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DEPARTMENT OF CIVIL ENGINEERING

Academic Year : 2016-2017

S.No	Year	Subject	Year	Regulation
1	2016-2017	Surveying	II	R16
2	2016-2017	Concrete Technology	II	R16
3	2016-2017	DDRCS	III	R13
4	2016-2017	Geo technical Engineering I	III	R13
5	2016-2017	Transportation Engineering	III	R13
6	2016-2017	Environmental engineering	III	R13
7	2016-2017	Environmental engineering II	IV	R13
8	2016-2017	Advanced Structural Engineering	IV	R13
9	2016-2017	Construction technology and management	IV	R13

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

1.3.2 Average percentage of courses that include experiential learning through project work/field work/internship

Department: Electrical and Electronics Engineering **Academic Year:** 2016-17

Sl. No.	Name of Regulation	Name of Subjects referred from total number of Subjects
1	R13	ELECTRICAL MACHINES-I
2	R13	ELECTRICAL MACHINES-II
3	R13	CONTROL SYSTEMS
4	R13	POWER SYSTEMS-I
5	R13	POWER SYSTEMS-II
6	R13	POWER ELECTRONICS
7	R13	UTILIZATION OF ELECTRICAL ENERGY
8	R13	POWER SYSTEM ANALYSIS
9	R13	POWER SEMICONDUCTOR DRIVES
10	R13	RENEWABLE ENERGY SOURCES AND SYSTEMS
11	R13	HVAC AND DC TRANSMISSION
12	R13	POWER SYSTEM OPERATION AND CONTROL
13	R13	INSTRUMENTATION
14	R13	ELECTRICAL DISTRIBUTION SYSTEMS
15	R13	DIGITAL CONTROL SYSTEMS
16	R13	FACTS: FLEXIBLE ALTERNATING CURRENT TRANSMISSION SYSTEMS
17	R13	AI TECHNIQUES

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DEPARTMENT OF MECHANICAL ENGINEERING

1.3.2 Name and Average percentage of courses that include experiential learning through project work/field work/internship during last five years

Department: Mechanical Engineering

Academic Year: 2016-17

S.No.	Regulation	Name of subjects referred from total number of subjects
1	R13	Design of Machine Members -I
2	R13	Production Technology
3	R13	Thermal Engineering - I
4	R13	Unconventional Machining Processes
5	R13	Metallurgy and Material Science
6	R13	Metrology
7	R13	Dynamics of Machinery
8	R13	Automobile Engineering
9	R13	CAD/CAM
10	R13	Metal Cutting and Machine Tools
11	R13	Refrigeration and Air Conditioning
12	R13	Fluid Mechanics and Hydraulic Machines
13	R13	Thermal Engineering -II
14	R13	Design of Machine Members– II
15	R13	Kinematics of Machinery
16	R13	Heat Transfer
17	R13	Automation in Manufacturing
18	R13	Power Plant Engineering
19	R13	MEMS
20	R13	Mechanics of Solids

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Electronics and Communication Engineering

1.3.2 Name and Average percentage of courses that include experimental learning through Project work/Field work/Internship during last five years.

Department: Electronics and Communication Engineering. **Academic Year: 2016-17**

Sl. No.	Regulation	Name of the subjects referred from total no. of subjects
1	R13	ELECTRONIC DEVICES AND CIRCUITS
2	R13	SIGNALS AND SYSTEMS
3	R13	ELECTRONIC CIRCUIT ANALYSIS
4	R13	EM WAVES AND TRANSMISSION LINES
5	R13	ANTENNAS AND WAVE PROPAGATION
6	R13	PULSE & DIGITAL CIRCUITS
7	R13	LINEAR IC APPLICATIONS
8	R13	CONTROL SYSTEMS
9	R13	DIGITAL SYSTEM DESIGN & DICA
10	R13	MICROPROCESSORS AND MICROCONTROLLERS
11	R13	LINEAR IC APPLICATIONS
12	R13	DIGITAL SYSTEM DESIGN & DICA
13	R13	DIGITAL SIGNAL PROCESSING
14	R13	BIO MEDICAL ENGINEERING
15	R13	VLSI DESIGN
16	R13	DIGITAL IMAGE PROCESSING
17	R13	RADAR SYSTEMS
18	R13	COMPUTER ARCHITECTURE AND ORGANIZATION
19	R13	OPTICAL COMMUNICATION
20	R13	CELLULAR MOBILE COMMUNICATION
21	R13	EMBEDDED SYSTEMS
22	R16	CPLD AND FPGA ARCHITECTURES AND APPLICATIONS
23	R16	EMBEDDED SYSTEM DESIGN
24	R16	LOW POWER VLSI DESIGN
25	R16	DSP PROCESSORS AND ARCHITECTURES ELECTIVEIII

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DEPARTMENT OF COMPUTER SCIENCE ENGINEERING

Department: Computer Science Engineering

Academic Year: 2016-17

S. No.	Regulation (R16/R13)	Name of Subjects Referred from total number of Subjects
1	R16	Object Oriented Programming Through c++
2	R16	Unix Programming (Common to CSE- IT)
3	R16	Object Oriented Analysis and Design using UML
4	R16	Operating Systems (Common to CSE- IT)
5	R16	Computer Networks
6	R16	Data Warehousing and Mining
7	R16	Design and Analysis of Algorithms
8	R16	Software Testing Methodologies
9	R13	Internet of Things
10	R13	Cryptography and Network Security (Common to CSE, IT)
11	R13	Software Architecture & Design Patterns
12	R13	Web Technologies
13	R13	Mobile Computing (Common to CSE & IT)
14	R13	Cloud Computing (common to CSE, IT)
15	R13	Big Data Analysis (common to CSE, IT)
16	R13	Software Project Management (common to CSE, IT)
17	R13	Machine Learning
18	R13	Artificial Neural Networks (Common to CSE IT)
19	R13	Computer Programming
20	R13	Data structures
21	R13	Object Oriented Programming Through c++
22	R13	Java Programming
23	R13	Advanced Data Structures

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DEPARTMENT OF MANAGEMENT STUDIES

