

VISVESVARAYA TECHNOLOGICAL UNIVERSITY
BELAGAVI - 590018
2018 -2019



A Project Report

on

“An EMG based Hand Gesture Recognition System using Support Vector Machine (SVM)”

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

Bachelor of Engineering

in

Electronics and Communication Engineering

Submitted by

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PAVITHRA S

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Carried out at

Dr. T. THIMMAIAH INSTITUTE OF TECHNOLOGY

Under the Guidance of

Dr. Vijayalakshmi G.V, Associate Prof,

Dept. of ECE, Dr.TTIT



Dr. T. THIMMAIAH INSTITUTE OF TECHNOLOGY

(Formerly Golden Valley Institute of Technology)

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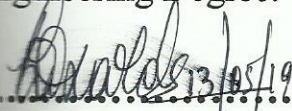
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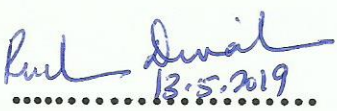
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DEPARTMENT OF ELECTRONICS AND COMMUNICATION
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CERTIFICATE



Certified that the Project Work entitled **“An EMG based Hand Gesture Recognition System using Support Vector Machine (SVM)”** is a bonafied work carried out by **AJAY J-1GV15EC001, PAVITHRA S- 1GV15EC037, POOJA ERONISHA A-1GV15EC039 and VANI JAYAM K- 1GV15EC063** in the partial fulfillment for the award of degree of Bachelor of Engineering in **Electronics and Communication Engineering** of the **Visvesvaraya Technological University, Belagavi** in the year 2018-19. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the report deposited in the departmental library. The Project work has been approved as it satisfies the academic requirement in respect of **Project Work-15ECP85** prescribed for the Bachelor of Engineering Degree.


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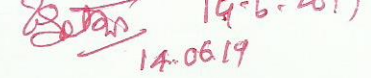

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SYNOPSIS

Hand gestures is one of the most powerful, immediate and natural means of communication. Electromyography (EMG) is the measure of electrical activity produced by the muscles which is usually represented as a function of time. EMG can be used in various applications including identifying neuromuscular diseases, sign language recognition, virtual reality, gesture to speech, robotics, and television control. The EMG based hand gesture recognition can help to develop good computer interface that increases the quality of life of the disable or aged people.

The main purpose of this work is to identify the hand gestures and classify using support vector machine (SVM). The raw EMG data is preprocessed and the statistical features are extracted, the extracted features are given to the SVM for training and classification and performance is evaluated using confusion matrix to determine the average classification accuracy.



International Conference on Recent Trends in Technology, Engineering and Applied Science



Best Paper Award

CERTIFICATE

This is to certify that Dr/Prof./Mr./Ms. AJAY J, PAVITHRA S, POOJA E RONISHA A, VANIJAYAM K, DR. VITAYALAKSHMI S. V. of

Dr. TITIT

.....has secured **Best paper Award** for presenting

the paper titled AN EMS BASED HAND GESTURE RECOGNITION SYSTEM in the

“International Conference on Recent Trends in Technology, Engineering and Applied Science (ICRTTEAS-2019)” held during 12th and 13th April 2019 at Dr. T. Thimmaiah Institute of Technology, Kolar Gold Fields, Karnataka

Prof. Ruckmani Divakaran
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VISVESVARAYA TECHNOLOGICAL UNIVERSITY
BELAGAVI - 590018
2018 –2019



A Project Report
on
**“EVALUATION OF SOIL FERTILITY USING IMAGE
PROCESSING”**

Submitted in the partial fulfillment of the requirement for the VIII Semester Project
Work Phase-II-10ECP78 for the award of degree of

Bachelor of Engineering
in
Electronics and Communication Engineering

Submitted by

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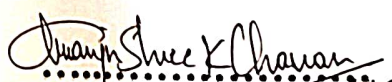


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Certified that the Project Work entitled ***“EVALUATION OF SOIL FERTILITY USING IMAGE PROCESSING”*** is a bonafied work carried out by ANISHA V -1GV15EC002, JEEVIKA MARY A-1GV15EC019, JOYSEELIN PRIYANKA J -1GV15EC021 and MONISHA K- 1GV15EC031 in the partial fulfillment for the award of degree of Bachelor of Engineering in Electronics and Communication Engineering of the Visvesvaraya Technological University, Belagavi in the year 2018-19. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the report deposited in the departmental library. The Project report has been approved as it satisfies the academic requirement in respect of Project Report-15ECP85 prescribed for the Bachelor of Engineering Degree.



