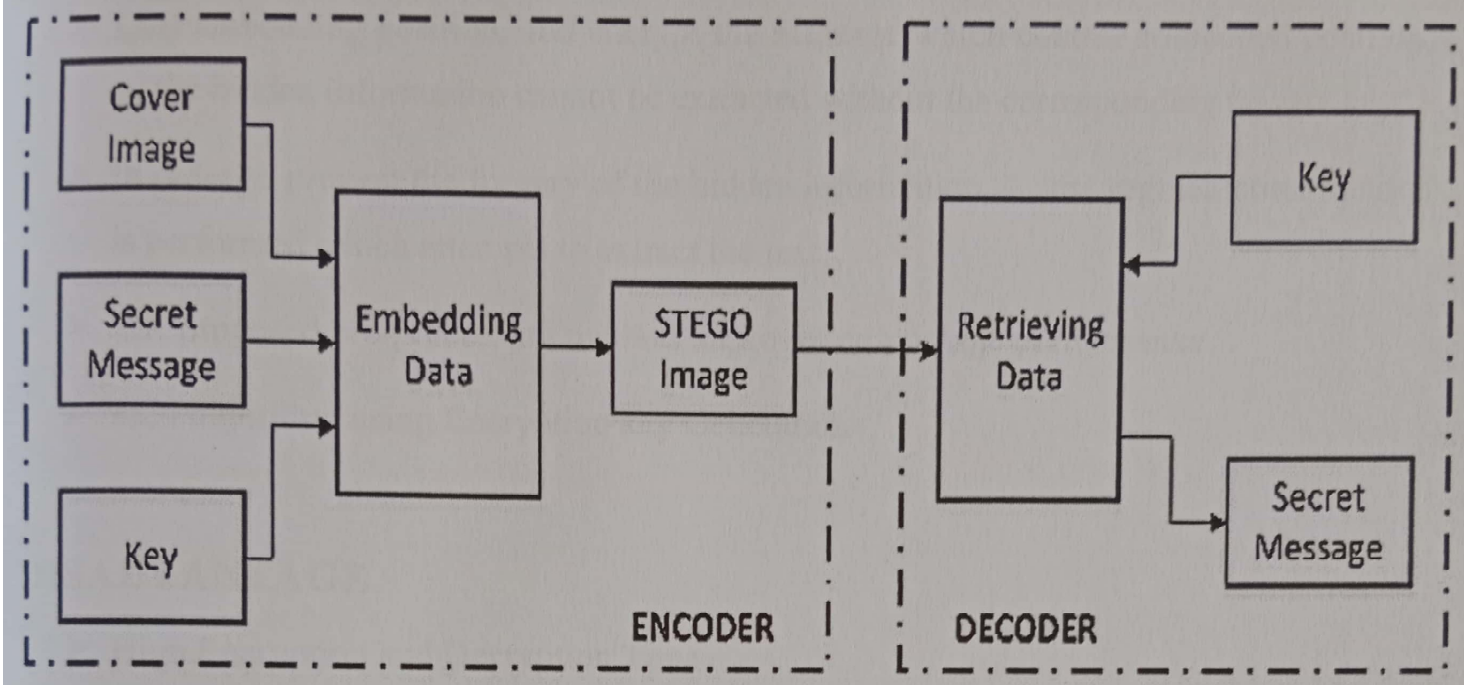
The steganography is used for data transfer over multi-media transfers such as image, video, audio and so on. Thus, steganography means "hidden-data". This is derived from Greek word "steganographia". This word integrates the two words "steganos" and "graphia". This reveals that this particular methodology has been used from ancient period. Through this technique, the data is sent from sender to the receiver without any malicious activity and third-party interruption. Additionally, the data is trustworthy and consistent during the transfer by the use of this data hiding methodology. Presently, various issues have been occurring with the progressive steganography technologies. Additionally, this study proposed a RDH (reversible Data Hiding) strategy for VQ (Vector Quantization) compressed images. This study reviewed few IT (Information Theory) concepts to outline an effective IM (Index Mapping) scheme from the embedding view-point. The empirical outcomes reveal that the recommended technique performs better than the traditional methods in accordance with the compression embedding capacity and efficiency.

Steganography consists of four modules. They are listed below.

- CO (Cover Object) – Data hiding is performed in this CO.
- SD (Secret Data) – Within the CO, the hidden-data is positioned.
- SO (Stego Object) – state of CO after the data is hidden inside.
- SK (Stego Key) – Hide function is used for the hidden data within the CO.

Steganography is categorized into several kinds on the basis of the medium utilized as CO. For example, when an original image is used as a CI (Cover Image), then it is termed as image steganography. Likewise, there are various types of steganography such as video steganography, sound steganography and text steganography. In this study, medical-images have been utilized as CO. Two main groups have been observed in the image steganography. The spatial and frequency domain techniques have been taken as the two main groups. Various steganography methodologies take both the domains into account. For instance, this research introduced an AIO (Artificial Immune Optimization) and image segmentation. This technique determines the efficient template to embed in a rapid way. Hence, there exists no requirement to examine the entire image to find a particular template for embedding. Moreover, DES (Data Encryption Standard) has been introduced by IBM and later adopted by US as standard. It completes the encryption process in sixteen rounds. Yet, brute-force attack can break the DES. Here the communication is made secure by embedding the secret data with the use of LSB (Least Significant Bit) methodology in the cover medium. The time for computation must also be minimized. Various data hiding methodologies exists. But the hardware implementation is complicated. data hiding of images among all the traditional methodologies. Hence, the present study introduces novel techniques for encryption and decryption to accomplish image steganography. The study recommended a novel Least Significant Bit-embedded Advanced to achieve image steganography through a series of steps. The below figure 1 shows the fundamental steganography architecture.

Figure.1. Fundamental steganography architecture



In the above figure.1, the cover image, secret message and key is used for embedding the data to attain the stego image. This is done is the encryption phase. In contrast, the secret message is retrieved by using the key in the decryption phase.

A Project Report

On

POLLUTION TRACKER

Submitted in partial fulfilment of the requirement for the award of

BACHELOR OF TECHNOLOGY

IN

Information Technology

UNDER THE GUIDANCE OF

Dr. Rohit Raja
(H.O.D)
&
Dr. Amit Khaskalam
(Assistant professor)

SUBMITTED BY

ADITI SHUKLA	ADITYA PARAMANIK	PRANAV PANKAJ	NEESHU
(18107007)	(18107001)	(18107024)	(18107021)

DEPARTMENT OF INFORMATION TECHNOLOGY,

SCHOOL OF STUDIES OF ENGINEERING AND TECHNOLOGY,

GURU GHASIDAS VISHWAVIDYALAYA,

CENTRAL UNIVERSITY, BILASPUR, CHHATTISGARH

A Project Report

On

POLLUTION TRACKER

Submitted in partial fulfilment of the requirement for the award of

BACHELOR OF TECHNOLOGY

IN

Information Technology

UNDER THE GUIDANCE OF

Dr. Rohit Raja
(H.O.D)
&
Dr. Amit Khaskalam
(Assistant professor)

SUBMITTED BY

ITI SHUKLA	ADITYA PARAMANIK	PRANAV PANKAJ	NEESHU
(18107007)	(18107001)	(18107024)	(18107021)

DEPARTMENT OF INFORMATION TECHNOLOGY,

SCHOOL OF STUDIES OF ENGINEERING AND TECHNOLOGY,

GURU GHASIDAS VISHWAVIDYALAYA,

CENTRAL UNIVERSITY, BILASPUR, CHHATTISGARH

CERTIFICATE

I hereby certify that the work which is being presented in the B.Tech Major Project Report entitled " **Pollution Tracker** ", in partial fulfillment of the requirements for the award of the Bachelor of Technology in Information Technology and submitted to the Department of Information Technology, SoSE&T (Institute of Technology), Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur, Chhattisgarh, India is an authentic record of my own work carried out during a period from January,2022 to April,2022(8th semester) under the supervision of Dr. Amit Khaskalam , an Assistant Professor of IT Department and Dr. Rohit Raja, Head of the Department.

The matter presented in this Project Report has not been submitted by me or by anyone else for the award of any other degree elsewhere.

Signature of students :

Aditya Kumar Gopal Pramanik (18107001), Aditya

Aditi Shukla (18107007), Aditi

Neeshu (18107021), Neeshu

Pranav Pankaj (18107024) Pranav

This is to certify that the above statement made by the student(s) is correct to the best of my knowledge.

Signature of Supervisor(s)

Dr. Rohit Raja

Dr. Amit Khaskalam

Date:11/05/2022

DECLARATION

I hereby declare that the project work entitled " **Pollution Tracker** " submitted to the Institute of Technology, Guru Ghasidas Vishwavidyalaya, is a record of an original work done by us under the guidance of **Dr. Rohit Raja & Dr. Amit Khaskalam**, Assistant Professor Department of Information Technology, and this project is submitted in the partial fulfillment of requirements for the award of the degree of Bachelor of Technology in Information Technology. The results embodied in this thesis have not been submitted to any other University or Institute for the award of any degree or diploma.

Student Names:

Aditya Kumar Gopal Pramanik (18107001), Aditya P

Aditi Shukla (18107007), Aditi

Neeshu (18107021), Neeshu

Pranav Pankaj (18107024) Pranav

ACKNOWLEDGEMENTS

We would like to place on record my deep sense of gratitude to Dr. Amit Khaskalam , Assistant Professor, Dept. of Information Technology, Institute of Technology, Guru Ghasidas Vishwavidyalaya, Central University, Bilaspur, Chhattisgarh, India, for his stimulating guidance, continuous encouragement, and supervision throughout the course of present work.

We express my sincere gratitude to Dr. Rohit Raja, Associate Professor and HOD-Dept. of Information Technology, Institute of Technology, Guru Ghasidas Vishwavidyalaya, Central University, Bilaspur, Chhattisgarh, India for his generous guidance, help, and useful suggestions.

We are extremely thankful to Prof T V Arjunan, Dean, School of Studies(Engg. & Tech.), Guru Ghasidas Vishwavidyalaya, Central University, Bilaspur, Chhattisgarh, India for providing us infrastructural facilities to work in, without which this work would not have been possible.

Date: 11/05/2022

Aditya Kumar Gopal Pramanik (18107001),

Aditi Shukla (18107007),

Neeshu (18107021),

Pranav Pankaj (18107024)

ABSTRACT

This project aims to reduce the level of pollution that is emitted using vehicles by supporting different models or models with fuel type.

