गुरु घासीदास विश्वविद्यालय
(केन्द्रीय विश्वविद्यालय अधिनियम 2009 क्र. 25 के अंतर्गत स्थापित केन्द्रीय विश्वविद्यालय)
कोनी, बिलासपुर – 495009 (छ.ग.)

Guru Ghasidas Vishwavidyalaya
(A Central University Established by the Central Universities Act 2009 No. 25 of 2009)
Koni, Bilaspur – 495009 (C.G.)

Department	: Electronics and Communication Engineering	
Academic Year :2021-22		
Sr. No.	**Programme Code**	**Name of the Programme**
01.	406-4116	B.Tech. (ECE)

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

Si.No.	Name of the Students	Page 01 to 43
01.	Prashasti Pankaj	5-7
02.	Manyata Yadav	5-7
03.	Bhavna Uraon	5-7
04.	Atul Kumar Gupta	8-10
05.	Akshat Singh Plaeshwar	8-10
06.	Shaivi Dewangan	11-13
07.	Nandani Ranjan	11-13
08.	Sweety Suman	11-13

गुरु घासीदास विश्वविद्यालय
(केन्द्रीय विश्वविद्यालय अधिनियम 2009 क्र. 25 के अंतर्गत स्थापित केन्द्रीय विश्वविद्यालय)
कोनी, बिलासपुर – 495009 (छ.ग.)

Guru Ghasidas Vishwavidyalaya
(A Central University Established by the Central Universities Act 2009 No. 25 of 2009)
Koni, Bilaspur – 495009 (C.G.)

09.	Arun Kumar	14-16
10.	Awanish Kumar	14-16
11.	Bhupesh Verma	14-16
12.	Prayank Tiwari	17-19
13.	Aman Grover	17-19
14.	Shashi Kumar	17-19
15.	Sameer Aryan	20-22
16.	Gautam Nishad	20-22
17.	Labham Upadhyay	20-22
18.	Aayush Shrivas	23-25
19.	Aman Kumar	23-25
20.	Kumarswami Hiremath	23-25
21.	Mansi Singh	26-28

गुरु घासीदास विश्वविद्यालय
(केन्द्रीय विश्वविद्यालय अधिनियम 2009 क्र. 25 के अंतर्गत स्थापित केन्द्रीय विश्वविद्यालय)
कोनी, बिलासपुर – 495009 (छ.ग.)

Guru Ghasidas Vishwavidyalaya
(A Central University Established by the Central Universities Act 2009 No. 25 of 2009)
Koni, Bilaspur – 495009 (C.G.)

22.	Amisha Srivastava	26-28
23.	Swapnil Kamal	26-28
24.	Khalwa Rahul Kumar	29-31
25.	Ravindra Kashyap	29-31
26.	Deepak Raja Sao	29-31
27.	Kakarla Yugala	32-34
28.	Eedala Maruthi Prasanna	32-34
29	Tippana Ravi	32-34
30.	Nishant	35-37
31.	N Bala Murli Krishna	35-37
32.	Parul	35-37
33.	Ankit Kumar Pandit	38-40
34.	Anup Kumar	38-40

गुरु घासीदास विश्वविद्यालय
(केन्द्रीय विश्वविद्यालय अधिनियम 2009 क्र. 25 के अंतर्गत स्थापित केन्द्रीय विश्वविद्यालय)
कोनी, बिलासपुर – 495009 (छ.ग.)

Guru Ghasidas Vishwavidyalaya
(A Central University Established by the Central Universities Act 2009 No. 25 of 2009)
Koni, Bilaspur – 495009 (C.G.)

35	Tanmay Pradhan	38-40
36	Virendra Yadav	41-43
37.	Saurabh	41-43
38.	Asmita Patel	41-43

विभागाध्यक्ष (इले. एव सचार अभियॉत्रिकी)
H.O.D. (Elect. & Comm. Engineering)
प्रौद्योगिकी संस्थान
Institute of Technology
गु. घा. वि., बिलासपुर (छ.ग.)
G. G. V. Bilaspur (C.G.)

Signature and Seal of the Head

Project Report

On

"Stock Price Prediction using Machine Learning Algorithms"

Submitted in the partial fulfilment for the award of degree of

Bachelor of Technology

In

Electronics and Communication Engineering

By

Bhavna Uraon (18106017)

Prashasti Pankaj (18106040)

Manyata Yadav (18106058)

B. Tech, VIII Semester

Under the guidance of

Prof. Deepak Kumar Rathore

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

SCHOOL OF STUDIES IN ENGINEERING AND TECHNOLOGY GURU

GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)

SESSION: 2021-2022

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

SCHOOL OF STUDIES IN ENGINEERING AND TECHNOLOGY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)

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

CERTIFICATE
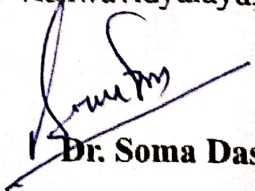
It is certified that the major project entitled **"Stock price prediction using machine learning algorithms"** submitted by **Manyata Yadav, Prashasti Pankaj,** and **Bhavna Uraon** in partial fulfilment of the requirements of the award of degree of Bachelor of Technology in Electronics and communication Engineering, School of studies in Engineering and Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur, is carried out by them in the Department of Electronics and communication Engineering during session 2021-22 under supervision and guidance of **Prof. Deepak Kumar Rathore,** Assistant Professor, Department of Electronics & Communication Engineering, School of Studies in Engineering & Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur CG.