Academic Year: 2016-17

S.No.	Name of Regulations	Name of Subjects Referred from total number of subjects
1	R16	Financial Management
2	R16	Human Resource Management
3	R16	Marketing Management
4	R16	Production and Operations Management
5	R16	Leadership Management
6	R16	Compensation and Reward Management
7	R16	Performance Management
8	R16	Security Analysis & Portfolio Management
9	R16	Banking and Insurance Management
10	R16	Advance Management Accounting
11	R16	Strategic Financial Management
12	R16	Consumer Behavior
13	R16	Retail Management
14	R16	Customer Relationship Management
15	R16	Labor Welfare & Legislation
16	R16	Management of Industrial Relations
17	R16	Financial Markets and Services
18	R16	Global Financial Management
19	R16	Risk Management
20	R16	Tax Management
21	R16	Services Marketing
22	R16	Promotional Distribution Management
23	R16	Global Marketing Management
24	R16	Supply Chain Management

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DEPARTMENT OF CIVIL ENGINEERING

Academic Year : 2017-2018

S.No	Year	Subject	Year	Regulation
1	2017-2018	Surveying	II	R16
2	2017-2018	Concrete Technology	II	R16
3	2017-2018	DDRCS	III	R13
4	2017-2018	Geo technical Engineering I	III	R13
5	2017-2018	Transportation Engineering	III	R13
6	2017-2018	Environmental engineering	III	R13
7	2017-2018	Environmental engineering II	IV	R13
8	2017-2018	Advanced Structural Engineering	IV	R13
9	2017-2018	Construction technology and management	IV	R13

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

1.3.2 Average percentage of courses that include experiential learning through project work/field work/internship

Department: Electrical and Electronics Engineering **Academic Year:** 2017-18

Sl. No.	Name of Regulation	Name of Subjects referred from total number of Subjects
1	R16	ELECTRICAL MACHINES-I
2	R16	ELECTRICAL MACHINES-II
3	R16	CONTROL SYSTEMS
4	R16	POWER SYSTEMS-I
5	R13	POWER SYSTEMS-II
6	R13	POWER ELECTRONICS
7	R13	UTILIZATION OF ELECTRICAL ENERGY
8	R13	POWER SYSTEM ANALYSIS
9	R13	POWER SEMICONDUCTOR DRIVES
10	R13	RENEWABLE ENERGY SOURCES AND SYSTEMS
11	R13	HVAC AND DC TRANSMISSION
12	R13	POWER SYSTEM OPERATION AND CONTROL
13	R13	INSTRUMENTATION
14	R13	ELECTRICAL DISTRIBUTION SYSTEMS
15	R13	DIGITAL CONTROL SYSTEMS
16	R13	FACTS: FLEXIBLE ALTERNATING CURRENT TRANSMISSION SYSTEMS
17	R13	AI TECHNIQUES

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DEPARTMENT OF MECHANICAL ENGINEERING

1.3.2 Name and Average percentage of courses that include experiential learning through project work/field work/internship during last five years

Department: Mechanical Engineering

Academic Year: 2017-18

S.No.	Regulation (R13/R16)	Name of subjects referred from total number of subjects
1	R16	Metallurgy & Materials Science
2	R16	Mechanics of Solids
3	R16	Thermodynamics
4	R16	Fluid Mechanics & Hydraulic Machines
5	R16.	Kinematics of Machinery
6	R16	Thermal Engineering -I
7	R16	Production Technology
8	R16	Design of Machine Members -I
9	R16	Industrial Engineering and Management
10	R13	Dynamics of Machinery
11	R13	Metal Cutting & Machine Tools
12	R13	Design of Machine Members–I
13	R13	Instrumentation & Control Systems
14	R13	Thermal Engineering -II
15	R13	Metrology
16	R13	Operations Research
17	R13	Design of Machine Members– II
18	R13	Robotics
19	R13	Heat Transfer
20	R13	Industrial Engineering Management
21	R13	Refrigeration & Air-conditioning
22	R13	Automobile Engineering
23	R13	CAD/CAM
24	R13	Finite Element Method
25	R13	Unconventional Machining Processes
26	R13	MEMS
27	R13	Power Plant Engineering

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Electronics and Communication Engineering

1.3.2 Name and Average percentage of courses that include experimental learning through Project work/Field work/Internship during last five years.

Department: Electronics and Communication Engineering. **Academic Year: 2017-18**

Sl. No.	Regulation	Name of the subjects referred from total no. of subjects
1	R16	SIGNALS AND SYSTEMS
2	R16	NETWORK ANALYSIS
3	R16	ELECTRONIC DEVICES AND CIRCUITS
4	R16	ELECTRONIC CIRCUIT ANALYSIS
5	R16	CONTROL SYSTEMS
6	R16	SWITCHING THEORY AND LOGIC DESIGN
7	R16	ELECTROMAGNETIC WAVES AND TRANSMISSION LINES
8	R13	PULSE AND DIGITAL CIRCUITS
9	R13	ANTENNAS AND WAVE PROPAGATION
10	R13	MICROPROCESSORS AND MICROCONTROLLERS
11	R13	LINEAR IC APPLICATIONS
12	R13	DIGITAL SYSTEM DESIGN & DICA
13	R13	DIGITAL SIGNAL PROCESSING
14	R13	BIO MEDICAL ENGINEERING
15	R13	VLSI DESIGN
16	R13	DIGITAL IMAGE PROCESSING
17	R13	RADAR SYSTEMS
18	R13	COMPUTER ARCHITECTURE AND ORGANIZATION
19	R13	OPTICAL COMMUNICATION
20	R13	CELLULAR MOBILE COMMUNICATION
21	R13	EMBEDDED SYSTEMS
22	R16	CPLD AND FPGA ARCHITECTURES AND APPLICATIONS
23	R16	EMBEDDED SYSTEM DESIGN
24	R16	LOW POWER VLSI DESIGN
25	R16	DSP PROCESSORS AND ARCHITECTURES ELECTIVEIII