It provides a centralized cloud server which is easily accessible to everyone from everywhere. It also provides a functionality to see friends' CO2 emission which will help in scaling the awareness. Further it provides user data persisted on the server for easy setup on next installation.

In fast and rapid growing age of technology and advancement, various measures have been tried and applied to reduce the increasing rate of air pollution, and for the same cause we have designed & developed an application called pTracker to constantly monitor the emission of carbon dioxide gasses released by vehicle which also make user aware about the emission caused by their vehicle usage. We believe things which could be measured could be controlled, and with the same thought we have built our solution.

The result is a mobile platform and connected Android application which by utilizing air quality sensors, reports pollution measurements together with positional coordinates to a central server. Thanks to the features of the underlying systems used, this provides a platform which is accurate and more resilient to exploits compared to traditional location-based services available today. The result allows individuals with respiratory conditions to receive much more accurate and up to date information in a larger resolution.

CONTENTS

INTRODUCTION

1.1. General Background

Long back there used to be no vehicles and industries and people were living happily on earth, life was good. After the discovery of the wheel, the place and time of the invention of the wheel remains unclear, because the oldest hints do not guarantee the existence of real wheeled transport, or are dated with too much scatter. Mesopotamian civilization is credited with the invention of the wheel. However, unlike other breakthrough inventions, the wheel cannot be attributed to a single nor several inventors. Evidence of early usage of wheeled carts have been found across the Middle East, in Europe, Eastern Europe, India and China. It is not known whether Chinese and Europeans invented the wheel independently or not.

The invention of the solid wooden disk wheel falls into the late Neolithic, and may be seen in conjunction with other technological advances that gave rise to the early Bronze Age. This implies the passage of several wheel-less millennia even after the invention of agriculture and of pottery, during the Aceramic Neolithic.

Continued exposure to environments with poor air quality is a major public health concern in developed and developing countries. It is estimated that the pollutants responsible for poor air quality cause nearly 2.5 million premature deaths per year world-wide. Significantly, around 1.5 million of these deaths are due to polluted indoor air, and it is suggested that poor indoor air quality may pose a significant health risk to more than half of the world's population. Due to its link with industrialisation, societal health problems associated with poor air quality disproportionately affects developed and developing nations – it is estimated that air pollution is responsible for the premature deaths. Remedial action to improve air quality is often easy to implement once airborne pollutants have been detected.

The World Health Organization (WHO) published a report in 2016, where air pollution was pointed out as the biggest environmental risk to human health, responsible for one of nine deaths annually. In addition, only about one in ten live in a city with acceptable levels of air pollution according to WHO's guidelines. As a result, the amount of cases of heart diseases, lung 52cancer and respiratory diseases like asthma has shown a large increase and can be directly

connected to the emissions of harmful particles in the air. While air pollution poses such a threat, information about the current pollution levels throughout cities is not sufficient when it comes to availability and accuracy. As an example, in the entire city of Stockholm there only exists about 5-10 stationary measuring points. Due to the non-linearity of locations' pollution levels, the measurements are valid in close proximity of the sensing equipment but differs as the distance increases . In order to enable more data to be publicly available, new and cheaper means must be deployed, where one potential solution is the use of small sensors attached to a mobile platform. In recent years the number of devices using positioning information has shown an exponential growth, and by 2019 it is expected that each person on the planet owns at least one such device on average . This trend opens up opportunities in the market for the adoption of a new type of position technology. One such technology is Galileo, Europe's new navigational system, offering better precision and disabling the possibility to fake the users location compared to traditional positioning systems, making it an attractive alternative. By increasing the number of air quality measurements and combining the collected data with accurate navigational data, a system which is more robust and accurate than those available today can be achieved.

1.2. Overview Of Project

This project provides a combination of processes of sensing several gas levels in the air and also the ambient temperature and humidity, thus sensing the quality of the air.

The levels of the gasses and the temperature is displayed in a LCD display panel, which continuously shows the real time output values of the gas sensors, temperature and humidity sensor.

1.3. Problem Statement

An application which can help reduce the pollution by keeping a track on CO2 emission by the vehicle of the user.

1.4. Objective

To measure and display temperature of vehicle.To combine advanced detection technologies to produce an air quality sensing system with advanced capabilities to provide low cost comprehensive monitoring. To display the sensed data in a user mobile device.

1.5. Purpose

The purpose of the thesis is to present an implementation and evaluation of a mobile platform which by using connected sensors collects air quality data. The data can then be made available for the public where primarily people suffering from respiratory diseases can benefit from up to date information about air quality. The purpose of the work is to investigate different available technologies which can be applied in the system and to develop a proof-of-concept prototype.

A Project Report

On

House Price Prediction Modelling

Submitted in partial fulfillment of the requirement for the award of BACHELOR OF TECHNOLOGY

IN

Information Technology

UNDER THE GUIDANCE OF

Mr. Agnivesh Pandey And Dr. Rajesh Mahule

SUBMITTED BY

Rajeev Sahu(18107033) Rakshit Srivastava(18107032) Anmol Sahu(18107005)

DEPARTMENT OF INFORMATION TECHNOLOGY, SCHOOL OF STUDIES OF ENGINEERING AND TECHNOLOGY, GURU GHASIDAS VISHWAVIDYALAYA,

CENTRAL UNIVERSITY, BILASPUR, CHHATTISGARH, INDIA

A Project Report

On

House Price Prediction Modelling

Submitted in partial fulfillment of the requirement for the award of BACHELOR OF TECHNOLOGY

IN

Information Technology

UNDER THE GUIDANCE OF

Mr. Agnivesh Pandey And Dr. Rajesh Mahule

SUBMITTED BY

Rajeev Sahu(18107033) Rakshit Srivastava(18107032) Anmol Sahu(18107005)

DEPARTMENT OF INFORMATION TECHNOLOGY, SCHOOL OF STUDIES OF ENGINEERING AND TECHNOLOGY, GURU GHASIDAS VISHWAVIDYALAYA,

CENTRAL UNIVERSITY, BILASPUR, CHHATTISGARH, INDIA

CERTIFICATE

I hereby certify that the work which is being presented in the B.Tech. Major Project Report entitled "**House Price Prediction Modeling**", in partial fulfillment of the requirements for the award of the Bachelor of Technology and submitted to the Department of Information Technology, Institute of Technology, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur, Chhattisgarh, India is an authentic record of my own work carried out during a period from Jan 2022 to March 2022 (8th semester) under the supervision of **Mr. Agnivesh Pandey and Dr. Rajesh Mahule Sir.**

The matter presented in this Project Report has not been submitted by me or by anyone else for the award of any other degree elsewhere.

Rajeev Sahu (18107033) **Rakshit Srivastava (18107032)** **Anmol Sahu (18107005)**

This is to certify that the above statement made by the student(s) is correct to the best of my knowledge.

Signature of Supervisor

Mr. Agnivesh Pandey
(Assistant Professor)

Dr. Rajesh Mahule
(Assistant Professor)

Date:

Dr. Rohit Raja
Head, Department of Computer Science and Engineering
SoS E&T, Guru Ghasidas Vishwavidyalaya
Central University, Bilaspur, Chhattisgarh, India

HEAD
Department of Information Technology
SoS Engg. & Technology
Guru Ghasidas Vishwavidyalaya
(Central University) Bilaspur (C.G.)

DECLARATION

We hereby declare that the work presented in this dissertation entitled **"House Price Prediction Modeling"** submitted to the **"Department of Information Technology"**, under the guidance of **"Mr. Agnivesh Pandey and Dr. Rajesh Mahule"** has been done by us, in the partial fullfillment for the award of the Degree of Bachelor of Technology and this dissertation embodies our own work. The work is original as it has not been earlier submitted either in part or full for any purpose before by us or anyone else.

Signature of students

Rajeev

Rajeev Sahu (18107033)

Rakshit Srivastava (18107032)

Anmol Sahu (18107005)

ACKNOWLEDGEMENT

We express our sincere gratitude to **Mr. Agnivesh Pandey and Dr. Rajesh Mahule**, Department of Information Technology, Guru Ghasidas Vishwavidyalaya, Central University, Bilaspur, Chhattisgarh, India, for his simulating guidance, continuous encouragement, and supervision throughout the course of present work

We would like to place on record our deep sense of graduate to **Dr. Rohit Raja**, HOD-Dept. of Information Technology, School of studies in engineering and technology, Guru Ghasidas Vishwavidyalaya, Central University, Bilaspur, Chhattisgarh, India for his generous guidance, help and useful suggestions.

We are extremely thankful to Professor **T.V. Arjunan** Dean, SoS E&T, Guru Ghasidas Vishwavidyalaya Central University, Bilaspur, Chhattisgarh, India for providing us infrastructural facilities to work in, without which this work would not have been possible.

Signature of students

Rajeev Sahu(18107033) **Rakshit Srivastava(18107032)** **Anmol Sahu(18107005)**

Table of Contents

ABSTRACT

The real estate industry has been one of the leading researchers focusing on modern economics, for its significant implications on relevant industries and fields such as construction, investment, and public welfare. In general, purchasing and investing in any real estate project will involve various transactions between different parties. Thus, it could be a vital decision for both households and enterprises. How to construct a realistic model to precisely predict the price of real estate has been a challenging topic with great potential for further research. It is generally believed by academia that correctly predicting the special price for a specific real estate is impractical since it involves plenty of factors exerting influence on the eventual cost.

There is a well-known saying about the appraisal of real estate by Li Ka-Shing, the most famous property tycoon in Hong Kong: "Three major factors are determining the price of a property, the first one is location, the second one is location, and the third one is still location." His word does not seem to make much sense from a statistical research perspective. Nevertheless, as a successful businessman in the property industry, what makes him attach so much significance to some specific factors like location when appraising a property is crucial. To what extent a particular factor like location plays an essential role in pricing a property is worth exploring by adopting a statistical model in real estate economics research.

INTRODUCTION

Housing price is affected by multiple factors and features of a specific house. According to the previous research, some analysts have proposed several variables that significantly influence the overall housing price. According to Kusan et al. , these factors can be classified into three types: house factors, environmental factors, and transportation factors. Each factor and the effective primary mechanism are elaborated in the following text.

House factors can be divided into several types. The most influential type is residential factors, including residence, usability, and number of rooms. When people consider purchasing a house for living purposes, the factors above are the main determinants for the living quality. Buyers with family members would typically attach more importance to the essential feature of the house, like the living area and number of rooms, which have a significant impact on the overall living quality and experience in the house. Besides, the intangible features, like the view of residence and usability, also have a rather considerable influence on the housing price, through affecting buyers' experience on the house and willingness to pay.