Dr. Soma Das

Head of Department

Department of Electronics & Communication Engineering

School of Studies in Engineering & Technology

Guru Ghasidas Vishwavidyalaya, Bilaspur CG

ABSTRACT

Stock market prediction and analysis are some of the most difficult jobs to complete. There are numerous causes for this, including market volatility and a variety of other dependent and independent variables that influence the value of a certain stock in the market. These variables make it extremely difficult for any stock market expert to anticipate the rise and fall of the market with great precision.

There are many factors involved in the prediction like physical factors, physiological, rational, and irrational behavior, investor sentiment, market rumors, etc. All these aspects combine to make stock prices volatile and very difficult to predict with a high degree of accuracy. As per efficient market theory when all information related to a company and stock market events are instantly available to all stakeholders/market investors, then the effects of those events already embed themselves in the stock price. So, it is said that only the historical spot price carries the impact of all other market events and can be employed to predict its future movement. Hence, considering the past stock price as the final marks of all impacting factors we employ Machine Learning techniques on historical stock price data to infer future trends. ML techniques have the potential to unearth patterns and insights we didn't see before, and these can be used to make unerringly accurate predictions. We propose a framework using the stacked LSTM (Long Short Term Memory) model to analyze as well as predict the future prices of a company.

Project Report

On

"SOLAR PANEL MONITORING SYSTEM"

Submitted in the partial fulfilment for the award of degree of

Bachelor of Technology

In

Electronics and Communication Engineering
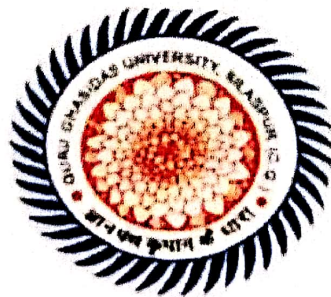
By

Akshat Singh Paleshwar (18106003)

Atul Kumar Gupta (18106013)

B. Tech, VIII Semester

Under the guidance of

Mrs. Bhawna Shukla

Assistant Professor

DEPARTMENT OF ELECTRONICS AND COMMUNICATIONENGINEERING

SCHOOL OF STUDIES IN ENGINEERING AND TECHNOLOGY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)

SESSION: 2021-22

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

SCHOOL OF STUDIES IN ENGINEERING AND TECHNOLOGY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)

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

CERTIFICATE

It is certified that the major project entitled **"Solar Panel Monitoring System"** submitted by **Akshat Singh Paleshwar** and **Atul Kumar Gupta** in partial fulfilment of the requirements of the award of degree of Bachelor of Technology in Electronics and communication Engineering, School of studies in Engineering and Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur, is carried out by them in the Department of Electronics and communication Engineering during session 2021-22 under supervision and guidance of **Mrs. Bhawna Shukla**, Assistant Professor, Department of Electronics & Communication Engineering, School of Studies in Engineering & Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur CG.

Dr. Soma Das

Head of Department

Department of Electronics & Communication Engineering

School of Studies in Engineering & Technology
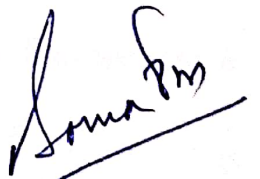
Guru Ghasidas Vishwavidyalaya, Bilaspur CG

1. INTRODUCTION

When we set up a solar power system we need to monitor it if the system gives us optimum power output this actually helps us to see if the system works efficiently or not. The monitoring system we are introducing here it actually helps us to monitor the real-time data of the Solar Panel be installed power home or working place. There are many e benefits of this system but in this introduction Part I am just explaining a few reasons why we ned the system. The IoT based monitoring system actually helps us to see if the Solar Panel is working properly and efficiently. Suppose if there is enough on lying there are too many dust on the Solar Panel or if it cannot Store the Solar Energy properly are if there is any fault the system will give us different reading than usual. This automated system can run and can be monitor from anywhere in the world by using internet. The proposed system and the components which are used to complete this project will be described gradually. the system we are proposing here will constantly monitor the Solar Panel and by using the IoT it will constantly upload the real time reading through internet.

The concept of internet of things is we can change anything like which are not connected with internet can we transform and make it smarter. The Solar Panel which is known by a hardware-based system can be transformed in a smart form by which we can make it connected with internet by using IoT. The main thing is by using internet of things we can connect any objects internet by wireless medium. Some examples like some devices we use in our daily life home appliances, cars and other things. These things can be e integrated with some sensors and other stuffs we can connected with the internet. Gradually the IoT have achieved different wireless sensor network sensors GSM and GPRS Wi-Fi and microcontrollers and other microprocessors etc. By using the internet of things we have to ensure that the system is enough secure. We have to ensure the security of IoT system otherwise it can be controlled by others and can be do to harmful things tour system. One of the huge benefit of using internet of things that we can monitor our system from anywhere in the world and it will provide us the real time reading or the real time scenario what is happening to our system. If we can maintain the security system and the system we want to integrate with the internet of things life will be easier so as the world is getting depended more on technology so we should also update our systems and

Project Report

On

"IMAGE CLASSIFICATION USING CNN"

Submitted in the partial fulfillment for the award of degree of

Bachelor of Technology

In

Electronics and Communication Engineering

By

Shaivi Dewangan (18106029)

Nandani Ranjan (18106037)

Sweety Suman (18106053)