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DEPARTMENT OF COMPUTER SCIENCE ENGINEERING

Department: Computer Science Engineering

Academic Year: 2017-18

S. No.	Regulation (R16/R13)	Name of Subjects Referred from total number of Subjects
1	R16	Computer Programming
2	R16	Object Oriented Programming Through c++
3	R16	Python Programming
4	R16	Data Structures Through c++
5	R16	Computer Graphics
6	R16	Software Engineering
7	R16	Java Programming
8	R16	Advanced Data Structures
9	R13	Hadoop and Big Data
10	R13	Database Management Systems
11	R13	Operating Systems
12	R13	Data Ware Housing and Mining
13	R13	Design and Analysis of Algorithms
14	R13	Web Technologies
15	R13	Cryptography and Network Security
16	R13	UML and Design Patterns
17	R13	Mobile Computing
18	R13	Software Testing Methodologies
19	R13	Cloud Computing (common to ece & csc)
20	R13	Distributed Systems (common to csc & it)

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DEPARTMENT OF MANAGEMENT STUDIES

Academic Year: 2017-18

S.No.	Name of Regulations	Name of Subjects Referred from total number of subjects
1	R16	Financial Management
2	R16	Human Resource Management
3	R16	Marketing Management
4	R16	Production and Operations Management
5	R16	Leadership Management
6	R16	Compensation and Reward Management
7	R16	Performance Management
8	R16	Security Analysis & Portfolio Management
9	R16	Banking and Insurance Management
10	R16	Advance Management Accounting
11	R16	Strategic Financial Management
12	R16	Consumer Behavior
13	R16	Retail Management
14	R16	Customer Relationship Management
15	R16	Labor Welfare & Legislation
16	R16	Management of Industrial Relations
17	R16	Financial Markets and Services
18	R16	Global Financial Management
19	R16	Risk Management
20	R16	Tax Management
21	R16	Services Marketing
22	R16	Promotional Distribution Management
23	R16	Global Marketing Management
24	R16	Supply Chain Management

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DEPARTMENT OF CIVIL ENGINEERING

Academic Year : 2018-2019

S.No	Year	Subject	Year	Regulation
1	2018-2019	Surveying	II	R13
2	2018-2019	Concrete Technology	II	R16
3	2018-2019	DDRCS	III	R16
4	2018-2019	Transportation Engineering II	III	R16
5	2018-2019	Environmental engineering	III	R16
6	2018-2019	Environmental engineering II	IV	R13
7	2018-2019	Advanced Structural Engineering	IV	R13
8	2018-2019	Construction technology and management	IV	R13

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

1.3.2 Average percentage of courses that include experiential learning through project work/field work/internship

Department: Electrical and Electronics Engineering **Academic Year:** 2018-19

Sl. No.	Name of Regulation	Name of Subjects referred from total number of Subjects
1	R16	ELECTRICAL MACHINES-I
2	R16	ELECTRICAL MACHINES-II
3	R16	CONTROL SYSTEMS
4	R16	POWER SYSTEMS-I
5	R16	POWER SYSTEMS-II
6	R16	RENEWABLE ENERGY SOURCES
7	R16	POWER ELECTRONICS
8	R16	MICRO PROCESSORS AND MICRO CONTROLLERS
9	R13	RENEWABLE ENERGY SOURCES AND SYSTEMS
10	R13	HVAC AND DC TRANSMISSION
11	R13	POWER SYSTEM OPERATION AND CONTROL
12	R13	INSTRUMENTATION
13	R13	ELECTRICAL DISTRIBUTION SYSTEMS
14	R13	SPECIAL ELECTRICAL MACHINES
15	R13	FACTS: FLEXIBLE ALTERNATING CURRENT TRANSMISSION SYSTEMS
16	R13	AI TECHNIQUES

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DEPARTMENT OF MECHANICAL ENGINEERING

1.3.2 Name and Average percentage of courses that include experiential learning through project work/field work/internship during last five years (10)

Department: Mechanical Engineering

Academic Year: 2018-19

S.No.	Regulation (R13/R16)	Name of subjects referred from total number of subjects
1	R16	Metallurgy & Materials Science
2	R16	Mechanics of Solids
3	R16	Thermodynamics
4	R16	Fluid Mechanics & Hydraulic Machines
5	R16	Kinematics of Machinery
6	R16	Thermal Engineering -I
7	R16	Production Technology
8	R16	Design of Machine Members -I
9	R16	Industrial Engineering and Management
10	R13	Dynamics of Machinery
11	R13	Metal Cutting & Machine Tools
12	R13	Design of Machine Members–I
13	R13	Instrumentation & Control Systems
14	R13	Thermal Engineering -II
15	R13	Metrology
16	R13	Operations Research
17	R13	Design of Machine Members– II
18	R13	Robotics
19	R13	Heat Transfer
20	R13	Industrial Engineering Management
21	R13	Refrigeration & Air-conditioning
22	R13	Automobile Engineering
23	R13	CAD/CAM
24	R13	Finite Element Method
25	R13	Unconventional Machining Processes
26	R13	MEMS
27	R13	Power Plant Engineering

HOD

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Electronics and Communication Engineering

1.3.2 Name and Average percentage of courses that include experimental learning through Project work/Field work/Internship during last five years.

Department: Electronics and Communication Engineering. **Academic Year: 2018-19**

Sl. No.	Regulation	Name of the subjects referred from total no. of subjects
1	R16	ELECTRONIC DEVICES AND CIRCUITS
2	R16	SIGNALS AND SYSTEMS
3	R16	NETWORK ANALYSIS
4	R16	ELECTRONIC CIRCUIT ANALYSIS
5	R16	CONTROL SYSTEMS
6	R16	ELECTROMAGNETIC WAVES AND TRANSMISSION LINES
7	R16	PULSE AND DIGITAL CIRCUITS
8	R16	ANTENNAS AND WAVE PROPAGATION
9	R16	COMPUTER ARCHITECTURE AND ORGANIZATION
10	R16	LINEAR IC APPLICATIONS
11	R16	DIGITAL I C APPLICATIONS
12	R16	MICROPROCESSORS AND MICROCONTROLLERS
13	R16	MICROWAVE ENGINEERING
14	R16	VLSI DESIGN
15	R16	DIGITAL SIGNAL PROCESSING
16	R16	BIO MEDICAL ENGINEERING
17	R13	DIGITAL IMAGE PROCESSING
18	R13	RADAR SYSTEMS
19	R13	COMPUTER ARCHITECTURE AND ORGANIZATION
20	R13	OPTICAL COMMUNICATION
21	R13	CELLULAR MOBILE COMMUNICATION
22	R13	EMBEDDED SYSTEMS
23	R16	CPLD AND FPGA ARCHITECTURES AND APPLICATIONS
24	R16	EMBEDDED SYSTEM DESIGN
25	R16	LOW POWER VLSI DESIGN
26	R16	DSP PROCESSORS AND ARCHITECTURES ELECTIVEIII