The other influential types are the main factors related to building properties and floor factors. Building properties are mainly about hardware and basic facilities in the building, such as the elevator, generator, and garage. To depict an example of this, the number of containable cars within a garage is a rather important consideration. The rising trend of numbers of vehicles per household generates a necessary demand for the quality and capacity of a garage in a house. Other affiliated facilities to the house like the swimming pool and backyard have also played an essential role in determining the housing price, as the demand for leisure and relaxation has been arising with the economic progress.

A

Project Report

on

"ONLINE LEAVE MANAGEMENT SYSTEM"

Submitted to

Department of Information Technology,

Guru Ghasidas Vishwavidyalaya

(*A Central University*)

Bilaspur (C.G.)

Submitted as Major Project for Requirement of
Bachelor of Technology in Information Technology

Submitted By
TANYA OHRI-18107041
HARSHVARDHAN PARDESHI-18107014
ANAND PRAKASH RAW-18107003
SANJANA TIWARI-18107036

Under the Guidance of
Dr. Sudha Mishra Ma'am
and
Abhishek Jain Sir

Submitted To :-
Agnivesh Pandey Sir

Department of Information Technology,
School of Studies in Engineering &
Technology
Guru Ghasidas Vishwavidyalaya **(A Central University)**
Bilaspur (Chhattisgarh)

May 2022

A

Project Report

on

"ONLINE LEAVE MANAGEMENT SYSTEM"

Submitted to

Department of Information Technology,

Guru Ghasidas Vishwavidyalaya

(*A Central University*)

Bilaspur (C.G.)

Submitted as Major Project for Requirement of
Bachelor of Technology in Information Technology

Submitted By
TANYA OHRI-18107041
HARSHVARDHAN PARDESHI-18107014
ANAND PRAKASH RAW-18107003
SANJANA TIWARI-18107036

Under the Guidance of
Dr. Sudha Mishra Ma'am
and
Abhishek Jain Sir

Submitted To :-
Agnivesh Pandey Sir

Department of Information Technology,
School of Studies in Engineering &
Technology
Guru Ghasidas Vishwavidyalaya **(A Central University)**
Bilaspur (Chhattisgarh)

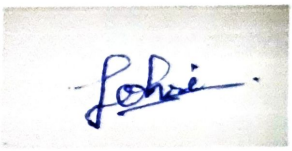
May 2022

DECLARATION

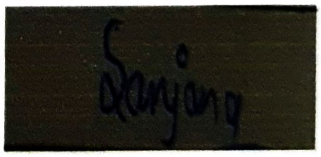
This is the golden opportunity for me to declare that the Project Work entitled ***"ONLINE LEAVE MANAGEMENT SYSTEM"*** is based on the work carried out during the course of study under the guidance and supervision of **Dr. Sudha Mishra Ma'am and Abhishek Jain Sir**, Department ofInformation Technology, School of Studies in Engineering & Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.).

I assert that the statements made and conclusions drawn are the outcome of my study. I further declare that to the best of my knowledge and belief the project work report does not contain any part of any work which has been submitted for the award of Bachelor's Degree or any other degree/ diploma/ certificate in this University or any other University of India or abroad.

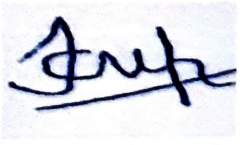
Date:02/05/22



Tanya Ohri (18107041)



Sanjana Tiwari (18107036)



Harshvardhan Pardeshi (18107014)

Anand Prakash Raw (18107003)

Department of Information Technology

School of Studies in Engineering & Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur (A Central University)

Certificate of Supervisor

This is to certify that the work incorporated in the project

"Online Leave Management System"

is a record of work carried out by our team (Tanya Ohri (18107041), Harshvardhan Pardeshi (18107014), Sanjana Tiwari (18107036) and Anand Prakash Raw (18107003) , under my guidance and supervision at Department of Information Technology, School of Studies in Engineering & Technology, Guru Ghasidas Vishwavidyalaya, (A Central University) Bilaspur, (C.G.) India.

To the best of my knowledge and belief.

1. Embodies the work of the candidates themselves/him/herself,
2. Has duly been completed
3. Fulfills the requirements of the B.Tech degree of the University.

(Signature of the Supervisor)
Name : Mr. Agnivesh Pandey Sir
Designation : Assistant Professor

CERTIFICATE BY THE EXAMINERS

This is to certify that project work entitled:

"***Online Leave Management System***"

The Project Report entitled "Online Leave Management System" **S**ubmitted by Tanya Ohri (18107041) , Harshvardhan Pardeshi (18107014), Sanjana Tiwari (18107036), Anand Prakash Raw (18107003) has been examined by the undersigned as a part of examination of B.Tech. (Information Technology) 8th semester project at Department of Information Technology, School of Studies in Engineering & Technology, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur (C.G.).

.....

.....

(Signature)
Examiner 1

Name: Dr. Sudha Mishra
Designation: Asst. Prof.
Date:
Date: 24/08/2022

(Signature)
Examiner 2

Name: Abhishek Jain
Designation: Asst. Prof.

Head Department of Information Technology
(Signature and Seal)

HEAD
Department of Information Technology
Institute of Technology
Guru Ghasidas Vishwavidyalaya, Bilaspur
(Central University)

ACKNOWLEDGEMENT

Working on this project, although was a challenge for me, would not have been achieved without the support, inspiration, encouragement and contribution of many people. First of all, I would like to express my deep sense of gratitude towards my supervisor **Dr. Sudha Mishra Ma'am and Abhishek Jain Sir** , Department of Information Technology, School of Studies in Engineering & Technology, Guru Ghasidas Vishwavidyalaya, for his valuable guidance, constant encouragement and kind help at different stages for the execution of this dissertation work.

I am **indebted** to **Dr. Rohit Raja Sir** Professor and Head Of The Department of Information Technology , SoS, Engineering & Technology, for his **valuable support.**

We also present sincere thanks to Dr. Amit Khaskalam,Mr. Rajesh Mahule,Mr. Agnivesh Pandey, Mr. Deepak Kant Netam, Mr. Anand Prakash Rawal,Mrs. Akanksha Gupta, Dr. Sudha Mishra and Mr. Suhel Ahamed who were instrumental in helping us in various ways for providing inspiration through these **four** years.

It is our proud privilege and duty to acknowledge the kind of help and guidance received from several people in preparation of this report. It would not have been possible to prepare this report in this form without their valuable **help, cooperation and guidance.**

Last but not the least, I would also like to express my special gratitude towards my beloved Parents', for their golden encouragement which also helped me a lot in completion of this project work.

Date: 02/05/22

TANYA OHRI-18107041
HARSHVARDHAN PARDESHI-18107014
ANAND PRAKASH RAW-18107003
SANJANA TIWARI-18107036

PREFACE

Online leave management software, in simple words, is managing the leave system of an organization. Organizations often require an expert who can plan, organize, analyze, interpret and make decisions regarding employee leave policies. Moreover, the HR specialist usually always performs these roles. However, the industry and market are beginning to witness a gradual change from manual leave management to digital leave management system adoption

In the available leave record system, every organization follows manual work in which faculty enters their data in a record book. At the tip of each session, the Admin Department calculates the remaining leaves of every worker, which will be a time consuming task and there are chances of losing information or errors among the records.

The leave management system is a single module that's important for HR tasks to keep the record of information relating to operating hours and leaves. The Head of Department (HOD) will have privileges to verify the leave request of their departments faculties. After verifying the leave request of faculties the HOD will give remarks in terms of positive and negative. This application may be employed in a faculty to cut back process work load. Leave management applications can scale back work and maintain record of the leaves in an economical and systematic approach.

ABSTRACT

Many companies and organizations use a complete automated system for all of its banking sections including General Banking, Credit and finance, Cash and Foreign Trade. But their Leave Management System is totally manual and it takes a long time to process a leave request. In the current system a leave application has to go through a long chain of officials and as a result, several times the competent authorities get manipulated information. The current Leave Management System was analyzed and the problems were found out. I have proposed a new system to solve the identified problems. I have introduced some new concepts and constraints while developing the proposed solution. The proposed system will minimize the paperwork. Moreover, it will help management in decision making as they will get up-to-date reports. While implementing the system, I have used MySQL for the database and PHP along with HTML as the front end development tools. I believe the proposed system will make the leave associated activities easier and will also save time and energy.

The purpose of the Employee Leave Management System is to automate the existing manual system by the help of computerized equipment and full-fledged computer software, fulfilling their requirements, so that their valuable data/information can be stored for a longer period with easy accessing and manipulation of the same. The required software and hardware are easily available and easy to work with. Employee Leave Management System, as described above, can lead to error free, secure, reliable and fast management systems. It can assist the user to concentrate on their other activities rather than concentrating on the record keeping. Thus it will help organizations in better utilization of resources. The organization can maintain computerized records without redundant entries. That means that one need not be distracted by information that is not relevant, while being able to reach the information. The aim is to automate its existing manual system by the help of computerized equipment and full-fledged computer software, fulfilling their requirements, so that their valuable data/information can be stored for a longer period with easy accessing and manipulation of the same. Basically the project describes how to manage for good performance and better services for the clients

TABLE OF CONTENTS

CHAPTER III. THE PROPOSED SYSTEM

CHAPTER 4. THE DESIGN

CHAPTER 5. THE IMPLEMENTATION

CHAPTER-1

INTRODUCTION

1.1 Introduction

The "Employee Leave Management System" has been developed to override the problems prevailing in the practicing manual system. This software is supported to eliminate and in some cases reduce the hardships faced by this existing system. Moreover this system is designed for the particular need of the company to carry out operations in a smooth and effective manner. The application is reduced as much as possible to avoid errors while entering the data. It also provides an error message while entering invalid data. No formal knowledge is needed for the user to use this system. Thus by this all it proves it is user-friendly. Employee Leave Management System , as described above, can lead to error free, secure, reliable and fast management systems. It can assist the user to concentrate on their other activities rather than concentrating on the record keeping. Thus it will help organizations in better utilization of resources. Every organization, whether big or small, has challenges to overcome and manage the information of Leave, Employee,Leave Type. Every Employee Leave Management System has different Employee needs, therefore we design exclusive employee management systems that are adapted to your managerial requirements. This is designed to assist in strategic planning, and will help you ensure that your organization is equipped with the right level of information and details for your future goals. Also, for those busy executives who are always on the go, our systems come with remote access features, which will allow you to manage your workforce anytime, at all times. These systems will ultimately allow you to better manage resources.