B. Tech, VIII Semester

Under the guidance of

Anita Khanna

Assistant professor

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

SCHOOL OF STUDIES IN ENGINEERING AND TECHNOLOGY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)

SESSION: 2021-22

CERTIFICATE

It is certified that the major project entitled **"Image classification using CNN"** submitted by 'Shaivi Dewangan', 'Nandani Ranjan' and 'Sweety Suman' in partial fulfillment of the requirements of the award of degree of Bachelor of Technology in Electronics and communication Engineering, School of studies in Engineering and Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur, is carried out by them in the Department of Electronics and communication Engineering during session 2021-22 under supervision and guidance of **Anita Khanna** , Assistant professor , Department of Electronics & Communication Engineering, School of Studies in Engineering & Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur CG.
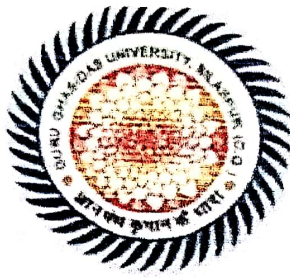
Dr. Soma Das

Head of Department

Department of Electronics & Communication Engineering

School of Studies in Engineering & Technology

Guru Ghasidas Vishwavidyalaya, Bilaspur CG

ABSTRACT

The image classification is a classical problem of image processing, computer vision and machine learning fields. Image Classification nowadays is used to narrow the gap between the computer vision and human vision so that the images can be recognized by machines in the same way as we humans do. It deals with assigning the appropriate class for the given image. We therefore propose a system named Image Classification using Deep Learning that classifies the given images using Classifiers like Neural Network. Many problems in computer vision were saturating on their accuracy before a decade. However, with the rise of deep learning techniques, the accuracy of these problems drastically improved. In most cases, we utilize the features from the top layer of the CNN for classification; however, those features may not contain enough useful information to predict an image correctly. In some cases, features from the lower layer carry more discriminative power than those from the top. Therefore, applying features from a specific layer only to classification seems to be a process that does not utilize learned CNN's potential discriminant power to its full extent. Because of this property we are in need of fusion of features from multiple layers. We want to create a model with multiple layers that will be able to recognize and classify the images. This project aims to incorporate state-of-art technique for object detection with the goal of achieving high accuracy. A convolutional neural network is been built for the image classification task. The system will be designed using Python as a Programming Language and Tensor flow for creating neural networks.

A Project Report

On

"Feature Extraction, Classification and Heart Disease Prediction of ECG Signal"

Submitted in the partial fulfilment for the award of degree of

Bachelor of Technology In

Electronics and Communication Engineering

By

ARUN KUMAR (Roll No-18106011)

AWANISH KUMAR (Roll No-18106014)

BHUPESH VERMA (Roll No-18106018)

B. Tech, VIII Semester

Under the guidance of

Mr. CHANDAN TAMRAKAR

Assistant Professor

DEPARTMENT OF ELECTRONICS AND COMMUNICATIONENGINEERING

SCHOOL OF STUDIES IN ENGINEERING AND TECHNOLOGY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)

SESSION: 2021-22

DEPARTMENT OF ELECTRONICS AND COMMUNICATIONENGINEERING
SCHOOL OF STUDIES IN ENGINEERING AND TECHNOLOGY
GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)

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

CERTIFICATE

It is certified that the major project entitled **"Feature Extraction, Classification and Heart Disease Prediction of ECG Signal"** submitted by **ARUN KUMAR, AWANISH KUMAR** and **BHUPESH VERMA** in partial fulfilment of the requirements of the award of degree of Bachelor of Technology in Electronics and communication Engineering, School of studies in Engineering and Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur, is carried out by them in the Department of Electronics and communication Engineering during session 2021-22 under supervision and guidance of **Mr. CHANDAN TAMRAKAR**, Assistant Professor, of Department of Electronics & Communication Engineering, School of Studies in Engineering & Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur CG.

Dr. Soma Das

Head of Department

Department of Electronics & Communication Engineering

School of Studies in Engineering & Technology

Guru Ghasidas Vishwavidyalaya, Bilaspur CG

ABSTRACT

Electrocardiogram (ECG) feature extraction plays an important role in automatic classification and diagnosis. The current study focuses on the feature extraction of sudden cardiac death (SCD), Apnia, Congestive heart failure(CHF) and Superaventricular tachycardia (SVT) and normal sinus rhythm (NSR) for the discrimination purpose between them. The data in the analysis were collected from MIT-BIH database. The ECG features were extracted based on wavelet transform for the analysis using Heart Rate Variability analyser. Two feature sets were formed by selected wavelet coefficients and statistic parameters of wavelet coefficients for the comparative study. The experimental results show that it is possible and feasible to extract ECG features with lower dimensions from wavelet coefficients in order to improve the classification results. It is argued that the origin of HRV or heart rate variability predates somewhere before the origin of ECG. In recent times it has become a very important tool to analyse the physiological and autonomic activities of the human body. HRV or Heart Rate Variability is the beat to beat variation in a heart-beat pattern. This variation occurs due to the autonomic nervous system. Autonomic nervous system consists of two types of activities namely sympathetic and parasympathetic activities. After having the ECG features extracted using HRV analyzer the collected data is supposed to trained using classifier designed using online platform and a random data with specific ECG parameters is now decided by the classifier that what kind of specific disease that contains.Regression analysis is a statistical methodology that is most often used for numeric prediction.Regression analysis is a statistical technique for determining the relationship between a single dependent (criterion) variable and one or more independent (predictor) variables. The analysis yields a predicted value for the criterion resulting from a linear combination of the predictors. Using the classifier here a random data having ECG parameters can be now predicted using the classifier and determined that what kind of disease that an individual have.