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DEPARTMENT OF COMPUTER SCIENCE ENGINEERING

Department: Computer Science Engineering

Academic Year: 2018-19

S. No.	Regulation (R13/R16)	Name of Subjects Referred from total number of Subjects
1	R16	Computer Programming
2	R16	Object Oriented Programming Through c++
3	R16	Python Programming
4	R16	Data Structures Through c++
5	R16	Computer Graphics
6	R16	Software Engineering
7	R16	Java Programming
8	R16	Advanced Data Structures
9	R16	Python Programming
10	R16	Unix Programming (Common to CSE- IT)
11	R16	Object Oriented Analysis and Design using UML
12	R16	Operating Systems (Common to CSE- IT)
13	R16	Computer Networks
14	R16	Data Warehousing and Mining
15	R16	Design and Analysis of Algorithms
16	R16	Software Testing Methodologies
17	R16	Internet of Things
18	R13	Cryptography and Network Security
19	R13	UML and Design Patterns
20	R13	Mobile Computing
21	R13	Software Testing Methodologies
22	R13	Cloud Computing (common to ece & cse)
23	R13	Distributed Systems (common to cse & it)
24	R13	Hadoop and Big Data

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DEPARTMENT OF MANAGEMENT STUDIES

Academic Year: 2018-19

S.No.	Name of Regulations	Name of Subjects Referred from total number of subjects
1	R16	Financial Management
2	R16	Human Resource Management
3	R16	Marketing Management
4	R16	Production and Operations Management
5	R16	Leadership Management
6	R16	Compensation and Reward Management
7	R16	Performance Management
8	R16	Security Analysis & Portfolio Management
9	R16	Banking and Insurance Management
10	R16	Advance Management Accounting
11	R16	Strategic Financial Management
12	R16	Consumer Behavior
13	R16	Retail Management
14	R16	Customer Relationship Management
15	R16	Labor Welfare & Legislation
16	R16	Management of Industrial Relations
17	R16	Financial Markets and Services
18	R16	Global Financial Management
19	R16	Risk Management
20	R16	Tax Management
21	R16	Services Marketing
22	R16	Promotional Distribution Management
23	R16	Global Marketing Management
24	R16	Supply Chain Management

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DEPARTMENT OF CIVIL ENGINEERING

Academic Year : 2019-2020

S.No	Year	Subject	Year	Regulation
1	2019-2020	Surveying	II	R16
2	2019-2020	Concrete Technology	II	R16
3	2019-2020	DDRCS	III	R16
4	2019-2020	Transportation Engineering	III	R16
5	2019-2020	Environmental engineering	III	R16
6	2019-2020	Environmental engineering II	IV	R16
7	2019-2020	Construction technology and management	IV	R16
8	2019-2020	Estimation Specifications and contracts	IV	R16

Head of the Department

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Bakkannapalem Village, Madhurawada Post, Visakhapatnam – 530 048

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

1.3.2 Average percentage of courses that include experiential learning through project work/field work/internship

Department: Electrical and Electronics Engineering **Academic Year:** 2019-20

Sl. No.	Name of Regulation	Name of Subjects referred from total number of Subjects
1	R16	ELECTRICAL MACHINES-I
2	R16	ELECTRICAL MACHINES-II
3	R16	CONTROL SYSTEMS
4	R16	POWER SYSTEMS-I
5	R16	POWER SYSTEMS-II
6	R16	RENEWABLE ENERGY SOURCES
7	R16	POWER ELECTRONICS
8	R16	MICRO PROCESSORS AND MICRO CONTROLLERS
9	R16	UTILIZATION OF ELECTRICAL ENERGY
10	R16	POWER SYSTEM OPERATION & CONTROL
11	R16	SWITCHGEAR AND PROTECTION
12	R16	INSTRUMENTATION
13	R16	HVDC TRANSMISSION
14	R16	ELECTRICAL DISTRIBUTION SYSTEMS
15	R16	FLEXIBLE ALTERNATING CURRENT TRANSMISSION SYSTEMS

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Principal

PRINCIPAL
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Visakhapatnam

IOT BASED SMART CAR PARKING SYSTEM

USING ARDUINO

A project report submitted in partial fulfilment of the

requirement for the award of the degree in

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE & ENGINEERING

Submitted by

L. Kavitha	**(18NR1A0570)**
P. Madhuri	**(18NR1A0591)**
M. Praveen	**(18NR1A0580)**
S. Karthik	**(19NR5A0505)**

Under the esteemed guidance of

Mr. P. JOSHUA RAJU

Assistant Professor

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

BABA INSTITUTE OF TECHNOLOGY AND SCIENCES

(Affiliated to JNTUK, Approved by A.I.C.T.E)

P M Palem Visakhapatnam Dist-530048

(2018-2022)

Department of Computer Science & Engineering

BABA INSTITUTE OF TECHNOLOGY& SCIENCES

Affiliated to JNTUK, Approved by A.I.C.T.E,

BONAFIDE CERTIFICATE

This is to certify that the project entitled "**Smart Car Parking System**" is a bonafide record of the work done by **L. Kavitha(18NR1A0570), M. Praveen(18NR1A0580), P. Madhuri(18NR1A0591), S. Karthik (19NR5A0505),** under the supervision and guidance of **Mr. P. Joshua Raju Assistant Professor** in partial fulfilment of the requirement for the award of Bachelor of Technology in Computer Science from Baba Institute of Technology & Sciences, (Affiliated to JNTUK), under the guidance of supervision. The results embodied in this report have not been submitted by any other University for the award of degree.