1.2 Objective of the Project

The objective of this project is to formulate a sensible analysis of the current system to find out its problems and thus design a new computerized system which will be more optimized and synchronized. The management will be available with such a system which may make their task simpler incase of leave related activities and the employees will not need to wait for a long time to know the decision of the management.
The main objective of the Project on Employee Leave Management System is to manage the details of Employee, Leave, Company. It manages all the information about Employee, Leave Type, Salary, Employee. The project is totally built at the administrative end and thus only the administrator is guaranteed the access. The purpose of the project is to build an application program to reduce the manual work for managing the Employee, Leave, Leave Type, Company. It tracks all the details about the Company

Functionalities provided by Employee Leave Management System are as follows:

- Provides the searching facilities based on various factors. Such as Employee, Company, Employee Leave Management System also manage the Leave Type details online for Salary details, Employee.
- It tracks all the information of Leave, Leave Type,etc
- Manage the information of Leave
- Shows the information and description of the Employee, Company
- To increase efficiency of managing the Employee, Leave
- It deals with monitoring the information.
- Manage the information of Employee
- Editing, adding and updating of Records is improved which results in proper resource management of Employee data.

1.3 Why Leave Management System?

Organizations can falter in productivity due to employees taking unplanned or just too many leaves. Although sudden issues can crop up with anyone, anytime, organizations have to keep a clear record of all the leaves taken by the employees in order to maintain proper working with constant efficiency month-by-month. Leave management is important because:

- In business, time is money. Inconsistent leave policies through the organization often causes huge costs to the company.
- Often unplanned leaves can lead to skipping deadlines and targets.
- Keeping employees bereft of their legal right to entitled paid leaves monthly/annually can also create ruckus later on.
- Roster management, ad-hoc placements, guest participation, etc. can be arranged in time for emergency situations.
- Employees need to plan their long leaves well in advance and having a streamlined, automated system to manage leaves and accommodate work situations in advance proves for a great work ethic and simplified work process in the organization.
- When there is a proper channel; through which employees go for their application for leaves and can access their information independently, absenteeism is reduced and transparency increases manifold. So does productivity and employee self-awareness.
- A major boost and in some cases, reality-check is given to the employees on their attendance and performance vis. their leaves account.

There are several such issues which can be completely avoided wherever necessary and completely taken care of with application of a smart leave management system.

1.4 Methodology

In the beginning, key data has been extracted from a detailed description of the current Leave Management System as a whole, and then potential problems in the current system have been identified. Next, the proposed system has been elaborated and after that the goal of the project has been established to provide better data reliability, more automation and less effort. Efficient real time data storage, data manipulation capabilities and up-to-date report generation are the most important concerns of the proposed system. Then, key aspects of the proposed system are explained in detail with prototype-planning phase, analysis phase and design phase.

Implementation Methodology: Model View Controller or MVC as it is popularly called, is a software design pattern for developing web applications. A Model View Controller pattern is made up of the following three parts: Model - The lowest level of the pattern which is responsible for maintaining data. View - This is responsible for displaying all or a portion of the data to the user. Controller - Software Code that controls the interactions between the Model and View. MVC is popular as it isolates the application logic from the user interface layer and supports separation of concerns. Here the Controller receives all requests for the application and then works with the Model to prepare any data needed by the View. The View then uses the data prepared by the Controller to generate a final presentable response.

1.5 Organization of the Report

In chapter II, the Existing System has been described. I have given the complete elaboration of the Proposed System in chapter III. Conclusion is written in chapter IV and then references and appendices are attached.

1.6 LITERATURE SURVEY

In today's era of the Internet, the process of leave management can be automated to enhance the efficiency of work in educational institutions. The Online Leave Management Application (OLMA) is an Android based application which can be used to help the members of faculty in optimizing the time and effort spent in the whole process of availing a leave. This app automates the workflow of leave applications and their approvals by means of mobile phones. The main aim of our project "Online Leave Management Application" is to automate the leave management process in educational institutions. It results in the effortless processing of leave applications.

The scope of the "Online Leave Management Application" is to help the members of faculty, HOD and admin of an educational institution in the whole process of requesting and granting leaves. The scope of HOD and admin is confined to accepting or rejecting the leave applications and generating reports. The scope of the applicant (members of faculty or HOD) is confined to applying leave, tracking and canceling leave application.

In the existing Leave Record Management System, every college/department follows manual procedure in which faculty enters information in a record book. At the end of each month/session, the Administration Department calculates leave/s of every member which is a time taking process and there are chances of losing data or errors in the records. This module is a single leave management system that is critical for HR tasks and keeps the record of vital information regarding working hours and leaves. In this module, the head of department (HOD) will have permissions to look after data of every faculty member of their department. HOD can approve leave through this application and can view leave information of every individual. This application can be used in a college to reduce processing workload. Leave management applications will reduce paperwork and maintain records in a more efficient systematic way.

The researcher learned that their leave management system can have a summary of employees' current leave and can have the permission to look after data of every employee to provide the HRM a more efficient and systematic way.

A PROJECT REPORT

On

KAKSHA APP

Submitted in partial fulfillment of the requirement for the award of
BACHELOR OF TECHNOLOGY
IN
Information And Technology

UNDER THE GUIDANCE OF
Mr. Agnivesh Pandey
(Assistant Professor)
Mr. Pankaj Chandra
(Assistant Professor)

SUBMITTED BY

PRASHANT KUMAR
(18107031)

SHIVAM GUPTA
(18107038)

DEPARTMENT OF INFORMATION TECHNOLOGY,
SCHOOL OF STUDIES OF ENGINEERING AND TECHNOLOGY,
GURU GHASIDAS VISHWAVIDYALAYA,
CENTRAL UNIVERSITY, BILASPUR, CHHATTISGARH, INDIA

SESSION 2021-2022

A PROJECT REPORT

On

KAKSHA APP

Submitted in partial fulfillment of the requirement for the award of
BACHELOR OF TECHNOLOGY
IN
Information And Technology

UNDER THE GUIDANCE OF
Mr. Agnivesh Pandey
(Assistant Professor)
Mr. Pankaj Chandra
(Assistant Professor)

SUBMITTED BY

PRASHANT KUMAR
(18107031)

SHIVAM GUPTA
(18107038)

DEPARTMENT OF INFORMATION TECHNOLOGY,
SCHOOL OF STUDIES OF ENGINEERING AND TECHNOLOGY,
GURU GHASIDAS VISHWAVIDYALAYA,
CENTRAL UNIVERSITY, BILASPUR, CHHATTISGARH, INDIA
SESSION 2021-2022

CERTIFICATE

I hereby certify that the work which is being presented in the B.Tech. Major Project Report entitled "**Kaksha App**", in partial fulfillment of the requirements for the award of the Bachelor of Technology in Information and Technology and submitted to the Department of Information and Technology Institute of Technology, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur, Chhattisgarh, India is an authentic record of my own work carried out during a period from Jan 2022 to March 2022 (8th semester) underthe supervision of **Mr. Agnivesh Pandey and Mr. Pankaj Chandra, IT Department.**

The matter presented in this Project Report has not been submitted by me or by anyone else forthe award of any other degree elsewhere.

PRSHANT KUMAR

(18107031)

SHIVAM GUPTA

(18107038)

This is to certify that the above statement made by the student(s) is correct to the best ofmy knowledge.

Signature of Supervisor

Mr. Agnivesh Pandey
Assistant Professor

Mr. Pankaj Chandra
Assistant Professor

Date:

Dr. Rohit Raja Head,
Department of Information and Technology SoS, E&T
Guru Ghasidas Vishwavidyalaya (A Central University)
Bilaspur, Chhattisgarh, India

HEAD
Department of Information & Technology
Sos. Engg. & Technology
Guru Ghasidas Vishwavidyalaya
(Central University) Bilaspur (C.G.)

CERTIFICATE BY THE EXAMINERS

This Project Report entitled "Kaksha App" submitted by Prashant Kumar (18107031) and Shivam Gupta (18107038) has been examined by the undersigned As a part of the examination and fulfills the requirement of Bachelor of Technology in Information Technology of Guru Ghasidas Vishwavidyalaya, Bilaspur.

.....
(sign)
Examiner 1

Name: Amrivesh Pandey
Designation: Asst. Prof.
Date:

.....
(sign)
Examiner 2

Name: Pankaj Chandra
Designation: Asst. Prof.
Date:

DECLARATION

We hereby declare that the work presented in this dissertation entitled "**Kaksha App**" submitted to the "**Department of Information and Technology**", under the guidance of **"Mr. Agnivesh Pandey and Mr. Pankaj Chandra"** has been done by us, and this dissertation embodies our own work.

Signature of students

PRASHANT KUMAR
(18107031)

SHIVAM GUPTA
(18107038)

ACKNOWLEDGEMENT

We express our sincere gratitude to **Mr. Agnivesh Pandey**, Assistant Professor, Department of Information and Technology, Guru Ghasidas Vishwavidyalaya, Central University, Bilaspur, Chhattisgarh, India for her simulating guidance, continuous encouragement, and supervision throughout the course of present work

We would like to place on record our deep sense of gratitude to **Mr. Pankaj Chandra**, Assistant Professor, Dept. of Information and Technology, Guru Ghasidas Vishwavidyalaya, Central University, Bilaspur, Chhattisgarh, India for his generous guidance, help and useful suggestions.

We are extremely thankful to Professor **T.V. Arjunan**, Dean, SoS E&T, Guru Ghasidas Vishwavidyalaya Central University, Bilaspur, Chhattigarh, India for providing us infrastructural facilities to work in, without which this work would not have been possible.

Signature of students

PRASHANT KUMAR
(18107031)

SHIVAM GUPTA
(18107038)

TABLE OF CONTENTS

ABSTRACT

During the pandemic in last to two years so many fields have been shifting towards the digitalization, education is one of them. We focus on that, In many countries, the demand for jobs in the conventional education system far exceeds the available job offers. Under the right circumstances, online and distance learning systems have proven that they can provide quality education and training to many people at lower unit costs than conventional education systems. In remote or sparsely populated areas, it is not economically feasible to provide the full range of educational opportunities and vocational training through the conventional institutions. Video conferencing as a method of distance education enables learning and training to be delivered in a more efficient and economical way.

The development of this project consisted of three main phases which were Design (front-end), Getting all the features (dependencies), Testing. For executing all the phases we've used Dart language in Flutter framework. And for the Video calling features we use Agora SDK which is a WebRTC provider.