Major Project Report

On

RFID based Door Lock System using 8051 Micro-controller

Submitted in the partial fulfillment for the award of degree of
Bachelor of Technology

In

Electronics and Communication Engineering

By

Mr. Aman Grover   (Roll No. 18106005)
Mr. Prayank Tiwari (Roll No. 18106042)
Mr. Shashi Kumar   (Roll No. 18106051)

B.Tech VIII Semester

Under the guidance of

Mrs. Beaulah Nath   **Dr. Pankaj Shankar Shrivastava**
Assistant Professor   Assistant Professor

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

SCHOOL OF STUDIES IN ENGINEERING AND TECHNOLOGY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)

SESSION: 2021-22

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
SCHOOL OF STUDIES IN ENGINEERING AND TECHNOLOGY
GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)

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

CERTIFICATE

is certified that the major project entitled **"RFID based Door Lock System using 8051 Micro Controller"** submitted by **AMAN GROVER, PRAYANK TIWARI** and **SHASHI KUMAR** in partial fulfilment of the requirements of the award of degree of Bachelor of Technology in electronics and communication Engineering, School of studies in Engineering and Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur, is carried out by them in the Department of Electronics and communication Engineering during session 2021-22 under supervision and guidance of **Dr.Pankaj Shankar Shrivastava** and **Mrs. Beaulah Nath** Assistant Professor , Department of Electronics & Communication Engineering, School of Studies in Engineering & Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur CG.

Dr. Soma Das

Head of Department

Department of Electronics & Communication Engineering

School of Studies in Engineering and Technology

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)

विभागाध्यक्ष (इले. एवं संचार अभियांत्रिकी)
H.O.D. (Elect. & Comm. Engineering)
प्रौद्योगिकी संस्थान
nstitute of Technology
गुरु घासीदास विश्वविद्यालय, बिलासपुर (छ.ग.)
G. G. V. Bilaspur (C.G.)

iv

ABSTRACT

In this project, we are going to develop an RFID and keypad based Security system. This project is implemented by using 8051 microcontroller. RFID Tecnology (Radio Frequency Identification and Detection) is commonly used in schools, colleges, office and stations for various purposes to automatically authenticate people with valid RFID tags. Here we will check the RFID tag, along with a password associated with the tag, to secure the system. Radio - frequency identification (RFID) is a technology that uses communication via electromagnetic waves to exchange data between a terminal and an electronic tag attached to an object , for the purpose of identification and tracking . Some tags can be read from several meters away and beyond the line of sight of the reader . involves interrogators (also known as readers) , Radio - frequency identification and tags (also known as labels) . Most RFID tags contain at least two parts . One is an integrated circuit for storing and processing information , modulating and demodulating a radio - frequency (RF) signal , and other specialized functions . The other is an antenna for receiving and transmitting the signal . There are three types of RFID tags : passive RFID tags , which have no power source and require an external electromagnetic field to initiate a signal transmission , active RFID tags , which contain a battery and can transmit signals once an external source (' Interrogator ') has been successfully identified , and battery assisted passive (BAP) RFID tags , which require an external source to wake up but have significant higher forward link capability providing greater range . There are a variety of groups defining standards and regulating the use of RFID , including : International Organization for Standardization (ISO) , International Electrotechnical Commission (IEC) , ASTM International , DASH7 Alliance , EPC global . (Refer to Regulation and standardization below .) RFID has many applications ; for example , it is used in enterprise supply chain management to improve the efficiency of inventory tracking and management.

Project Report

On

"Study of Iris detection for biometric authentication application-2"

Submitted in the partial fulfilment for the award of degree of

Bachelor of Technology

In

Electronics and Communication Engineering
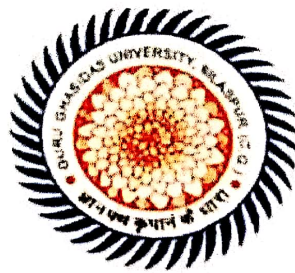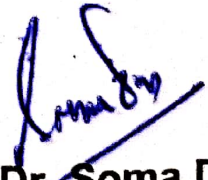
By

Labham Upadhyay Roll No.18106031

Sameer Aryan Roll No.18106048

Goutam Nishad Roll No. 18106024

B. Tech, VIIIth Semester

Under the guidance of

Mr. Jitendra Bhardwaj (Assistant Professor)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
SCHOOL OF STUDIES IN ENGINEERING AND TECHNOLOGY
GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)

SESSION: 2021-22

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
SCHOOL OF STUDIES IN ENGINEERING AND TECHNOLOGY
GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)

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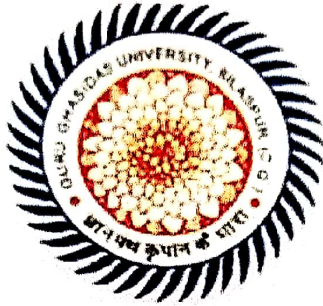
CERTIFICATE

It is certified that the minor project entitled **Study of Iris detection for biometric authentication application-2** submitted by **Labham Upadhyay, Sameer Aryan and Goutam Nishad** in partial fulfilment of the requirements of the award of degree of Bachelor of Technology in Electronics and communication Engineering, School of studies in Engineering and Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur, is carried out by them in the Department of Electronics and communication Engineering during session 2019-20 under supervision and guidance of **Mr. Jitendra Bhardwaj**, Assistant Professor, Department of Electronics & Communication Engineering, School of Studies in Engineering & Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur CG.