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2. Ruckmani Divakaran 15-6-2019

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ABSTRACT

Image processing has been proved to be an effective tool for analysis in various is the important measures from the farmer's point of view. Soil is recognized as one of the most valuable natural resource whose soil pH property used to describe the degree of acidity or basicity which affect nutrient availability and ultimately plant growth in pH of 7.0 is neutral, and soils above or below this value are either alkaline or acidic, respectively.

This project aims at calculating PH values and other nutrient values in soil to help farmers to predict fertilizer quantity properly. The main aim of Soil pH is used in order to advice the producer for maximum crop production indicators are added to achieve the target pH level. Soil pH plays important role in many chemical and biochemical process and soil measurements. The pH of the soil is a measure of physical and chemical factors that affect the soil and how the environment is affecting the soil.

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Certified that the Project work Phase I entitled *“An Algorithm Driven Approximate Multiplier Design for Machine learning”* is a bonafied work carried out by Arshiya Taj A. -1GV15EC004, Nikhath Suman- 1GV15EC035, Sneha S. -1GV15EC052 and Sweety Lydia B. - 1GV15EC059 in the partial fulfillment for the award of degree of Bachelor of Engineering in Electronics and Communication Engineering of the Visvesvaraya Technological University, Belagavi during the year 2018-2019. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the report deposited in the departmental library. The Project report has been approved as it satisfies the academic requirement in respect of Project Phase I- 15ECP78 prescribed for the Bachelor of Engineering Degree.

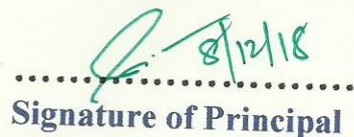

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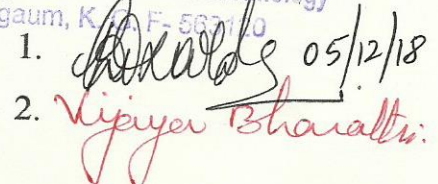
1. Vijayalakshmi
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SYNOPSIS

Today every circuit has to face the power consumption issue for both portable device aiming at large battery life and high end circuits avoiding cooling packages and reliability issues that are too complex. It is generally accepted that during logic synthesis power tracks which works well with area. This means that a complex design will generally consume large power. The multiplier is an key component and an prominent kernel of digital signal processors. Due to the circuit complexity, the power consumption and area are the two important design considerations of the multiplier. In this paper a High Speed & low area architecture for the shift and add multiplier is proposed.

The simulation result for 8 bit multipliers & four tap Filters shows that the proposed Low Area & Delay architecture lowers the total Area & Delay when compared to the Array Multiplier and Booth Multiplier architecture based Filter. To develop the system blocks in Modelsim 6.4a and Xilinx ISE9.1i, the Spartan3 FPGA tool is used which achieves the simulation and the synthesis of the proposed multiplier. Verilog HDL is the language used for designing the proposed multiplier.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY
Belagavi-590018
2018–2019



A
Project Report
on
“Partial Product Array Height Reduction using 64-bit Radix-16 Booth Multiplier”

Submitted in the partial fulfilment of the requirement for the
VIII Semester Project work - 15ECP85 for the award of degree of
Bachelor of Engineering

in

Electronics and Communication Engineering

by

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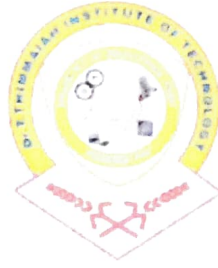
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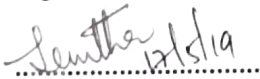
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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING CERTIFICATE