INTRODUCTION

With the fast development and utilization of modern communication and information tools, students adopting to partly/fully online classes, there is a transition from the traditional classroom to online teaching. The scope of higher education in providing diverse opportunities in the field of various programs to the students, there is a rise in the demand for online teaching. For satisfying a large student population, online teaching provides an exciting prospect in making classes more accessible to the students. As reported in, there are three generations of distance learning. The first generation of distance learning was characterized by the predominant use of one technology and the lack of direct interaction between the student and the institution that provides education or awards certificates of successful completion of a particular course. Although educational television and radio were used in the first generation, the main form of first generation distance education was correspondence based on printed learning materials. Distance education of the second generation is characterized by access to multiple types of learning materials (printed material and broadcast), where learning materials are specifically designed for distance learning. Communication with students is mediated by a third party or a tutor, not by the original author of the learning material used in the teaching process.

Concepts of online and distance learning provide the necessary flexibility for Students to continue their education or training even

though they can not go to institutes. Some governments and employers have emphasized the importance of lifelong learning and distance education for increased economic productivity. Businesses appreciate especially when employees continue to learn and improve. Individuals see the value of flexibility and access to learning without sacrificing time outside the home. Lastly, the rapid growth of knowledge in areas such as healthcare, technology and management require from people working in these fields to continue learning in order to keep up with the new findings in the context of their work. E-learning and distance education are ideal methods of lifelong learning.

A Project Report

on

" Forest Fire Detection "

Submitted in partial fulfillment of the requirement for the award of

BACHELOR OF TECHNOLOGY

in

INFORMATION TECHNOLOGY

Under the supervision of

Dr. Rajesh Mauhle
(Assistant Professor)

Mr. Deepak Kant Netam
(Assistant Professor)

SUBMITTED BY

MANSI CHANDRAKAR
(18107018)

SEJAL VERMA
(18107037)

ADITYA SHENDE
(18107048)

DEPARTMENT OF INFORMATION TECHNOLOGY,
SCHOOL OF STUDIES OF ENGINEERING AND TECHNOLOGY,
GURU GHASIDAS VISHWAVIDYALAYA,
CENTRAL UNIVERSITY, BILASPUR, CHHATTISGARH, INDIA
(A Central University established by the Central Universities Act 2009 No. 25 of 2009)

A Project Report

on

" Forest Fire Detection "

Submitted in partial fulfillment of the requirement for the award of

BACHELOR OF TECHNOLOGY

in

INFORMATION TECHNOLOGY

Under the supervision of

Dr. Rajesh Mauhle
(Assistant Professor)

Mr. Deepak Kant Netam
(Assistant Professor)

SUBMITTED BY

MANSI CHANDRAKAR
(18107018)

SEJAL VERMA
(18107037)

ADITYA SHENDE
(18107048)

DEPARTMENT OF INFORMATION TECHNOLOGY,
SCHOOL OF STUDIES OF ENGINEERING AND TECHNOLOGY,
GURU GHASIDAS VISHWAVIDYALAYA,
CENTRAL UNIVERSITY, BILASPUR, CHHATTISGARH, INDIA
(A Central University established by the Central Universities Act 2009 No. 25 of 2009)

CERTIFICATE

I hereby certify that the work which is being presented in the B.Tech. Major Project Report entitled **"Forest Fire Detection "**, in partial fulfillment of the requirements for the award of the **Bachelor of Technology in Information Technology** and submitted to the Department of Information Technology, School Of Studies In Engineering And Technology, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur, Chhattisgarh, India is an authentic record of my own work carried out during a period from **December 2021 to May 2022 (8th semester)** under the supervision of **Dr. Rajesh Mauhle & Mr. Deepak Kant Netam, IT Department.**

The matter presented in this Project Report has not been submitted by me or by anyone else for the award of any other degree elsewhere.

MANSI CHANDRAKAR
(18107018)

SEJAL VERMA
(18107037)

ADITYA SHENDE
(18107048)

This is to certify that the above statement made by the student(s) is correct to the best of my knowledge.

Signature of Supervisor

Dr. Rajesh Mauhle
Assistant Professors

Mr. Deepak Kant Netam
Assistant Professors

Dr. Rohit Raja

Head,
Department of Information Technology SoS E&T,
Guru Ghasidas Vishwavidyalaya (Central University),
Bilaspur, Chhattisgarh, India

HEAD
Department of Information Technology
SoS, Engg. & Technology
Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)
(Central University)

CERTIFICATE BY THE EXAMINERS

This Project Report entitled "Forest Fire Detection" submitted by Mansi Chandrakar(18107018), Sejal Verma(18107037) and Aditya Shende(18107048) has been examined by the undersigned as a part of the examination and fulfills the requirement of Bachelor of Technology in Information Technology of Guru Ghasidas Vishwavidyalaya, Bilaspur.

.....
(sign)
Examiner 1

Name: Agniveesh Pandey
Designation: Asst Professor
Date:

.....
(sign)
Examiner 2

Name: Pankaj Chandra
Designation: Asst. Prof.
Date:

DECLARATION

We hereby declare that the work presented in the dissertation entitled **"Forest Fire Detection "** submitted to the **"Department of Information and Technology"**, under the guidance of **"Dr. Rajesh Mauhle"** and **"Mr. Deepak Kant Netam"** has been done by us, and this dissertation embodies our own work.

Signature of students

MANSI CHANDRAKAR
(18107018)

SEJAL VERMA
(18107037)

ADITYA SHENDE
(18107048)

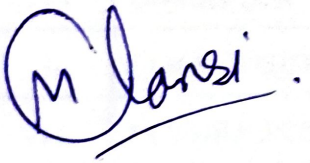
ACKNOWLEDGEMENT

We express our sincere gratitude to **Dr. Rajesh Mauhle**, Assistant Professor, Department of Information Technology, Guru Ghasidas Vishwavidyalaya, Central University, Bilaspur, Chhattisgarh, India for his stimulating guidance, continuous encouragement, and supervision throughout the course of present work.

We would like to place on record our deep sense of gratitude to **Mr. Deepak Kant Netam**, Assistant Professor, Dept. of Information Technology, School Of Studies In Engineering And Technology, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur, Chhattisgarh, India, for his stimulating guidance, continuous encouragement, and supervision throughout the course of present work.

We are extremely thankful to **Prof T. V. Arjunan**, Dean, School Of Studies In Engineering And Technology, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur, Chhattisgarh, India, for providing us with infrastructural facilities to work in, without which this work would not have been possible.

Signature of students



MANSI CHANDRAKAR
(18107018)

SEJAL VERMA
(18107037)

ADITYA SHENDE
(18107048)

CONTENTS

ABSTRACT

Forest fire detection has been a focus of many researchers for the last decade because of increased forest fire case reports from all over the world due to severe damage to society and the environment. Many methods have been proposed to detect forest fires, such as camera-based systems, WSN-based systems, and machine learning application-based systems, with both positive and negative aspects and performance figures of detection. And we have explored various ML and DL methods for developing this system based on different types and parameters.

In order to detect fire automatically, we are going to propose an image processing model based on convolutional neural networks. Detection of fire can be extremely difficult using existing methods of smoke sensors installed in the buildings. They are slow and cost-inefficient due to their primitive design and technology. This project uses a self-built dataset containing video frames with fire. The data is then preprocessed and used by CNN to build a machine learning model. The proposed method adopts a rule-based color model due to its less complexity and effectiveness. YCbCr color space effectively separates the luminance from chrominance compared to other color spaces like RGB and rgb(normalized RGB). The fire flame area can be segmented and the characteristics can be learned by this algorithm ahead. At the same time, blindness in the traditional feature extraction process is avoided, and the learning of invalid features in the convolutional neural network is also avoided. Experiments show that the convolutional neural network method based on the adaptive pooling method has better performance and has a higher recognition rate. The proposed method can be used for real-time forest fire detection with a moving camera.

INTRODUCTION

Fire can cause major hazards in this hectic world. All buildings and vehicles used in public transportation have fire prevention and fire protection systems due to the accelerated number of fire incidents. Also, many firms conduct a mock fire drill every occurrence of month to protect their employees from the fire. This would help them to understand what to do or what not to do when a fire situation happens. Forests are one of the main factors in balancing the ecology. It is very harmful when a fire occurs in a forest. But most of the time, the detection of forest fire happens when it spreads over a wide region. Sometimes, it could not be possible to stop the fire. As a result, the damage to the environment is greater than predicted. The

emission of large amounts of carbon dioxide (CO2) from forest fire damages the environment. As well as it would lead to the complete disappearance of rare species in the world (Alkhatib, 2014). Also, it can have an impact on the weather, and this causes major issues like earthquakes, heavy rains, floods, and so on.

The forest is a large surface area filled with trees, lots of dried leaves, woods, and so on. These elements encourage the fire when it starts. The fire can be ignited for many reasons such as high temperature in summer seasons, smoking, or some parties which have fireworks. Once a fire starts, it will remain until it is completely distinguished. The damage and the cost of distinguishing fire because a forest fire can be reduced when the fire is detected as early as possible. So, fire detection is important in this scenario. Finding the exact location of the fire and sending notification to the fire authorities soon after the occurrence of the fire can make a positive impact. There are different types of fire detection methods used by the Government authorities such as satellite monitoring, tower monitoring, using sensors, optical cameras, and so on.

Wang used the logistic regression and support vector machine to classify the images in the output classification layer of the CNN for forest fire detection. The experiments show that the accuracy of the forest fire detection algorithm based on deep learning has exceeded that of traditional algorithms. Chen et al. used the block detection method to preprocess the video fast on the forest fire image, which greatly reduced the running time of the whole system. This method uses a graphics processing unit (GPU) to accelerate the texture analysis and improves the real-time performance of the system.

Fu et al. designed different network models to identify the forest fire image in the case of different forest fire backgrounds at night and during the day, and mainly analyzed the performance of the network under different parameters. The experimental results show that the CNN-based forest fire flame recognition method has prominent advantages compared with the traditional image processing-based flame detection method. Frizzi et al. proposed a CNN method for detecting fires in the video. Tested on real video sequences, the proposed method achieves better classification performance than other related traditional video forest fire detection methods. Hohberg applied a convolutional 3D (C3D) network that can extract

temporal features to forest fire detection. The experimental results show that trained networks distinguish wildfires from other objects clearly.