Dr. Soma Das

Head of Department

Department of Electronics & Communication Engineering

School of Studies in Engineering & Technology

Guru Ghasidas Vishwavidyalaya, Bilaspur CG

1. <u>INTRODUCTION</u>

A biometric system recognizes an individual automatically based on distinguishable characteristics an individual possesses. There are several types of biometrics. Such as Fingerprints, Voice recognition, Hand geometry, Hand writing, the Retina, Iris Recognition and so on. In this thesis, the Iris recognition system is presented.

The quality of a biometrics depends on

1. How efficiently it can distinguish the most unique features from the sample so that two people having the same characteristics is minimized.

2. The extracted features must be stable so that they do not change over time.

Because of unique characteristics, iris recognition has widely accepted as a biometric to identify any individuals. By applying image processing technique, the unique pattern of the iris can be extracted from a digitized iris image and then save the extracted data for later matching.

1.1 <u>Continuation of part 1</u>

In previous semester, we have taken any captured image and done recognition and analyze the image. Now we are taking image through our camera and generating the pattern of iris which will be used to matched with the reference template. If the system finds enough matching elements, then it will recognize the person and otherwise not.

A

Major Project Report

On

"STUDY OF LOW POWER HIGH PERFORMANCE BASED SENSE AMPLIFIER"

Submitted in the partial fulfilment for the award of degree of

Bachelor of Technology

In

Electronics and Communication Engineering

By

AAYUSH SHRIVAS (18106001)

AMAN KUMAR (18106006)

KUMARSWAMI HIREMATH (18106030)

B. Tech, VIII Semester

Under the guidance of

PRAVEENA RAJPUT

(Assistant Professor)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
SCHOOL OF STUDIES OF ENGINEERING AND TECHNOLOGY
GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)
SESSION: 2021-2022

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

SCHOOL OF STUDIES OF ENGINEERING AND TECHNOLOGY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)

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

CERTIFICATE

It is certified that the major project entitled **"STUDY OF LOW POWER HIGH PERFORMANCE BASED SENSE AMPLIFIER"** submitted by AAYUSH SHRIVAS,AMAN KUMAR and KUMARSWAMI HIREMATH in partial fulfilment of the requirements of the award of degree of Bachelor of Technology in Electronics and communication Engineering, School of studies Engineering and Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur, is carried out by them in the Department of Electronics and communication Engineering during session 2021-22 under supervision and guidance **Mrs. PRAVEENA RAJPUT** Department of Electronics & Communication Engineering, School of Studies in Engineering & Technology, Guru Ghasidas Vishwavidyalaya Bilaspur.

H.O.D. (Elect. & Comm. Engineering)
Head of Department,
Department of Electronics & Communication Engineering
School of Studies of Engineering & Technology
Guru Ghasidas Vishwavidyalaya, Bilaspur C.G

ABSTRACT

Sense amplifier plays an important in memory circuits in terms of its capability, capacity, functionality and its also very reliable in electronics and digital circuits. Sense amplifier is actually used mainly for the read and write operation generally in memory units , microcontroller , microprocessors . The circuit of PMOS based sense amplifier which we are presenting here provides us with high performance with less sense delay and bit of less power consumption. This circuit will also perform the same operations as that of the conventional one but with better parameters with respect to the conventional one. The whole simulations and results are performed in the Tanner EDA tool.

Project Report

On

"MACHINE LEARNING BASED CATARACT IDENTIFICATION USING MOBILE APPLICATION"

Submitted in the partial fulfilment for the award of degree ofBachelor of Technology

In

Electronics and Communication EngineeringBy

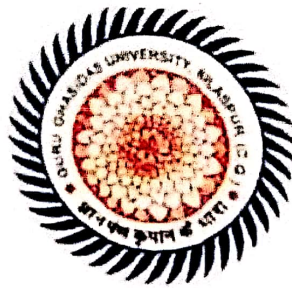### AMISHA SRIVASTAVA (18106007)

MANSI SINGH (18106033)

SWAPNIL KAMAL (18106052)

B. Tech, VIII Semester

Under the guidance of
Mrs. PRAGATI PATHARIA

(Asst. professor)

DEPARTMENT OF ELECTRONICS AND COMMUNICATIONENGINEERINGSCHOOL OF STUDIES IN ENGINEERING AND TECHNOLOGY
GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)

SESSION: 2021-22

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
SCHOOL OF STUDIES IN ENGINEERING AND TECHNOLOGYGURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)
(A Central University established by the Central University Act 2009 No. 25 of 2009)

CERTIFICATE

It is certified that the major project entitled **"Machine Learning Based Cataract Identification Using Mobile Application"** submitted by **Amisha Srivastava, Mansi Singh** and **Swapnil Kamal** in partial fulfilment of the requirements of the award of degree of Bachelor of Technology in Electronics and Communication Engineering, School of studies in Engineering and Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur, is carried out by them in the Department of Electronics and communication Engineering during session 2021-22 under supervision and guidance of **Mrs. Pragati Patharia**, Asst. Professor, Department of Electronics & Communication Engineering, School of Studies in Engineering & Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur CG.