Certified that the **Project Work** entitled “**PARTIAL PRODUCT ARRAY HEIGHT REDUCTION USING 64-BIT RADIX-16 BOOTH MULTIPLIER**” is a bonafied work carried out by **R.DINESH KUMAR - 1GV16EC401, R.SAHANA - 1GV15EC041, S.ASHWINI - 1GV15EC005, S.BHARATH REDDY - 1GV16EC400**, in the partial fulfilment for the award of degree of Bachelor of Engineering in **Electronics and Communication Engineering** of the **Visvesvaraya Technological University**, Belagavi during the year 2018-2019. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the report deposited in the departmental library. The project work report has been approved as it satisfies the academic requirement in respect of **Project Work - 15ECP85** prescribed for the Bachelor of Engineering Degree.


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14.06.19

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

Belagavi-590018

2018–2019



A

Project Report

on

“DESIGN OF DDR4 SDRAM CONTROLLER”

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

Bachelor of Engineering

in

Electronics and Communication Engineering

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14.6.2019

ABSTRACT

Memories are the most universal components of our day to day real time applications. Almost all application system chips contain some type of embedded memory chips, such as ROM, Static RAM, Dynamic RAM, and flash memory. Memories have complex design structures than any other core in SoC. DDR is a part of the SDRAM family of technologies and is one of the many DRAM implementations. In comparison with earlier generations, DDR2 and DDR3 SDRAM controller has a higher density device and achieves higher bandwidth due to the further increase of the clock rate and reduction in power consumption these memory devices provides higher reliability, availability and serviceability then other DDR memories.

The architecture of DDR SDRAM controller consists of Initialization FSM, Command FSM, data path, bank control, clock counter, refresh counter. The Memory Controller provides command signals for memory refresh, read and write operation and initialization of SDRAM. In this project we are going to implement a memory controller for DDR SDRAM controllers were we optimize the valve of speed and power consumption. This project is design using Verilog HDL language and functional verification using IP core generation in Xilinx 14.7 and physical implementing design using 45nm technology of RTL Encounter in Cadence tool.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

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2018–2019



A

Project Report

on

“Design of Area Efficient Reconfigurable Router for Network on Chip using FPGA”

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

Bachelor of Engineering

in

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by

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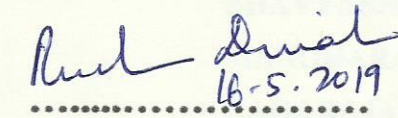
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Certified that the **Project Work** entitled **“DESIGN OF AREA EFFICIENT RECONFIGURABLE ROUTER USING ON NETWORK ON CHIP USING FPGA”** is a bonafied work carried out by **BHAVYASHREE -1GV14EC017, MANOHARA S P -1GV15EC028, NAGARAJA B M -1GV15EC034 and VENNELAV- 1GV16EC064** in the partial fulfillment for the award of degree of Bachelor of Engineering in **Electronics and Communication Engineering** of the **Visvesvaraya Technological University, Belagavi** in the year 2018-19. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the report deposited in the departmental library. The Project report has been approved as it satisfies the academic requirement in respect of **Project Work-15ECP85** prescribed for the Bachelor of Engineering Degree.


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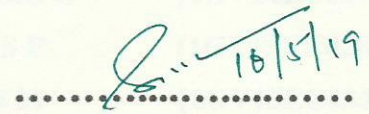

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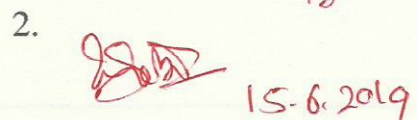
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ABSTRACT

The Network on Chip (NoC) is a new interconnection method, able to integrate a large number of IP cores while maintaining a high communication bandwidth between them. The NoC is made of a number of routers that are interconnected to each other. The router may be homogeneous or heterogeneous. Homogeneous router means the router in which each channel can have a same buffer size. Heterogeneous router means the router in which each channel can have a different buffer size.