A research study shows an automatic fire detection can be divided into three groups: aerial, ground, and borne detection. The ground-based systems use several starting black and white video cameras that are used in fire detection which detect the smoke and compare it with the natural smoke. The main benefit of using this system is high temporal resolution and spatial resolution. So, the detection is easier (Eric den breejen, 1998). But these mechanisms still have some drawbacks in detecting the early stage of the fire. So, it is highly important to introduce a system to detect the fire as early as possible.

A Project Report

On

Real Time Object Detection System

Submitted in partial fulfilment of the requirement for the award of

BACHELOR OF TECHNOLOGY

IN

Information Technology

UNDER THE GUIDANCE OF

Dr. Santosh Soni

(Assistant Professor)

Mr. Pankaj Chandra

(Assistant Professor)

SUBMITTED BY

HARSH RANGLANI	HRIDAY JAIN	HIMANI
(18107012)	(18107011)	(18107013)

DEPARTMENT OF INFORMATION TECHNOLOGY,

SCHOOL OF STUDIES OF ENGINEERING AND TECHNOLOGY,

GURU GHASIDAS VISHWAVIDYALAYA,

CENTRAL UNIVERSITY, BILASPUR, CHHATTISGARH,

A Project Report

On

Real Time Object Detection System

Submitted in partial fulfilment of the requirement for the award of

BACHELOR OF TECHNOLOGY

IN

Information Technology

UNDER THE GUIDANCE OF

Dr. Santosh Soni

(Assistant Professor)

Mr. Pankaj Chandra

(Assistant Professor)

SUBMITTED BY

HARSH RANGLANI (18107012)

HRIDAY JAIN (18107011)

HIMANI (18107013)

DEPARTMENT OF INFORMATION TECHNOLOGY,

SCHOOL OF STUDIES OF ENGINEERING AND TECHNOLOGY,

GURU GHASIDAS VISHWAVIDYALAYA,

CENTRAL UNIVERSITY, BILASPUR, CHHATTISGARH,

GURU GHASIDAS VISHWAVIDYALAYA

CERTIFICATE

This is to certify that the project thesis entitled " Real Time Object Detection System " being submitted by (Harsh Ranglani 18107012; Hriday Jain 18107011; Himani 18107013) in partial fulfilment for the award of the Degree of Bachelor of Technology majoring in Information Technology to the Guru Ghasidas Vishwavidyalaya is a record of bonafide work carried out under my guidance and supervision. The results embodied in this project thesis have not been submitted to any other University or Institute for the award of any Degree or any Diploma.

Head of Department

Dr. Rohit Raja

HOD
Department of Information Technology
BoS, Engg. & Technology
Guru Ghasidas Vishwavidyalaya
(Central University) Bilaspur (C.G.)

Guided By:

Dr. Santosh Soni

Mr. Pankaj Chandra

GURU GHASIDAS VISHWAVIDYALAYA

DECLARATION

We here by declare that this main project entitled "Real Time Object Detection System" is a bonafide work done by us and submitted to Department of Information Technology, Guru Ghasidas Vishwavidyalaya, in partial fulfilment for the award of the Degree of Bachelor of Technology is of our own and it is not submitted to any other University or has been published any time before.

Submitted By:

Harsh Ranglani (Roll No. 18107012)

Hriday Jain (Roll No. 18107011)

Himani (Roll No. 18107013)

GURU GHASIDAS VISHWAVIDYALAYA

ACKNOWLEDGEMENT

We express our sincere gratitude to **Dr. Santosh Soni and Mr. Pankaj Chandra**, Assistant Professor, Department of Information Technology, Guru Ghasidas Vishwavidyalaya, Central University, Bilaspur, Chhattisgarh, India for her simulating guidance, continuous encouragement, and supervision throughout the course of present work

We would like to place on record our deep sense of graduate to **Dr. Rohit Raja**, Assistant Professor and HOD-Dept. of Information Technology, School of Studies in engineering and technology, Guru Ghasidas Vishwavidyalaya, Central University, Bilaspur, Chhattisgarh, India for his generous guidance, help and useful suggestions.

We are extremely thankful to Professor T.V. Arjunan, Dean, SoS E&T, Guru Ghasidas Vishwavidyalaya Central University, Bilaspur, Chhattigarh, India for providing us infrastructural facilites to work in, without which this work would not have been possible.

Signature of students

Harsh Ranglani (18107012)

Hriday Jain (18107011)

Himani (18107013)

DATE:

Table of Contents

ABSTRACT

The Objective is to detect of objects using You Only Look Once (YOLO) approach. This method has several advantages as compared to other object detection algorithms. In other algorithms like Convolutional Neural Network, Fast Convolutional Neural Network the algorithm will not look at the image completely but in YOLO the algorithm looks the image completely by predicting the bounding boxes using convolutional network and the class probabilities for these boxes and detects the image faster as compared to other algorithms.

Object detection is a technology that detects the semantic objects of a class in digital images and videos. One of its real-time applications is self-driving cars. In this, our task is to detect multiple objects from an image. The most common object to detect in this application is the car, motorcycle, and pedestrian. For locating the objects in the image we use Object Localization and have to locate more than one object in real-time systems. There are various techniques for object detection, they can be split up into two categories, first is the algorithms based on Classifications. CNN and RNN come under this category. In this, we have to select the interested regions from the image and have to classify them using Convolutional Neural Network. This method is very slow because we have to run a prediction for every selected region. The second category is the algorithms based on Regressions. YOLO method comes under this category. In this, we won't select the interested regions from the image. Instead, we predict the classes and bounding boxes of the whole image at a single run of the algorithm and detect multiple objects using a single neural network. YOLO algorithm is fast as compared to other classification algorithms. In real time our algorithm process 45 frames per second. YOLO algorithm makes localization errors but predicts less false positives in the background.

CHAPTER 1

INTRODUCTION

Objective

The goal of object detection is to recognize instances of a predefined set of object classes (e.g. {people, cars, bikes, animals}) and describe the locations of each detected object in the image using a bounding box.

The following objectives have been identified to fulfil the aim of this thesis work:

1. To identify suitable and highly efficient CNN models for real-time object recognition and tracking of construction vehicles.

2. Evaluate the classification performance of these CNN models.

3. Compare the results among one another and present the results.

About the Project

A few years ago, the creation of the software and hardware image processing systems was mainly limited to the development of the user interface, which most of the programmers of each firm were engaged in. The situation has been significantly changed with the advent of the Windows operating system when the majority of the developers switched to solving the problems of image processing itself. However, this has not yet led to the cardinal progress in solving typical tasks of recognizing faces, car numbers, road signs, analyzing remote and medical images, etc. Each of these "eternal" problems is solved by trial and error by the efforts of numerous groups of the engineers and scientists.
As modern technical solutions are turn out to be excessively expensive, the task of automating the creation of the software tools for solving intellectual problems is formulated and intensively solved abroad. In the field of image processing, the required tool kit should be supporting the analysis and recognition of images of previously unknown content and ensure the effective development of applications by ordinary programmers. Just as the Windows toolkit supports the creation of interfaces for solving various applied problems.

So, we can distinguish between these three computer vision tasks with this example:

Image Classification: This is done by Predict the type or class of an object in an image.

Input: An image which consists of a single object, such as a photograph.

Output: A class label (e.g. one or more integers that are mapped to class labels).

Object Localization: This is done through, Locate the presence of objects in an image and indicate their location with a bounding box.

Input: An image which consists of one or more objects, such as a photograph.

Output: One or more bounding boxes (e.g. defined by a point, width, and height).

Object Detection: This is done through, Locate the presence of objects with a bounding box and types or classes of the located objects in an image

Object Recognition

Object recognition is to describe a collection of related computer vision tasks that involve activities like identifying objects in digital photographs. Image classification involves activities such as predicting the class of one object in an image. Object localization is refers to identifying the location of one or more objects in an image and drawing an abounding box around their extent. Object detection does the work of combines these two tasks and localizes and classifies one or more objects
in an image. When a user or practitioner refers to the term "object recognition", they often mean "object detection". It may be challenging for beginners to distinguish between different related computer vision tasks.

Input: An image which consists of one or more objects, such as a photograph.

Output: One or more bounding boxes (e.g. defined by a point, width, and height), and a class label for each bounding box.

One of the further extension to this breakdown of computer vision tasks is object segmentation, also called "object instance segmentation" or "semantic segmentation," where instances of recognized objects are indicated by highlighting the specific pixels of the object instead of a coarse bounding box. From this breakdown, we can understand that object recognition refers to a suite of challenging computer vision tasks. For example, image classification is simply straight forward, but the differences between object localization and object detection can be confusing, especially when all three tasks may be just as equally referred to as object recognition.

Humans can detect and identify objects present in an image. The human visual system is fast and accurate and can also perform complex tasks like identifying multiple objects and detect obstacles with little conscious thought. The availability of large sets of data, faster GPUs, and better algorithms, we can now easily train computers to detect and classify multiple objects within an image with high accuracy. We need to understand terms such as object detection, object localization, loss function for object detection and localization, and finally explore an object detection algorithm known as "You Only Look Once" (YOLO).

Image classification also involves assigning a class label to an image, whereas object localization involves drawing a bounding box around one or more objects in an image. Object detection is always more challenging

and combines these two tasks and draws a bounding box around each object of interest in the image and assigns them a class label. Together, all these problems are referred to as object recognition.

Object recognition refers to a collection of related tasks for identifying objects in digital photographs.

Region-based Convolutional Neural Networks, or R-CNNs, is a family of techniques for addressing object localization and recognition tasks, designed for model performance. You Only Look Once, or YOLO is known as the second family of techniques for object recognition designed for speed and real-time use.

Object Detection

Object detection is a computer technology related to computer vision and image processing that detects and defines objects such as persons, vehicles and animals from digital images and videos. This technology has the power to classify just one or several objects within a digital image or video at once. Object detection has been around for years, but is becoming more apparent across a range of industries now more than ever before. To build object detection system we have many methods but Object detection using deep learning technic (If we combine both the MobileNet architecture and the Single Shot Detector framework, we arrive at a fast, efficient deep learning-based method to object detection) gives more accuracy for variety of object classes.