Dr. Soma Das
Head of Department
Department of Electronics & Communication Engineering
School of Studies in Engineering & Technology
Guru Ghasidas Vishwavidyalaya, Bilaspur CG

Abstract

Cataract is one of the most common diseases that is experienced by human beings when they grow old. Cataract is a situation where we experience the formation of cloud on the lens of our eyes. This often leads to a decrease in vision and leads to vision impairment. The developing speed of cataract is not very fast. It is a slow process. It can affect single or both eyes. The main symptoms that this disease shows up are blurry vision, faded colors, trouble while seeing in bright light, etc. most often these symptoms result in trouble doing many activities. 33% of the people worldwide are suffering from this disease. Now the detection of disease is a tedious task. Most of the people who are suffering from this disease have to consult a doctor in order to detect the presence of this disease. This process is time-consuming and costly as well. In this paper, a method is proposed and implemented, a smartphone based android application is developed using the proposed methodology that can be used to detect the presence of the cataract in an individual's eye. The developed application is based upon Android architecture and can be used only on Android phones. Machine learning and image processing techniques are used to develop the proposed methodology. This system has been trained on a number of data sets in order to improve its accuracy and have resulted in the successful completion of this research.

Project Report

On

"Isolation Enhancement of Multiple Input Multiple Output Antenna by DGS and Decoupling Structure"

Submitted in the partial fulfilment for the award of degree of

Bachelor of Technology

In

Electronics and Communication Engineering

By

Deepak Raja Sao (18106020)

Khalwa Rahul Kumar (18106027)

Ravindra Kashyap (18106046)

B. Tech, VIII Semester

Under the guidance of

Dr. Soma Das

Associate Professor

Mr. Sumit Kumar Gupta

Assistant Professor

DEPARTMENT OF ELECTRONICS AND COMMUNICATIONENGINEERING

SCHOOL OF STUDIES IN ENGINEERING AND TECHNOLOGY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)

SESSION: 2021-22

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
SCHOOL OF STUDIES IN ENGINEERING AND TECHNOLOGY
GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)

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

CERTIFICATE

It is certified that the major project entitled **"Isolation Enhancement of Multiple Input Multiple Output Antenna by DGS and Decoupling Structure"** submitted by **Khalwa Rahul Kumar, Ravindra Kashyap** and **Deepak Raja Sao** in partial fulfilment of the requirements of the award of degree of Bachelor of Technology in Electronics and communication Engineering, School of studies in Engineering and Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur, is carried out by them in the Department of Electronics and communication Engineering during session 2021-22 under supervision and guidance of **Dr. Soma Das, Associate Professor and Mr. Sumit Kumar Gupta, Assistant Professor**, Department of Electronics & Communication Engineering, School of Studies in Engineering & Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur CG.

H.O.D. (Elect. & Comm. Engineering)

Head of Department

Department of Electronics & Communication Engineering

School of Studies in Engineering & Technology

Guru Ghasidas Vishwavidyalaya, Bilaspur-CG

ABSTRACT

Wireless communication comes in existence by introducing the term "antenna". An antenna is a Device which converts one form of energy into another form(transducer), which is designed to transmit or receive EM wave (electromagnetic waves). The most popular, low cost and easy to fabricate among antennas is microstrip patch antenna and for improving good performance of antenna, it will extend to MIMO, and Massive MIMO, in this work microstrip patch antenna consists of a radiating patch on one side of a dielectric substrate and has the ground plane on the other side. This work explores the performance enhancement of a microstrip patch antenna of FR4(lossy) having dielectric constant ($\varepsilon r = 4.3$) and height 1.6 mm is used as substrate material. The material used for designing patch, microstrip feed line and ground is copper. The patch antennas are analysed using the different antenna parameters like S11 parameter (return loss), radiation pattern, gain, directivity etc. We have designed a microstrip patch antenna at resonant frequency of 5 GHz and the parametric studies have been carried out to observe the effect on variation of different parameters on the antenna performance. At first we have designed Microstrip patch antenna at resonating frequency 5Ghz, by which we have made 2x2 MIMO antenna and on which we have worked to enhance its isolation by ground defected structure and PCLR(By placing copper strip in between patches).

Project Report

On

"Dehazing of Satellite Images Using Retinex Method"

Submitted in the partial fulfilment for the award of degree of

Bachelor of Technology

In

Electronics and Communication Engineering

By

EedalaMaruthi Prasanna (18106023)

Kakarla Yugala(18106026)

Tippana Ravi(18106055)

B. Tech, VIII Semester

Under the guidance of

Dr.Anil Kumar Soni

Assistant Professor

DEPARTMENT OF ELECTRONICS AND COMMUNICATIONENGINEERING

SCHOOL OF STUDIES IN ENGINEERING AND TECHNOLOGY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)

SESSION: 2021-22

DEPARTMENT OF ELECTRONICS AND COMMUNICATIONENGINEERING

SCHOOL OF STUDIES IN ENGINEERING AND TECHNOLOGY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)

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

CERTIFICATE

It is certified that the major project entitled **"Dehazing of Satellite Images Using Retinex Method "** submitted by **EedalaMaruthi Prasanna, Kakarla Yugala** and **Tippana Ravi** in partial fulfilment of the requirements of the award of degree of Bachelor of Technology in Electronics and communication Engineering, School of studies in Engineering and Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur, is carried out by them in the Department of Electronics and communication Engineering during session 2021-22 under supervision and guidance of **Dr.Anil Kumar Soni**, Assistant Professor, Department of Electronics & Communication Engineering, School of Studies in Engineering & Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur CG.