To obtain high flexibility and improve performance, SoCs will combine different types of processor cores and data memory units of different sizes, leading to heterogeneous architecture. But setting the buffer size at design time may lead to high power dissipation. So in this paper we go for reconfigurable router architecture. Actually the reconfigurable router is a heterogeneous router, but using reconfiguration technique, it is possible to dynamically change the buffer depth to each channel, in accordance with the necessity of the application and that increasing the power efficiency of the system.

In this project we introduce a high performance and power efficient reconfigurable router. The router has four channels (namely, east, west, north and south) and a crossbar switch. Each channel has first in first out (FIFO) buffers and multiplexers. To store the data FIFO buffer is used and to control the input and output of the data multiplexer is used. To design an reconfigurable router, the code will be written in VHDL and simulation will be done using Xilinx ISE 9.1i. First the south channel will be designed which will include the design of FIFO and multiplexers. After that, the crossbar switch and other three channels will be designed. After designing all the channels, FIFO buffers, multiplexers and crossbar switches are combined to form a complete structure of the router.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

Belagavi-590018

2018-2019



A

Project Report

on

“TRAFFIC CONTROL SYSTEM FOR SMART AMBULANCE”

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

Bachelor of Engineering

in

Electronics and Communication Engineering

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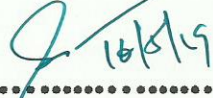
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CERTIFICATE

Certified that the Project Work entitled "*Traffic Control System for Smart Ambulance*" is a bonafied work carried out by Chandini D B-1GV15EC009, Indhu V - 1GV15EC018, Jayasudha J - 1GV14EC023 and Swetha D - 1GV15EC061 in the partial fulfillment for the award of degree of Bachelor of Engineering in Electronics and Communication Engineering of the Visvesvaraya Technological University, Belagavi in the year 2018-19. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the report deposited in the departmental library. The Project work has been approved as it satisfies the academic requirement in respect of Project Work-15ECP85 prescribed for the Bachelor of Engineering Degree.


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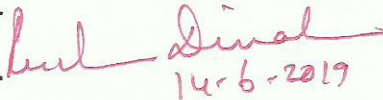


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Abstract

Traffic is a major concern for most of the metropolitan cities of the world. Efficient traffic management can have a major impact on the country's economy. This project proposes a concept called "Green Corridor" which is more efficient than currently used traffic control systems. Green corridor for healthcare conveyance is based on a simple principle; that it is used to provide clearance to any emergency Ambulance vehicle by turning all the red lights to green on the path of the emergency vehicle, hence providing a complete green corridor to the desired vehicle.

The design proposes a motion for Traffic Control System which is more imaginative than currently existing schemes. The system automatically affords a distinctive lane in which entirely the red signal indication will be turned spontaneously to green intended for the ambulance. Subsequently this assists the ambulance instantly in reaching its destination within short .In accumulation to the Traffic Control Scheme, wellbeing specialist care Scheme displays the patient long-suffering state of affairs resembling heartbeat, blood pressure. The system comprises of dedicated intellectual smart ambulance with GPS, GSM and smart mobile solicitation beside with Internet of Things (IoT).The patient's state of affairs will be directed to the medical wingover cloud. The information of the patient is sent to the hospital via GSM module and blood bank gets information only if the condition is chosen as serious . The projected effort stays targeted to plan and progress an operative traffic control scheme for smart ambulance. The outcomes of the recommended traffic control model transports upright decline of time by clearing the traffic very fast and protect the patient's life at the most primitive.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY
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2018 –2019



A
Project Report
on
“A MULTISCALE APPROACH BASED AUTOMATIC SHIP
DETECTION”

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

Bachelor of Engineering

in

Electronics and Communication Engineering

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Kolar Gold Fields – 563120.

DR.T.THIMMAIAH INSTITUTE OF TECHNOLOGY

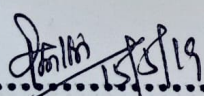


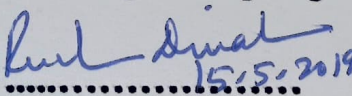
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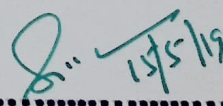
DEPARTMENT OF ELECTRONICS AND COMMUNICATION
ENGINEERING.