Project Guide

Mr. P. Joshua Raju

Assistant professor

Department of CSE

Head of the Department

Mr. S. Durga Prasad

Associate professor

Department of CSE

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External Examiner

ABSTRACT

Smart car parking project aims at providing a confusion free and easy parking. This project helps the drivers of the cars to park their vehicles with minimum wastage of time with accurate information of the availability of the space to park It includes an Arduino Uno as the microcontroller unit to which the servo motors, LCD display IR sensors are interfaced. The LCD displays the availability of the space, the IR sensors keeps the check of the number of cars entering and exiting the parking space. The IR sensors detect the availability of the parking space.

In the early times the concept of smart cities has gained great popularity. The proposed Smart Parking system consists of an on-site deployment of an IOT module that is used to monitor and signalize the state of availability of single parking space. This paper introduces an IOT based coordinated framework for efficient and easy way of parking the vehicles by checking the availability of slots. The proposed Smart Parking framework comprises of an IOT module that iutilized to screen and signalize the condition of accessibility of single parking spot. The paper additionally depicts an abnormal state perspective of the framework engineering. Towards the end, the paper examines the working of the framework in type of an utilization case that demonstrates the rightness of the proposed show. The Infrared Range Detection Sensor is utilized with Arduino to indicate the empty slot. By measuring the distance using IRsensor drivers are able to find the empty slot in parking to park the car and help the driver to find the slot easily and reduce the searching time. As the parking place is found to be empty itis detected using IR sensors which report it further. We achieved this by programming the sensors and Arduino.

Chapter-6
CONCLUSION

Automation is a step in the right direction for a future fulfilled in the world of transportation. This design provides an effective solution to the common problem discussed. The smart car parking system was designed, fabricated and tested which provided accurate results when the threshold distance was calibrated and the obstruction was detected. The switching of LEDs based on the vehicle in the parking space was instantaneous based on no vehicle and vehicle detected. The design is flexible and can be altered based on the space available and can be installed even in tight and constrained space. Based on the number of Yellow LEDs detected a common information board is displayed indicating the count of parking spaces available. It can be concluded that with correct connection of some simple electrical components, it is possible to create an automatic smart car parking system, thus decreasing aimless driving, fuel and time, as well as making the process of parking considerably simpler.

Our project detects the empty slots and helps the drivers to find parking space in unfamiliar city. The average waiting time of users for parking their vehicles is effectively reduced in this system. The optimal solution is provided by the proposed system, where most of the vehicles find a free parking space successfully. Our preliminary test results show that the performance of the Arduino UNO based system can effectively satisfy the needs and requirements of existing car parking hassles thereby minimizing the time consumed to find vacant parking lot and real time information rendering. This smart parking system provides better performance, low cost and efficient large scale parking system. When car enters the parking area, the driverwill park the car in the nearest empty slot when slot is occupied the LED light glows and whenslot is empty LED lights are turned off chromatically indicating that the parking slot is empty to be occupied. It also eliminates unnecessary travelling of vehicles across the filled parking slots in

FOOD WASTAGE REDUCTION MOBILE APPLICATION

A Project Report Submitted in Partial Fulfillment of the Requirements for the Award of the Degree of

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE AND ENGINEERING

by

B. Vamsi	**(18NR1A0513)**
D. Sai Laxmi	**(18NR1A0524)**
G. Shalini	**(18NR1A0529)**

Under the esteemed guidance of

MR K S N MURTHY

Assistant Professor

Department of Computer Science and Engineering

BITS-VIZAG

BABA INSTITUTE OF TECHNOLOGY AND SCIENCES

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P.M. PALEM, MADHURWADA

VISAKHAPATNAM-530048

(2018-2022)

BITS VIZAG

BABA INSTITUTE OF TECHNOLOGY AND SCIENCES

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that the project work entitled **"FOOD WASTAGE REDUCTION MOBILE APPLICATION"** is bonafide work done by **B. VAMSI (18NR1A0513), D.SAI LAXMI (18NR1A0524), G. SHALINI (18NR1A0529)** during the year 2018-2022 in partial fulfillment of the requirements for the award of the degree of **BACHELOR OF TECHNOLOGY** from **BABA INSTITUTE OF TECHNOLOGY AND SCIENCES**, Affiliated to J.N.T.U. Kakinada, P.M. Palem, Madhurwada, Visakhapatnam.

Project Guide

Mr. K S N Murthy

Assistant Professor

Head of the Department

Mr. S. Durga Prasad

Associate Professor

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EXTERNAL EXAMINER

Abstract

This project is used to manage wastage foods in a useful way. Every day the people are wasting lots of foods. So, we have to reduce that food wastage problem through online. If anyone has wastage food, they are entering their food quantity details and their address in that application and then the admin maintains the details of food donator. The donator can create the account and whenever they are having wastage food, they can login and give request to the admin. And the admin also maintains the buyer (orphanage, poor people...) details too. After the admin view the donator request and give the alert message like time to come and collect the food. And the admin collects food from donator through their nearby agent then provide to nearest orphanages or poor people. After receiving the food from the agent by admin and give alert message to that donator. If the donator needs any detail about the orphanage with helping thought they can give request to the admin and collect the orphanage details. This project is food redistribution is an enormously successful social innovation that tackles food waste and food poverty. The user's details are maintained confidential because it maintains a separate account for each user.

7 Conclusion

The proposed application shall reduce food wastage of needy organizations.

As mentioned above in the description there is a lot of food wastage that occurs daily at restaurants and cafes. Instead of throwing away the same as trash (which usually is the scenario), it can be used to feed the homeless. Also, since the pickup is arranged for by the enterprise, the restaurants/cafes need not worry about it. Benefiters will be both the restaurants/cafés (reducing the carbon footprint and wastage), and the needy.