Dr. Soma Das

Head of Department

Department of Electronics & Communication Engineering

School of Studies in Engineering & Technology

Guru Ghasidas Vishwavidyalaya, Bilaspur CG

Scanned with OKEN Scanner

ABSTRACT

Images acquired outdoors are sometimes degraded by a decrease in visibility caused by small particles suspended in the atmosphere. This physical phenomenon is known as haze or fog, and its main effect is the attenuation of the radiance along its path towards the camera. As a result, acquired images and videos suffer from loss of contrast and color quality degradation, limiting visibility on far away areas in the scene. This lack of visibility can hinder the performance of computer vision systems designed to operate on clear conditions and also decreases visual pleasantness of image contents for users of standard consumer cameras.

The aim of this work is to find a method for removing haze from satellite images and get a better enhanced image. In this Project, we dehaze Satellite images using RETINEX METHOD. The images that are taken from the satellite after enhancing would be of great use in deep study and research purpose. In this project, we used different images from the satellites. We used MATLAB software to enhance images by using a code for RETINEX METHOD to enhance satellite images. And then enhanced using Low Light Image Enhancement, Image Quality Assessment of the dehazed images help us compare the quality of the results. In this project we are introduced to the application field of image enhancement technology, and introduces the classic defogging algorithm in image defogging technology: the Retinex algorithm. In this project,the algorithm is used to dehaze the pictures affected by haze in different scenes, and the advantages and disadvantages of the Retinex dehazing algorithm are discussed according to the enhanced effect. Finally, this project analyzes the effectiveness and practicality of using the Retinex algorithm for image enhancement in different scenes.

Project Report..

on

" Design of a 2.4 GHZ Substrate Integrated Waveguide Coupler, Crossover, Phase shifter, Butler matrix, and Array antenna "

Submitted in the partial fulfilment for the award of degree of

Bachelor of Technology

in

Electronics and Communication Engineering

by

N Bala Murali Krishna (17106248)
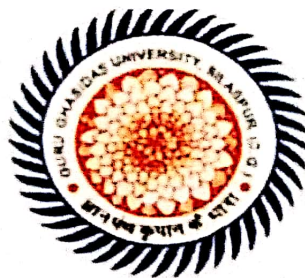
Nishant Kumar (17106249)

Parul Sharma (17106251)

B. Tech, VIII Semester

Under the guidance of

Mr. Shrawan Kumar Patel

Assistant Professor

DEPARTMENT OF ELECTRONICS AND COMMUNICATIONENGINEERING

SCHOOL OF STUDIES IN ENGINEERING AND TECHNOLOGY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)

SESSION: 2021-22

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

SCHOOL OF STUDIES IN ENGINEERING AND TECHNOLOGY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)

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

CERTIFICATE

It is certified that the major project entitled **"Design of a 2.4 GHZ substrate integrated waveguide COUPLER,CROSSOVER , PHASESHIFTER and BUTLER MATRIX"** submitted by **N Bala Murali Krishna, Nishant Kumar** and **Parul Sharma** in partial fulfilment of the requirements of the award of degree of Bachelor of Technology in Electronics and communication Engineering, School of studies in Engineering and Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur, is carried out by them in the Department of Electronics and communication Engineering during session 2021-22 under supervision and guidance of **Shrawan Kumar Patel**, Assistant professor, Department of Electronics & Communication Engineering, School of Studies in Engineering & Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur CG.

Dr . Soma Das

Head of Department

Department of Electronics & Communication Engineering

School of Studies in Engineering & Technology

Guru Ghasidas Vishwavidyalaya, Bilaspur CG

ABSTRACT

A 2.4 -GHz substrate integrated waveguide Butler matrix designed based on a systematic approach is design and simulated in CST , The systematic approach involves design equations, simulations, and measurements. Starting with a set of explicit design equations for the short-slot couplers, one calculates the structure dimensions. The calculated dimensions are then optimized with full-wave simulation to finalize the design of the key components, including the couplers and phase shifters. With the use of a noncoaxial multiport measurement technique, the characteristics of the components are acquired through a probe station and a two-port vector network analyser. Measurement technique plays a critical role in the systematic design approach. By measuring at the intrinsic ports or the wave ports defined in the full-wave simulations, the components are unambiguously verified and then integrated to complete the design of the Butler matrix. The resulting Butler matrix is also verified by the measured eight-port -matrix, which is shown in good agreement with the simulated one. As the measured results of the Butler matrix show, for the operating bandwidth from 2 to 2.4 GHz, the reflections and isolations are lower than 13.5 dB and the insertion losses are below 2.5 dB. Much like the measured results of the components, the measured eight-port -matrix not only verifies the design of the Butler matrix, but also will facilitate the follow-on design of a switched-beam antenna array .