CERTIFICATE

Certified that the **Project Work** entitled **“A MULTISCALE APPROACH BASED AUTOMATIC SHIP DETECTION”** is a bonafied work carried out by **CHETAN S-1GV15EC010, K DEEPIKA-1GV15EC022, KISHORE R-1GV15EC023 and LIKITHA S- 1GV15EC024** in the partial fulfillment for the award of degree of Bachelor of Engineering in **Electronics and Communication Engineering** of the **Visvesvaraya Technological University, Belagavi** in the year 2018-19. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the report deposited in the departmental library. The Project work has been approved as it satisfies the academic requirement in respect of **Project Work-15ECP85** prescribed for the Bachelor of Engineering Degree.


.....
Signature of guide
Mrs. Vijaya Geetha R


.....
Signature of HOD
Prof. Ruckmani Divakaran


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

Name of Examiners

- 1.
2. *Ruckmani Divakaran*
3. *BHASKAR S.V*

Head of the Department
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2. *Ruckmani Divakaran*
14-6-2019
3. *BHASKAR S.V*
14-06-2019

ABSTRACT

Ship detection has been playing a significant role in the field of remote sensing for a long time but is still full of challenges. The main limitations of traditional ship detection methods usually lie in the complexity of applications such as navigation, illegal marine movement. Compared with previous ship detection techniques such as fast block detector, constant false alarm rate technique, alpha state distribution builds the method which is not applicable on diversified high resolution SAR images and failed to detect a target whose intensity is at the similar level and so on.

In order to overcome the above problems, we proposed a project called “*A Multiscale Approach Based Automatic Ship Detection*” using SAR images which can efficiently detect ship in different locations including ocean and port and irrespective of weather conditions. Specifically, we put forward the DWT based image enhancement technique and feature extraction by k - means clustering algorithm which is aimed at solving the problem and improve efficiency and reduce false alarm rate. The proposed method has reduced the speckle and also the texture of structured region, edges and land surfaces are well preserved. The performance of the proposed method has been quantitatively justified through standard quality measures like signal to noise ratio(SNR), mean square error(MSE), peak signal to noise ratio(PSNR), structural similarity index(SSIM).

VISVESVARAYA TECHNOLOGICAL UNIVERSITY
BELAGAVI - 590018
2018 -2019



A Project work phase-II Report
on
“IoT BASED SMART FOOD MONITORING SYSTEM”

Submitted in the partial fulfillment of the requirement for the
VIII Semester project work phase-II -15ECP85 for the award of degree of
Bachelor of Engineering

in
Electronics and Communication Engineering
By

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SANDHYA T	1GV15EC046
SONIYA P	1GV15EC053

Under the Guidance of
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DEPARTMENT OF ELECTRONICS AND COMMUNICATION
ENGINEERING.

CERTIFICATE

Certified that the Project phase-1 entitled ***“IoT Based Smart Food Monitoring System”*** is a bonafied work carried out by Harini T. -1GV15EC016, Pavithra Lency D. -1GV15EC036, Sandhya T. -1GV15EC046 and Soniya P. -1GV15EC053 in the partial fulfillment for the award of degree of Bachelor of Engineering in **Electronics and Communication Engineering** of the **Visvesvaraya Technological University**, Belagavi during the year 2018-2019. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the report deposited in the departmental library. The Project report has been approved as it satisfies the academic requirement in respect of **Project work phase-1 - 15ECP78** prescribed for the Bachelor of Engineering Degree.

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2. Vijaya Bherappa

08.12.2018

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08/12/18

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Dr. Syed Ariff
PRINCIPAL

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1. 08/12/2018
 2. Vijaya Bherappa

Abstract

In the era of technology advancement, everything requires monitoring and controlling. This project proposes an IoT framework for facilitating food monitoring for protection of the food, so that it would not get contaminated due to surrounding conditions during storage and transportation. In present scenario, the work done is in terms of the sensed value that have been recorded and a detailed analysis has been performed but automated controlled alternatives are not present. The proposed solution analyzes temperature, moisture, light as these parameters affect nutritional values of food items and makes the analysis results accessible to the user via a mobile application.