Prediction of Diabetes using Machine Learning Algorithms

A Project report submitted in partial fulfillment of the requirements for

the award of the Degree

Bachelor of Technology

In

Computer Science and Engineering

Submitted By

D. SRIYA RANI	**(18NR1A0525)**
B. RIBKA RANI	**(18NR1A0512)**
Y. JAGADEESH	**(18NR1A0540)**

Under the Esteemed guidance of

Ms. S. SAMYUKTA

(Assistant Professor)

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

(Approved by A.I.C.T.E and Affiliated to JNTU, Kakinada)

P. M. PALEM, MADHURAWADA, VISAKHAPATNAM

(2018-2022)

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BABA INSTITUE OF TECHNOLOGY AND SCIENCES

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

CERTIFICATE

This is to certify that this project work entitled **"PREDICTION OF DIABETES USING MACHINE LEARNING ALGORITHMS"** is being submitted by D. SRIYA RANI (18NR1A0525), B. RIBKA RANI (18NR1A0512), Y. JAGADEESH (18NR1A0540) in partial fulfillment of the award of degree "BACHELOR OF TECHNOLOGY" in COMPUTER SCIENCE & ENGINEERING, from BABA INSTITUTION OF TECHNOLOGY AND SCIENCES(Affiliated to J.N.T.U. Kakinada), P.M.Palem, Madhurawada,Vishakapatnam, during the year 2018-2022.

S. Samyukta

Project Guide

Ms. S. Samyukta
Assistant Professor
Department of CSE

Head of the Department

Mr. S. DURGA PRASAD
Associate Professor
Department of CSE

EXTERNAL EXAMINAR

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ABSTRACT

Glucose, or commonly called sugar, is an important energy source that is needed by all the cells and organs of our bodies. Excessive growth of blood sugar or glucose levels above the desired level on a sustained basis leads to diabetes. People undergo blood sugar tests to diagnose diabetes. In the field of human health, Computer vision plays a major role by reducing human judgment and providing accurate results. The primary aim of this research is to provide a better classification of diabetes. In thismanuscript, we focus on studying the comparative analysis of algorithms to enhance the accuracy of the prediction model using machine learning techniques. We used the "Pima Indians Diabetes Dataset" Standard which was supported by the UCI machine learning repository. Feature selection is performed to increase the potentiality of the dataset. Algorithms like Random Forest, Naïve Bayes, K-Nearest Neighbors (KNN) and Logistic Regression and voting classification are applied on the dataset to evaluate the performance of the model.Evaluation metrics like Precision, Recall, Specificity and mean absolute error for each model are calculated to suggest the best classifier for the sample dataset. Waikato environment for knowledge Analysis toolkit was used to compare the accuracy of the model. Cross-Validation is performed to generalize accuracy. The conclusion depicts an accuracy of 80.1% in the case of the Voting Classifier algorithm. Thus, the work seems to be beneficial for predicting diabetes.

KEYWORDS: Diabetes, Machine learning, Classification.

7.Conclusion

To support the lives of the people all over the world, we are trying to detect and prevent the complications of diabetes at the early stage through predictive analysis by improving the classification techniques. Our proposed work also performs the analysis of the features in the dataset and selects the optimal features based on the correlation values. The paper is aimed to provide a model that better classifies the instances of the dataset. Techniques like Data cleaning and Feature selection has helped to improve the potentiality of the dataset. All the Classifiers have achieved an accuracy of above 67%. Logistic Regression and Random Forest has achieved an accuracy of 77% which stands at the top of the order, and Ada Boost has achieved an accuracy of 72%, while Decision Tree has achieved an accuracy of 74.04% which stands at the bottom among all the classifiers. Cross-validation is performed on each combination to get the mean accuracy of each model. Voting Classifier has achieved an accuracy of 80.95% while Logistic Regression has achieved 77%. Apart from Cross Validation, we also used Machine Learning tool kit, in order to make a valid comparison with others' results, it was necessary to conduct this model using the WEKA toolkit and use the same Pima Indian Diabetes Dataset. All the classifiers has achieved better accuracy when compared to WEKA tool. Voting Classifier, Logistic Regression and Random Forest are comparatively better in terms of evaluation metrics like precision, recall, f1 score, and specificity. Voting Classifier has less mean absolute error when compared to other models. By the comparative analysis, we specify Voting Classifier as the best model that fits the dataset concerning the diabetic and non-diabetic persons.

SELECTION OF MODEL STUDENT BY USINGFUZZY LOGIC

A project report submitted in partial fulfillment of the requirement

for the award of the degree in

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE ENGINEERING

By

KOTTAGULLI LOKESH KUMAR

(17NR1A0546)

Under the guidance of
Mr.S.Durga prasad
Associate Professor

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

BABA INSTITUTE OF TECHNOLOGY& SCIENCES

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(2017-2022)

Department of Computer Science & Engineering

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This is to certify that the project entitled "SELECTION OF MODEL STUDENT BY USING FUZZY LOGIC" is a bonafide record of the work done by **KOTTAGULLI LOKESH KUMAR (17NR1A0546)**, under the supervision and guidance of **Mr.S. Durga prasad Associate Professor** in partial fulfillment of the requirement for the award of **Bachelor Of Technology** in **Computer Science** from **Baba Institute of Technology & Sciences**,(Affiliated to JNTUK), under the guidance of supervision. The results embodied in this report havenot been submitted by any other University for the award of degree.

Project Guide

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Department of CSE

Head of the Department

Mr. S. Durga prasad
Associate professor,
Department of CSE

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External Examiner

ABSTRACT

In an educational institution, various student's criteria contributed to the main reason to nominate a model student. This criteria includes Cumulative Grade Point Average (CGPA) of taken academic courses, co-curricular involvement, soft skills (capability to converse effectively in spoken language), attitude (capability to give respect to other members), leadership (capability in handling team members), hard work (capability to commit the work allocated), time management (capability to manage time effectively), attendance (capability to focus something willingly), technical skill (e.g., programming language) and attire (capability to display better hygiene and individual grooming) in order to formulate the selection decision. Application of fuzzy logic has been progressively recognized as a decision making tool in estimation and presentation of academic institutions or institute of higher learning. By using fuzzy logic with threads, this system can find the model student in less time.