Object tracking is the process of locating moving objects over time using the camera in video sequences. The objective of object tracking is to associate target objects in consecutive video frames. Object tracking requires location and shape or features of objects in the video frames. So, object detection and object classification is the preceding steps of object tracking in computer vision application. To detect or locate the moving object in frame, Object detection is first stage in tracking. After that, detected object can be classified as vehicles, human, birds and other moving objects. It is challenging or difficult task in the image processing to track the objects into consecutive frames. Various challenges can arise due to complex object motion, irregular shape of object, occlusion of object to object and object to scene and real time processing requirements. Object recognition methods frequently use extracted features and learning algorithms to recognize instances of an object or images belonging to an object category. Object class recognition deals with classifying objects into a certain class or category whereas object detection aims at localizing a specific object of interest in digital images or videos. Every object or object class has its

own particular features that characterize themselves and differentiate them from the rest, helping in the recognition of the same or similar objects in other images or videos.

Classification: Given an image patch, decide which of the multiple possible categories is present in that patch.

Localization and Detection: Given a complex image, decide if an specific object of interest is located somewhere in this image, and provide accurate location information on the object.

BRAIN TUMOR DETECTION AND CLASSIFICATION

A MAJOR PROJECT REPORT

Submitted in partial fulfilment of the requirement of

BACHELOR OF TECHNOLOGY
IN
INFORMATION TECHNOLOGY

Submitted by

AMAN KUMAR VERMA
ANIL SINGH
KHILENDRA SINGH THAKUR

Under the supervision of

MR. AGNIVESH PANDEY (ASSISTANT PROFESSOR)
MRS. SHUDHA MISHRA (ASSISTANT PROFESSOR)

TO

DEPARTMENT OF INFORMATION TECHNOLOGY
SCHOOL OF STUDIES ENGINEERING AND TECHNOLOGY
GURU GHASIDAS VISHWAVIDYALAYA BILASPUR, INDIA
(CENTRAL UNIVERSTY)

BRAIN TUMOR DETECTION AND CLASSIFICATION

A MAJOR PROJECT REPORT

Submitted in partial fulfilment of the requirement of

BACHELOR OF TECHNOLOGY
IN
INFORMATION TECHNOLOGY

Submitted by

AMAN KUMAR VERMA
ANIL SINGH
KHILENDRA SINGH THAKUR

Under the supervision of

MR. AGNIVESH PANDEY (ASSISTANT PROFESSOR)

MRS. SHUDHA MISHRA (ASSISTANT PROFESSOR)

TO

DEPARTMENT OF INFORMATION TECHNOLOGY

SCHOOL OF STUDIES ENGINEERING AND TECHNOLOGY

GURU GHASIDAS VISHWAVIDYALAYA BILASPUR, INDIA

(CENTRAL UNIVERSTY)

DEPARTMENT OF INFORMATION TECHNOLOGY
SCHOOL OF STUDIES ENGINEERING AND TECHNOLOGY
GURU GHASHIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)
(CENTRAL UNIVERSITY)

CERTIFICATE

This is to certify that the project entitled "BRAIN TUMOR DETECTION AND CLASSIFICATION" carried out by "AMAN KUMAR VERMA, ANIL SINGH and KHILENDRA SINGH THAKUR " under my supervision at department of Information Technology, School of Studies Engineering and Technology, Guru Ghasidas Vishwavidyalaya, Central University, Bilaspur.

To the best of my knowledge and belief the report

1. Embodies the work of the candidates themselves/him/herself.
2. Has duly been completed.
3. Fulfils the requirement of the B. Tech. degree of the University.

Signature of the Supervisor)

Name: Agnivesh Pandey
Designation: Assistant Professor

(Signature of the Supervisor)

Name: Shudha Mishra
Designation: Assistant Professor

CERTIFICATE BY THE EXAMINERS

The Project Report entitled "BRAIN TUMOR DETECTION & CLASSIFICATION" Submitted by Aman Kumar (18107002), Anil Singh (18107006), Khilendra Singh Thakur (18107017) has been examined by the undersigned as a part of the examination and fulfills the requirement of Bachelor of Technology in Information Technology of Guru Ghasidas Vishwavidyalaya , Bilaspur.

(Signature)

Examiner 1

Name : Agnivesh Pandey
Designation Asst. Prof.
Date

(Signature)

Examiner 2

Name : Pankaj Chandra
Designation Asst. Prof
Date

HEAD
Department of Information Technology
SoS, Engg. & Technology
Guru Ghasidas Vishwavidyalaya
(Central University) Bilaspur (C.G.)

DECLARATION

I here by declare that the project work entitled "BRAIN TUMOR DETECTION AND CLASSIFICATION" submitted to the institute of Technology, Guru Ghasidas Vishwavidyalaya, is a record of an original work one by us under the guidance Of Mr. Agnivesh Pandey (Assistant Professor) and Mrs. Shudha Mishra (Assistant Professor) Department of Information Technology, and this project is submitted in The partial fulfilment of requirement for the award of the degree of Bachelor of Technology in Information Technology.

STUDENT NAMES:

AMAN KUMAR VERMA (18107002)

ANIL SINGH (18107002)

KHILENDRA SINGH THAKUR (18107017)

ACKNOWLEDGEMENT

We would like to place on record my deep sense of gratitude to Mr. Agnivesh Pandey (Assistant Professor) and Mrs. Shudha Mishra (AssistantProfessor) Department of Information Technology, Guru Ghasidas Vishwavidyalaya, Central University,Bilaspur, Chhattisgarh , India, For his stimulating guidance, continuous encouragement, and Supervision throughout the course of present work.

We express my sincere gratitude to Dr. Rohit Raja(Associate Professor and HOD Dept. Of Information technology) for his generous help and useful suggestions.

ABSTRACT

Now a day's tumor is second leading cause of cancer. Due to cancer large no of patients are in danger. The medical field needs fast, automated, efficient and reliable technique to detect tumor like brain tumor.

Detection plays very important role in treatment. If proper detection of tumor is possible then doctors keep a patient out of danger. Various image processing techniques are used in this application. Using this application doctors provide proper treatment and save a number of tumor patients.

A tumor is nothing but excess cells growing in an uncontrolled manner. Brain tumor cells grow in a way that they eventually take up all the nutrients meant for the healthy cells and tissues, which results in brain failure.

Currently, doctors locate the position and the area of brain tumor by looking at the MR Images of the brain of the patient manually. This results in inaccurate detection of the tumor and is considered very time consuming.

A tumor is a mass of tissue it grows out of control. We can use a Deep Learning architectures **CNN (Convolution Neural Network) and Color Segmentation Using K-Means Clustering Algorithm** to detect and classify the brain tumor.

The performance of model is to predict Brain tumor is present or not in image.

INDEX

Table of Contents

List of figures

INTRODUCTION

BRAIN TUMOR DETECTION SYSTEM :

The human body is made up of many organs and brain is the most critical and vital organ of them all. One of the common reasons for dysfunction of brain is brain tumor.

A tumor is nothing but excess cells growing in an uncontrolled manner. Brain tumor cells grow in a way that they eventually take up all the nutrients meant for the healthy cells and tissues, which results in brain failure. Currently, doctors locate the position and the area of brain tumor by looking at the MR Images of the brain of the patient manually. This results in inaccurate detection of the tumor and is considered very time consuming.

This project deals with such a system, which uses computer, based procedures to detect tumor blocks and classify the type of tumor using Convolution Neural Network Algorithm for MRI images of different patients

Detecting Brain tumor using Image Processing techniques its involves the four stages is Image Pre-Processing, Image segmentation, Feature Extraction, and Classification.

Image processing and neural network techniques are used for improve the performance of detecting and classifying brain tumor in MRI images.

A MAJOR PROJECT REPORT

on

FACIAL DETECTION AND RECOGNITION

Submitted in partial fulfillment of the requirement for the award of

BACHELOR OF TECHNOLOGY

in

INFORMATION TECHNOLOGY

Under the supervision of

Mr. Pankaj Chandra

(Assistant Professor)

SUBMITTED BY

PRANAY SINGH THAKUR	SAURAV DEY	FARDEEN JALEES
(18107027)	(18107040)	(18107009)

TO

DEPARTMENT OF INFORMATION AND TECHNOLOGY,

SCHOOL OF STUDIES OF ENGINEERING AND TECHNOLOGY, GURU GHASIDAS VISHWAVIDYALAYA, CENTRAL UNIVERSITY, BILASPUR, CHHATTISGARH, INDIA

(A Central University established by the Central Universities Act 2009 No. 25 of 2009)

A MAJOR PROJECT REPORT

on

FACIAL DETECTION AND RECOGNITION

Submitted in partial fulfillment of the requirement for the award of

BACHELOR OF TECHNOLOGY

in

INFORMATION TECHNOLOGY

Under the supervision of

Mr. Pankaj Chandra

(Assistant Professor)

SUBMITTED BY

PRANAY SINGH THAKUR	SAURAV DEY	FARDEEN JALEES
(18107027)	(18107040)	(18107009)

TO

DEPARTMENT OF INFORMATION AND TECHNOLOGY,

SCHOOL OF STUDIES OF ENGINEERING AND TECHNOLOGY, GURU GHASIDAS VISHWAVIDYALAYA, CENTRAL UNIVERSITY, BILASPUR, CHHATTISGARH, INDIA

(A Central University established by the Central Universities Act 2009 No. 25 of 2009)

CERTIFICATE

I hereby certify that the work which is being presented in the B.Tech. Major Project Report entitled "**Facial Detection and Recognition**", in partial fulfillment of the requirements for the award of the Bachelor of Technology in Information and Technology and submitted to the Department of Information and Technology Institute of Technology, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur, Chhattisgarh, India is an authentic record of my own work carried out during a period from Jan 2022 to March 2022 (8th semester) under the supervision of **Mr. Pankaj Chandra, Assistant professor, IT Department.**

PRANAY SINGH THAKUR	**SAURAV DEY**	**FARDEEN JALEES**
(18107027)	**(18107040)**	**(18107009)**

This is to certify that the above statement made by the student(s) is correct to the best of my knowledge.

Signature of Supervisor

Mr. Pankaj Chandra

(Assistant Professor)

Date:

Dr. Rohit Raja Head,

Department of Information and Technology, SoCSE&IT,

Guru Ghasidas Vishwavidyalaya (A Central University),

Bilaspur, Chhattisgarh, India

HEAD
Department of Information Technology
SoS, Engg. & Technology
Guru Ghasidas Vishwavidyalaya
(Central University) Bilaspur (C.G.)

DECLARATION

We hereby declare that the work presented in this dissertation entitled "**Facial Detection and Recognition**" submitted to the "**Department of Information and Technology**", under the guidance of "**Mr. Pankaj Chandra**" has been done by us, and this dissertation embodies our own work.