A web server is used for storage of data values sensed in real time and also for analysis of results. User is alerted via messages along with locations of the shipment whenever an emergency occurs in this solutions, heterogeneous sensors for various domains are employed for sensing the condition of food. The data values with plotting of graphs has been done at remote locations so that this data can easily be used for further analysis and the user could be notified if a change in parameters value above a threshold is recorded.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

BELAGAVI - 590018

2018 –2019



A

Project Report

On

“Packet Collision Avoidance in Energy Efficient CC-MANETs”

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

Bachelor of Engineering

In

Electronics and Communication Engineering

Submitted by

POMILA SRINIVASA MURTHY

SAINATH P A

VISHNU J K

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Carried out at

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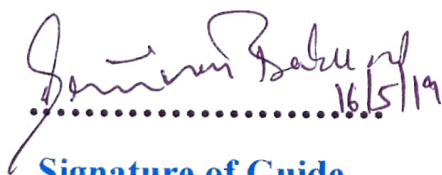
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Oorgaum Kolar Gold Fields –563120

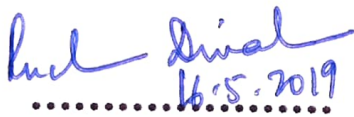
**DEPARTMENT OF ELECTRONICS AND COMMUNICATION
ENGINEERING.**

CERTIFICATE

Certified that the **Project work** entitled **“Packet Collision Avoidance in Energy Efficient CC-MANETs”** is a bonafide work carried out by **Pomila Srinivasa Murthy -1GV15EC038, Sainath P A. -1GV15EC044, Vishnu J K. -1GV15EC065**, in the partial fulfillment for the award of degree of Bachelor of Engineering in **Electronics and Communication Engineering** of the **Visvesvaraya Technological University, Belagavi** during the year 2018-19. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the report deposited in the departmental library. The Project report has been approved as it satisfies the academic requirement in respect of **Project Work -15ECP85** prescribed for the Bachelor of Engineering Degree.


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Mr. Srinivas Babu N



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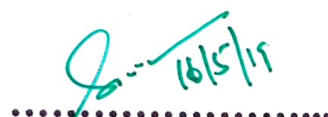
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Prof. Ruckmani Divakaran

Head of the Department

Dept. of Electronics and Communication Engg.
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Oorgaum, K.G.F. - 563 120.

Name of Examiners

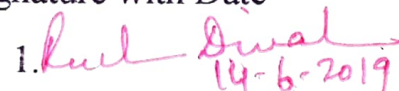

1. 
2. BHASKAR S-V


.....

Signature of Principal
Dr. Syed Ariff
PRINCIPAL

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

Signature with Date

1. 
14-6-2019
2. 
14-6-2019

ABSTRACT

Content Centric Network (CCN) totally transforms the host centric network architecture to content centric network architecture. Different researchers studied CCN for Mobile ad hoc networks (MANETs) for efficient communication. MANET in CCN faces various issues of flooding of interest packet and data packets, broadcasting on broken edges, power consumption, and reestablishment of the connection with mobile nodes. In this paper, we proposed an efficient multicasting and collision avoidance (EMCA) protocol in content centric MANETs (CCMANETs). It minimizes the interest packet and data packet flooding in the network by applying check on the content store (CS) and pending interest table (PIT). EMCA also maintains the unique routing table (RT) at each node. RT extracts information from interest packets.

If the path breaks during the data packet unicasting then data packet custodian node uses RT entries to select the second best path for unicasting. The simulation results of EMCA shows better results than AIRDrop because AIRDrop uses broadcasting on broken edges. EMCA achieves high throughput with less network load and minimum battery consumption. It also minimizes packet flooding in the network to ensure less packet collision rate. EMCA provides better content based communication protocol and ensures more successful communication in dynamic topology. In this project, we present an efficient multicasting and collision avoidance (EMCA) protocol in content centric MANETs (CCMANETs). Our proposal is based on a tone system to provide more efficiency and better performance. The protocol consists of a new construction method for mobile nodes using a clustering approach that depends on distance and remaining energy to provide more stability and to reduce energy consumption. In addition, we propose an adjustment to the typical multicast flow by adding unicast links between clusters.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY
Belagavi, Karnataka
2018-2019