7. CONCLUSION AND FUTURE SCOPE

Model student selection with less time using threads was proposed in this project. Fuzzy gic system was developed with different input parameters to evaluate the performance of students. he student performance levels were shown in percentage in the results. The graph represents the odel student result. In an educational institution, various student's criteria contributed to the main ason to nominate a model student. This criteria includes Cumulative Grade Point Average (CGPA) taken academic courses, co-curricular involvement, soft skills (capability to converse effectively spoken language), attitude (capability to give respect to other members), leadership (capability in ndling team members), hard work (capability to commit the work allocated), time management ıpability to manage time effectively), attendance (capability to focus something willingly), hnical skill (e.g., programming language) and attire (capability to display better hygiene and lividual grooming) in order to formulate the selection decision. Application of fuzzy logic has en progressively recognized as a decision making tool in estimation and presentation of academic titutions or institute of higher learning. By using fuzzy logic with threads, this system can find the ıdel student in less time.

IOT BASED SMART WATER TANK USING RASPBERRY PI

A project report submitted in partial fulfillment of the requirement for

The Award of the Degree of

Bachelor of Technology in Computer Science and Engineering

Submitted By

Y. Krishna veni	**(18NR1A05B5)**
M. Harsha vardhan	**(18NR1A0579)**
K. Sravani	**(18NR1A0569)**
B. Uma sri	**(18NR1A0561)**

Under the esteemed guidance of

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(Approved by A.I.C.T.E, Accredited by NACC and Affiliated to J. N.T. U, Kakinada)

P. M. Palem, Madhurawada,

Vishakhapatnam

BABA INSTITUTE OF TECHNOLOGY AND SCIENCES

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that this project entitled **"IOT BASED SMART WATER TANK USING RASPBERRY PI"** is a bonafied work submitted by **Y. KRISHNA VENI (18NR1A05B5), B. UMASRI (18NR1A0561), K. SRAVANI (18NR1A0569), M. HARSHA VARDHAN (18NR1A0579)** in partial fulfilment for the award of degree of **"BACHELOR OF TECHNOLOGY" in COMPUTER SCIENCES AND ENGINEERING,** during the academic year 2018-2022.

M.B. L Prasanna 28/6

PROJECT GUIDE

Ms. M.B. L PRASANNA
Assistant Professor
Department Of CSE

HEAD OF THE DEPARTMENT

Mr. S. DURGA PRASAD
Associate Professor
Department of CSE

EXTERNAL EXAMINER

PRINCIPAL
BABA INSTITUTE OF TECHNOLOGY AND SCIENCES
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ABSTRACT

Water is most important resource in our day-to-day life which should be managed smartly for the human survival. Managing house water supply in a society consisting of water tanks, motors and pumps automatically is the main task involved in efficient consumption of water. The need of removal of these short-comings and providing an efficient and economical solution has been the main focus of this project. There are many ways to conserve water, in this project we choose Internet of Things (IOT) by using Raspberry Pi, where we propose the smart water tank which resolves the issues of shortage and overflow of water by using Water level monitoring and Web Application. The water level in the tank is indicated in the form of fusion graph. An HC-SR04 ultrasonic sensor is placed on the surface of the tank to sense the water level and its dimensions. These dimensions are sent to the web application through web. The Web application has a user interface which displays the tank layout and automatically controls the motor and it indicates the water level in the tank.

CONCLUSION:

Water is one of the most important basic needs for all living beings. According to Wikipedia, 97% water is present in Seas and Oceans. That means only 3% of available water is present as fresh water. Out of this 3%, only 1% of water is available for consumption. But unfortunately, a huge amount of water is being wasted because of uncontrolled use and exploitation of water resource. Some other automated water level monitoring systems are also present, but so far most of the methods have some shortcomings in practice. We tried to overcome these problems and implemented an efficient automated water level monitoring and controlling system. Our intension of this research work was to establish a flexible, economical, easy configurable and most importantly, a portable system which can solve our water wastage problem. We have used ESP and Ultrasonic sensor which reduces cost effectively and makes this project economical. Also, this project doesn't require special different tank for it, existing water tanks can be used. We have successfully implemented this project.

DESIGN OF LOW POWER HIGH SPEED DOUBLE TAIL COMPARATOR USING POWER GATING TECHNIQUES

A project report submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, KAKINADA

In partial fulfillment of the requirements for the award of the degree of

BACHELOR OF TECHNOLOGY

in

ELECTRONICS AND COMMUNICATION ENGINEERING

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2017 - 2021

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

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This is to certify that the project work entitled " Design of low power high speed double tail comparator using power gating techniques " is a bonafide record of work done by **G.GOWTHAMI (Regd.No. 18NR5A0406), CH.AKHIL (Regd.No. 18NR5A0404), CH.ANUSHA (Regd.No.17NR1A0407), CH.DEVI SIRISHA (Regd.No.18NR5A0403)** under the supervision of **Ms. T. KAVYA RAVALI , M. Tech.,** Assistant professor for the partial fulfillment for the award of the degree of **BACHELOR OF TECHNOLOGY** in Electronics and communication Engineering at **Jawaharlal Nehru Technological University, Kakinada** during the academic year 2017 – 2021.

PROJECT GUIDE

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EXTERNAL EXAMINER

ABSTRACT

High speed devices such as ADC, operational amplifier are of great importance and for this high speed application a major thrust is given towards low power methodologies. Reduction of power consumption in this device can be achieved by towards smaller feature size processes. Comparator is one of the fundamental building blocks in most analog to digital converters. Many high speed analog to digital converters such as flash analog to digital converter require high speed and low power comparators. A moving double tail comparator is designed, where the circuit of a conventional double tail comparator is modified for low power and fast operation even in small supply voltages. Without complicating the design and by adding few transistors the positive the time feedback new during regeneration is strengthened which results in remarkably reduced delay time. For reducing the delay and power consumption by using proposed dynamic comparator.