Signature of students

PRANAY SINGH THAKUR	SAURAV DEY	FARDEEN JALEES
(18107027)	(18107040)	(18107009)

ACKNOWLEDGEMENT

We express our sincere gratitude to **Mr. Pankaj Chandra**, Assistant Professor, Department of Information and Technology, Guru Ghasidas Vishwavidyalaya, Central University, Bilaspur, Chhattisgarh, India for her simulating guidance, continuous encouragement, and supervision throughout the course of present work

We would like to place on record our deep sense of gratuition to **Dr. Rohit Raja**, Assistant Professor and HOD-Dept. of Information and Technology, School of studies in engineering and technology, Guru Ghasidas Vishwavidyalaya, Central University, Bilaspur, Chhattisgarh, India for his generous guidance, help and useful suggestions.

We are extremely thankful to Professor **T.V. Arjunan**, Dean, SoS E&T, Guru Ghasidas Vishwavidyalaya Central University, Bilaspur, Chhattigarh, India for providing us infrastructural facilities to work in, without which this work would not have been possible.

Signature of students

PRANAY SINGH THAKUR	SAURAV DEY	FARDEEN JALEES
(18107027)	(18107040)	(18107004)

Date:

TABLE OF CONTENTS

ABSTRACT

This project gives an ideal way of detecting and recognizing human faces using OpenCV, and python which is part of deep learning. OpenCV was designed for computational efficiency and with a strong focus on real-time applications. So, it's perfect for real-time face recognition using a camera. This report contains the ways in which deep learning, an important part of the computer science field, can be used to determine the face using several libraries in OpenCV along with python. This report will contain a proposed system which will help in the detection of the human face in real time. This implementation can be used at various platforms in machines and smartphones, and several software applications.

The development of this project consisted of three main phases which were data gathering, training recognizer, and face recognition process. All three phases have been executed using Python programming and OpenCV library. The next task was to construct a GUI for the application which has been executed using the tkinter module in python. The proposed system makes use of a camera connected to your computer that can identify the identity of a person automatically by using face recognition of the Haar cascade classifier. The hardware used for this project is a laptop with an in-built camera in it to capture photos and videos.

INTRODUCTION

In the 1960s, the first semi-automated system for facial recognition to locate the features(such as eyes, ears, nose and mouth) on the photographs. In the 1970s, Goldstein and Harmon used 21 specific subjective markers such as hair color and lip thickness to automate the recognition. In 1988, Kirby and Sirovich used standard linear algebra technique, to face recognition.

Everyday actions are increasingly being handled electronically, instead of pencil and paper or face to face. This growth in electronic transactions results in great demand for fast and accurate user identification and authentication. Access codes for buildings, banks accounts and computer systems often use PIN's for identification and security clearances.

Using the proper PIN gains access, but the user of the PIN is not verified. When credit and ATM cards are lost or stolen, an unauthorized user can often come up with the correct personal codes.

Face recognition technology may solve this problem since a face is undeniably connected to its owner except in the case of identical twins.

Our method uses rejection-based classification. The face detector consists of a set of weak classifiers that sequentially reject non-face regions. First, the non-skin color regions are rejected using color segmentation. A set of morphological operations are then applied to filter the clutter resulting from the previous step. The remaining connected regions are then classified based on their geometry and the number of holes. Finally, template matching is used to detect zero or more faces in each connected region.

(10)

BANK DATABSE SYSTEM

A Major Project Report Submitted in Partial Fulfilment of Academic Requirement

For The Award of the Degree of

BACHELOR OF TECHNOLOGY

In

INFORMATION TECHNOLOGY

Submitted By

PRAMOD SHARMA

NITISH KUMAR

RAJA KUMAR VISHWAS

Under The Esteemed Guidance Of

Mr. AGNIVESH PANDATY SIR

(Assistant Professor)

TO

DEPARTMENT OF INFORMATION TECHNOLOGY

SCHOOL OF STUDIES IN ENGINEERING & TECHNOLOGY, GURU GHASIDAS VISHWAVIDYALAYA,

(A Central University) BILASPUR- 495009, (C.G.)

(2021- 2022)

BANK DATABSE SYSTEM

A Major Project Report Submitted in Partial Fulfilment of Academic Requirement

For The Award of the Degree of

BACHELOR OF TECHNOLOGY

In

INFORMATION TECHNOLOGY

Submitted By

PRAMOD SHARMA

NITISH KUMAR

RAJA KUMAR VISHWAS

Under The Esteemed Guidance Of

Mr. AGNIVESH PANDATY SIR

(Assistant Professor)

TO

DEPARTMENT OF INFORMATION TECHNOLOGY

SCHOOL OF STUDIES IN ENGINEERING & TECHNOLOGY, GURU GHASIDAS VISHWAVIDYALAYA,

(A Central University) BILASPUR- 495009, (C.G.)

(2021- 2022)

DECLARATION

We, the under signed solemnly declare that this report of the major project work, entitled " **BANK DATABASE SYSTEM** " is our work, carried out during our study in under graduation under the supervision of **Asst. Prof. Mr. AGNIVESH PANDAY SIR** Department of Information Technology, School of Studies in Engineering & Technology, Guru Ghasidas Vishwavidyalaya. We assert that the statements made and conclusions drawn are the outcome of our work. We further declare that to the best of our knowledge and belief this report does not contain any part of any work, which has been submitted for the award of any degree in this or any other University.

PRAMOD SHARMA	**NITISH KUMAR**	**RAJA KUMAR VISHWAS**
ROLL NO-18102029	ROLL NO-18102030	ROLL NO – 18102004
(GGV/18/1274)	(GGV/18/1190)	(GGV/18/1243)

DEPARTMENT OF INFORMATION TECHNOLOGY
SCHOOL OF STUDIES IN ENGINEERING & TECHNOLOGY
GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR
A Central University Established by the Central University Act 2009 No. 25 of 2009

CERTIFICATE

This is to Certify that the major project entitled **" BANK DATABASE SYSTEM "** submitted by **Pramod Sharma , Nitish Kumar and Raja Kumar Vishwas** in partial fulfilment of the requirements of the award of degree of Bachelor of Technology in Information Technology, School of Studies in Engineering & Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur, is accorded to the student's own work, carried out by them in the Department of Information Technology during session 2021-22 under supervision and guidance.

Signature _____ Signature _____ Signature _____

(Asst. Prof. Mr. Agnivesh Panday) **(External Examiners)** **(External Examiners)**

Guide & Internal Examiner

Signature _____

H.O.D.

Department of Information Technology

I.T., G.G.V.

Department of Information Technology
SoS, Engg. & Technology
Guru Ghasidas Vishwavidyalaya
(Central University) Bilaspur (C.G.)

ACKNOWLEDGEMENT

We express our sincere gratitude to **Mr. Agnivesh Panday**, Assistant Professor, Department of Information Technology, Guru Ghasidas Vishwavidyalaya, Central University, Bilaspur, Chhattisgarh, India for her simulating guidance, continuous encouragement, and supervision throughout the course of present work.

We would like to place on record our deep sense of graduate to **Dr. Rohit Raja,** Assistant Professor and HOD-Dept. of Information Technology, School of Studies in engineering and technology, Guru Ghasidas Vishwavidyalaya, Central University, Bilaspur, Chhattisgarh, India for his generous guidance, help and useful suggestions.

We are extremely thankful to Professor T.V. Arjuna, Dean, SoS E&T, Guru Ghasidas Vishwavidyalaya Central University, Bilaspur, Chhattisgarh, India for providing us infrastructural facilities to work in, without which this work would not have been possible.

Signature of students

Signature _____	Signature _____	Signature _____
Pramod Sharma	**Raja Kumar Vishwas**	**Nitish Kumar**
(18107028)	(18107023)	(18107034)

Date :

ABSTRACT

The bank management system project is a program that keeps track of a client's bank account.
This project demonstrates the operation of a banking account system and covers the essential functions of bank management software. It develops a project for resolving a customer's financial applications in a banking environment to meet the needs of an end banking user by providing multiple ways to complete banking chores. Additionally, this project is to provide additional features to the user's workspace that are not available in a traditional banking project. The project's bank management system is built on cutting-edge technologies. This project's main goal is to create software for a bank account management system. This project was designed to make it simple and quick to complete previously impossible processes with manual systems which are now possible with this software.

The content of an abstract must answer or address the needs of every issue happen in bank database system project. These issues could be lacking of security in manual managing of bank accounts or to address the efficiency of banking transactions by making the database system an online project.

For example is: To create a project for resolving a customer's financial applications in a banking environment in order
to meet the needs of an end banking user by giving multiple ways to accomplish banking chores.
Also, to provide additional features to the user's work space that aren't available in a traditional banking project.
This project abstract for Bank Database System is important because you can foresee the function of the system upon creating it.

TABLE OF CONTENTS

Chapter – 1

Introduction

INTRODUCTION

1.1 General

This project is about bank database system .In this project we are demonstrating the system that makes the basic usage of bank.
In this project we have used python language along with MYSQL server. This bank database system also allow user to add new customer account, delete account and user can also modify existing user account information.
Using this system user can also search any individual account in few seconds. Using our bank database system user can also check any translation in any account.
Our system also provide security check to reduce fraud. The system will check the user's existence in the database and provide the set of services with respect to the role of the user.

1.2 Overview of the Major Project

In present system all banking work is done manually. User have to visit bank to Withdrawal or Deposit amount. In present bank system it is also difficult to find account information of account holder. In this bank database system we will automate all the banking process. In our bank database system user can check his balance online and he can also transfer money to other account online. In this database you can keep record for daily Banking transactions. The main purpose of developing bank database system is to create a database using MySQL server, which could store bank data and provide an interface for retrieving customer related details with 100% accuracy.

This bank database system also allow user to add new customer account, delete account and user can also modify existing user account information.

Using this system user can also search any individual account in few seconds.

Using our bank database system user can also check any translation in any account. Our system also provide security check to reduce fraud. The system will check the user's existence in the database and provide the set of services with respect to the role of the user.

1.3.Main Purpose

The Traditional way of maintaining details of a user in a bank was to enter the details and record them. Every time the user needs to perform some transactions he has to go to bank and perform the necessary actions, which may not be so feasible all the time. It may be a hard - hitting task for the users and the bankers too.

The project gives real life understanding of Online Banking System and activities performed by various roles in the supply chain. Here, we provide automation for banking system through Internet. Online Banking System project captures activities performed by different roles in real life banking which provides enhanced techniques for maintaining the required information up-to-date, which results in efficiency. The project gives real life understanding of Online Banking System and activities performed by various roles in the supply chain.