A Project Report
On

**“DESIGN AND IMPLEMENTATION OF IOT BASED
AUTOMATION SYSTEM FOR SMART HOME”**

Submitted in the partial fulfillment of the requirement
for the VIII Semester Project Work 10ECP85 for
the award of degree of

Bachelor of Engineering

In

Electronics and Communication Engineering

Submitted by

PUSHPA LATHA B

1GV14EC049

Carried out at

Dr. T. THIMMAIAH INSTITUTE OF TECHNOLOGY

Under the Guidance of

Mr. Shashi Kiran S, M Tech

Assistant Professor

Department of ECE, Dr.T.T.I.T, K.G.F.



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VISVESVARAYA TECHNOLOGICAL UNIVERSITY

Belagavi-590018

2018-2019



A

Project Report

on

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Carried at

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Under the Guidance of

Mr. Shashi Kiran S, M Tech

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Dept of ECE, Dr. TTIT, KGF



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION

ENGINEERING

CERTIFICATE

Certified that the Project Work entitled **“DESIGN AND IMPLEMENTATION OF IOT BASED AUTOMATION SYSTEM FOR SMART HOME”** is a bonafied work carried out by **PUSHPALATHA B -1GV14EC049**, in the partial fulfilment for the award of degree of Bachelor of Engineering in **Electronics and Communication Engineering** of the **Visvesvaraya Technological University**, Belagavi during the year 2018-2019. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the report deposited in the departmental library. The project workreport has been approved as it satisfies the academic requirement in respect of **Project Work- 10ECP85** prescribed for the Bachelor of Engineering Degree.

Signature of Guide
Mr. Shashi Kiran S

Signature of HOD
Prof. HOD, Ruckmani Divakaran
Head of the Department

Dept. of Electronics and Communication Engg.
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Oorgaum P.O., Kolar Gold Fields - 563 120

Name of Examiners
1. MAHENDRA D
2. SHASHI KIRAN S

Signature with Date
1. [Signature] 12/12/19
2. [Signature] 12/12/19

SYNOPSIS

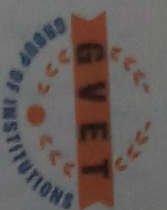
Home Automation System (HAS) gains popularity due to communication technology advancement. Smart home is one of the Internet of Things (IoT) applications that facilitates the control of home appliances over the Internet using automation system. This paper proposes a low-cost Wi-Fi based automation system for Smart Home (SH) in order to monitor and control home appliances remotely using Android-based application. An Arduino Mega microcontroller provided with Wi-Fi module is utilized to build the automation system. In addition, several sensors are used to monitor the temperature, humidity and motion in home. A relay board is exploited to connect the HAS with home under controlled appliances. The proposed automation system, can easily and efficiently control the electrical appliances via Wi-Fi and blynk mobile application.



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CERTIFICATE OF PARTICIPANTS

This is to certify that Dr./Prof./Mr/Ms PUSHPAKA.T.HA...B..... fromDr.:T.T.F.I..... has presented a paper DESIGN..AND..IMPLEMENTATION...OF...IOT BASED...AUTOMATION in the SYSTEM FOR SMART HOME

"International Conference on Recent Trends in Technology, Engineering and Applied Science (ICRTTEAS-2019)" held during 12th & 13th April 2019 at Dr.T. Thimmaiah Institute of Technology

Kolar Gold Fields, Karnataka.

Prof. Ruckmani Divakaran
Dean

Dr. Shenoy H G
Vice-Principal

Dr. Syed Arif
Vice-Principal

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(Formerly Golden Valley Institute of Technology)

Oorgaum Kolar Gold Fields – 563120

DEPARTMENT OF ELECTRONICS AND COMMUNICATION
ENGINEERING.