A

Major Project Report

On

"STUDY OF GAIN AND ISOLATION ENHANCEMENT OF MULTIPLE INPUT AND MULTIPLE OUTPUT ANTENNA USING FSS STRUCTURE AND DGS"

Submitted in the partial fulfilment for the award of degree of

Bachelor of Technology

In

Electronics and Communication Engineering

By

ANKIT KUMAR PANDIT (18106009)

ANUP KUMAR (18106010)

TANMAY PRADHAN (18106053)

B. Tech, VIII Semester

Under the guidance of

Dr. SOMA DAS (Associate Professor)

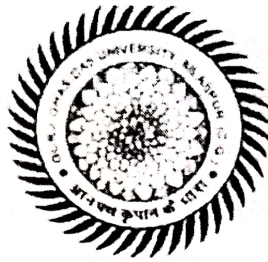**Mr. SUMIT KUMAR GUPTA** (Assistant Professor)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

SCHOOL OF STUDIES OF ENGINEERING AND TECHNOLOGY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)

SESSION: 2021-2022

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

SCHOOL OF STUDIES OF ENGINEERING AND TECHNOLOGY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)

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

CERTIFICATE

It is certified that the major project entitled **"STUDY OF GAIN AND ISOLATION ENHANCEMENT OF MIMO ANTENNA USING FSS STRUCTURE AND DGS"** submitted by ANKIT KUMAR PANDIT, ANUP KUMAR and TANMAY PRADHAN in partial fulfilment of the requirements of the award of degree of Bachelor of Technology in Electronics and communication Engineering, School of studies Engineering and Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur, is carried out by them in the Department of Electronics and communication Engineering during session 2021-22 under supervision and guidance of **Dr. Soma Das (Associate Professor) and Mr. Sumit Kumar Gupta (Assistant Professor)**, Department of Electronics & Communication Engineering, School of Studies in Engineering & Technology, Guru Ghasidas Vishwavidyalaya Bilaspur.

Dr. Soma Das 11/5/22

Head of Department
Department of Electronics & Communication Engineering
School of Studies of Engineering & Technology
Guru Ghasidas Vishwavidyalaya, Bilaspur C.G

ABSTRACT

An antenna is a metallic structure that captures and transmits radio electromagnetic waves. Antenna comes in all shapes and sizes from little ones that can be found on your roof to watch TV to really big ones that capture signals from satellites millions of miles away. for improving good performance of antenna, it will extend to MIMO, and Massive MIMO. in this work microstrip patch antenna consists of a radiating patch on one side of a dielectric substrate and has the ground plane on the other side. This work explores the performance enhancement of a microstrip patch antenna of FR4 (lossy) having dielectric constant ($\varepsilon r = 4.3$) and height 1.6 mm is used as substrate material. The material used for designing patch, microstrip feed line and ground is copper. The patch antennas are analysed using the different antenna parameters like S11 parameter (return loss), radiation pattern, gain, directivity, bandwidth etc. We have designed a micro strip patch antenna at different resonant frequency and the parametric studies have been carried out to observe the effect on variation of different parameters on the antenna performance. The system is modelled by Computer Simulation Technology Software (CST-2018).

A

Major Project Report

On

"STUDY OF MINIATURIZATION OF MICROSTRIP PATCH ANTENNA BY USING SLOT"

Submitted in the partial fulfilment for the award of degree
ofBachelor of Technology

In

Electronics and Communication Engineering

By

ASMITA PATEL (18106012)

SAURABH (18106050)

VIRENDRA YADAV(18106057)

B. Tech, VIII Semester

Under the guidance of

Dr. NIPUN KUMAR MISHRA (Assistant Professor)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

SCHOOL OF STUDIES IN ENGINEERING AND TECHNOLOGY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)

SESSION: 2021-22

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

SCHOOL OF STUDIES IN ENGINEERING AND TECHNOLOGY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)

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

CERTIFICATE

It is certified that the major project entitled **"STUDY OF ANTENNA MINIATURIZATION BY INTRODUCING THE SLOT CUT IN MICROSTRIP PATCH ANTENNA"** submitted by ASMITA PATEL, SAURABH and VIRENDRA YADAV in partial fulfilment of the requirements of the award of degree of Bachelor of Technology in Electronics and communication Engineering, School of studies in Engineering and Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur, is carried out by them in the Department of Electronics and communication Engineering during session 2021-22 under supervision and guidance of **Dr. NIPUN KUMAR MISHRA**, Department of Electronics & Communication Engineering, School of Studies in Engineering & Technology, Guru Ghasidas Vishwavidyalay bilaspur.

विभागाध्यक्ष (इले. एवं संचार अभियांत्रिकी)
HOD. (Electronics & Communication Engineering)
प्रौद्योगिकी संस्थान
Institute of Department
गु. घा. वि., बिलासपुर (छ.ग.)
Department of Electronics & Communication Engineering
School of Studies in Engineering & Technology
Guru Ghasidas Vishwavidyalaya, Bilaspur C.G

ABSTRACT

An antenna is a metallic structure that captures and transmits radio electromagnetic waves. Antenna comes in all shapes and sizes from little ones that can be found on your roof to watch TV to really big ones that capture signals from satellites millions of miles away. for improving good performance of antenna, it will extend in this work microstrip patch antenna consists of a radiating patch on one side of a dielectric substrate and has the ground plane on the other side. This work explores the performance enhancement of a microstrip patch antenna of FR4 (lossy) having dielectric constant ($\varepsilon r = 4.3$) and height 1.6 mm is used as substrate material. The material used for designing patch, microstrip feed line and ground is copper. The patch antennas are analysed using the different antenna parameters like S11 parameter (return loss), radiation pattern, gain, directivity, bandwidth etc. We have designed a micro strip patch antenna at different resonant frequency and the parametric studies have been carried out to observe the effect on variation of different parameters on the antenna performance. The system is modelled by Computer Simulation Technology Software (CST-2018).