CERTIFICATE

Certified that the Project Report entitled "**SMART GREEN HOUSE MONITORING AND CONTROLLING SYSTEM USING IoT**" is a bonafied work carried out by THEJESHWINI H -1GV15EC062, NAVASANTHANALAKSHMI A -1GV16EC404, SAVITHA C - 1GV16EC405 and VARALAKSHMI V -1GV16EC408 in the partial fulfillment for the award of degree of Bachelor of Engineering in Electronics and Communication Engineering of the Visvesvaraya Technological University, Belagavi in the year 2018-19. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the report deposited in the departmental library. The Project report has been approved as it satisfies the academic requirement in respect of Project Report-15ECP85 prescribed for the Bachelor of Engineering Degree.

Rakesh B N 16/5/19
Signature of guide
Mr. Rakesh B N

Ruckmani Divakaran 17-5-2019
Signature of HOD
Prof. Ruckmani Divakaran
Head of the Department

[Signature] 22/5/19
Signature of Principal
Dr. T. Thimmaiah
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Name of Examiners

1. Ruckmani Divakaran
2. Bhaskar S P

Dept. of Electronics and Communication Engineering
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Signature with Date

1. *Ruckmani Divakaran* 15-6-2019
2. *[Signature]* 15-6-2019

ABSTRACT

The greenhouse industry is the fastest growing sector worldwide. The greenhouse separates the crop from the environment, thus providing some way of shelter from the direct influence of the external weather conditions. This system propose a contribution to the development of greenhouse monitoring which presents the design and development of an electronic system based on a microcontroller that integrates remote sensing functions rooted in the cloud computing using Internet of Things (IoT). This system acquires the data from soil moisture sensor, humidity sensor, temperature sensor, and light sensor 24x7, if the soil moisture is found to be low it turns on the water pump to sprinkle water until the soil is moist, if the temperature in the green house is found to be high a fan is turned on , if temperature is low room heater is switched On, similarly if the light intensity is low LED lamp is turned ON. If the humidity is low then a humidifier is turned on . In addition to this the system also sends all four sensor values over internet for remote monitoring and control of LED lamp, room heater, humidifier , or fan can be done manually if needed through internet . we have also proposed live video streaming on internet with the help of Raspberry pi 3 and camera.



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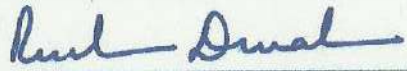
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Oorgaum, KGF - 563120.



CERTIFICATE OF PARTICIPANTS

This is to certify that Dr./Prof./Mr/Ms THEJESHWINI.H from Dr. T.T.I.T. has presented a paper SMART GREEN HOUSE MONITORING AND CONTROLLING IN THE SYSTEM USING IOT in the "International Conference on Recent Trends in Technology, Engineering and Applied Science (ICRTEAS-2019)" held during 12th & 13th April 2019 at Dr.T. Thimmaiah Institute of Technology Kolar Gold Fields, Karnataka.


Prof. Ruckmani Divakaran
Dean


Dr. Shenoy H G
Vice-Principal


Dr. Syed Ariff
Principal



Dr. T. THIMMAIAH INSTITUTE OF TECHNOLOGY

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CERTIFICATE OF PARTICIPANTS

This is to certify that Dr./Prof./Mr/Ms SAVITHA . C..... from Dr. T.T.I.T..... has presented a paper SMART GREEN HOUSE MONITORING AND CONTROLLING IN THE SYSTEM USING IOT in the

“International Conference on Recent Trends in Technology, Engineering and Applied Science (ICRTTEAS-2019)” held during 12th & 13th April 2019 at Dr.T. Thimmaiah Institute of Technology

Kolar Gold Fields, Karnataka.

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ICRTTEAS

2019

April 12 - 13

CERTIFICATE OF PARTICIPANTS

This is to certify that Dr./Prof./Mr/Ms VARAAKSHMI.V from Dr.T.T.I.T. has presented a paper SMART GREEN HOUSE MONITORING AND CONTROLLING SYSTEM USING IOT in the "International Conference on Recent Trends in Technology, Engineering and Applied Science (ICRTTEAS-2019)" held during 12th & 13th April 2019 at Dr.T. Thimmaiah Institute of Technology Kolar Gold Fields, Karnataka.

Prof. Ruckmani Divakaran
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