CONCLUSION

In this thesis, the comparator circuits for high-speed ADCs have been investigated. The comparator circuits are mainly optimized for the low propagation time, minimal input referred offset voltage, low power consumption and minimal circuit area. The proposed fine grain double tail comparator, which shows low power consumption and low propagation time.

The minimal propagation time delay of 80 ns, and power consumption of 4.19 uw is achieved by the proposed fine grain double tail comparator. These results show that power has been reduced. Thus proposed comparator are optimized in such a way that it shows low power and low input propagation time, which is suitable for high-speed ADCs.

REMOTE PATIENT HEALTH MONITORING USING IOT

A project report submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, KAKINADA

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EXTERNAL EXAMINER

ABSTRACT

Covid-19 had taken the lives of people and challenged the human existence. the requirement fora well-equipped and efficient monitoring system has risen. Patients are need to be monitored continuously in order to analyze the body parameters accurately.in general, moist of the hospitals, use manual inspection in order to collect the records of patient condition, this involves same disadvantages like long measurement time, low monitor precision and development of more man power. The need of a wireless system is essential and this project is the one.it is capable of measuring the basic health parameters like temperature, heartbeat, ECG, respiratory rate.it uses a wireless internet base connection to transmits the information.

Chapter 6

CONCLUSION

Internet of things technology is in its starting face but it have potential to impact human healthcare and associated market at a massive scale. Due to high speed internet access and advanced sensor technology it is possible to track human and other objects. Researcher have start to discover many technological solutions to improve healthcare system. This paper offers deeper insights of Internet of things based healthcare applications ,enabling technologies , current challenges and issues of healthcare.

For the perfect efficiency of usage of sensors arduino ATMega should be used,where as this is a prototype that we have made we used only arduino uno

This prototype can be efficiently used in case of pandemics as we have been experiencing now as COVID-19 where we can monitor patients health by maintaining social distancing and observing patients conditions with the help of IOT and providing necessary information for the better health of the individual.

This can further be implemented in Intensive care units and ambulances

A NOVEL TECHINQUE OF MOSAIC IMAGE TRANSMISSION FOR SECURE DATA TRANSFER

A project report submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, KAKINADA

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This is to certify that the project work entitled "A Novel Technique of Mosaic Image Transmission for Secure Data Transfer" is a bonafide record of work done by **K.SWARNALATHA (Regd.No.17NR1A0420), B.BARGAVI (Regd.No.17NR1A0405), P.SOWMYA (Regd.No.17NR5A0428), P.MANIKANTA SWAMY (Regd.No.18NR5A0411)** under the supervision of **Mr. A. SATYANARAYANA, M. Tech.,** Assistant professor for the partial fulfilment for the award of the degree of **BACHELOR OF TECHNOLOGY** in Electronics and communication Engineering at **Jawaharlal Nehru Technological University, Kakinada** during the academic year 2017 – 2021.

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EXTERNAL EXAMINER

ABSTRACT

In recent years, with the evolution of computer and Internet technology, images are widely used to convey information. The wide usage of images in various applications includes medical systems, confidential military archives, enterprises and storage systems. Security is the major issue while transmitting images through internet where hacking of confidential data may take place. Transfer of images from one place to another may contaminate the image information, so new methodology is derived to eliminate noise and to recover the secret image nearly lossless.

It transmits images in a secure manner, in which the secret image is transformed into a same sized meaningful mosaic image. The obtained mosaic image, which is identical to the cover image and used as disguise of secret image, is obtained by segmenting the secret image into tiles and their color characteristics are transformed to that of the cover image blocks. Noise may affect the mosaic image while transmitting it to receiver in free space. In this project, we propose a skilful approach where the external noise is suppressed using a novel effective transformation technique. The secret image recovery is based on the information embedded in the transmitted mosaic image using data hiding approaches.

Keywords: *Mosaic image, color transformations, denoising, de-mosaicing and transformation techniques.*

CHAPTER-7

CONCLUSION

The proposed technique is a novel approach of mosaic image transmission for secure data transfer in a meaningful manner and the confidential information can be transmitted in a secure way.

The proper usage of pixel based color transformations provides mosaic image which is alike to the selected cover image without the need of cover image data base. The amount of noise, which is added at the medium, is suppressed to the maximum extent by using Improved S-transform technique effectively. Various metrics are calculated and compared with numerous noises and several transforms.

We can deduce that improved S-Transform gives better experimental results for various noises among other transforms. This work can be extended to other color models using various noises and advanced transform techniques.

IOT BASED GARBAGE MONITORING SYSTEM USING ARDUINO

A project report submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, KAKINADA

In partial fulfillment of the requirements for the award of the degree of

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EXTERNAL EXAMINER

ABSTRACT

The aim is to cover all the rural and urban areas of the country to present this country as an ideal country before the world. With the proliferation of Internet of Things (IoT) modules such as smart phones, sensors, cameras. It is possible to collect massive amount of garbage. In the metropolitan cities it is not possible to check each and every place where the garbage dump yard is full or not. So we have introduced a new concept using load cell. This is a sensor which intimates about the load placed on it. So that the garbage can also be checked in this way. Here we are using Ardinao as our controller. A threshold value is set in the controller. Controller will monitor the status load cell. When that value is met then an intimation will be sent to the officials through IoT about the over load and also to clear the garbage as soon as possible.

Chapter 6

CONCLUSION

Internet of things technology is in its starting face but it have potential to impact human health care and associated market at a massive scale.

Due to high speed internet access and advanced sensor technology it is possible to track human and other objects.

We built an efficient garbage monitoring system which can be used to monitor the level of garbage in the dump. This data can be further used to plan garbage collection trips more efficiently, ultimately reducing overflowing bins and helping have better public sanitation.

Development of application for city administrations, municipal staff.

IOT based garbage monitoring system is a very innovative system which will help to keep the cities clean.

Advantages:

Very simple circuit.

The HCSR04 sensor is very rugged. Helps

Monitor garbage levels.

Uses very small amount of ectricity.

Ultimately helps in better planning of garbage pickups. Can

help in reducing overflowing bins.

Reduces trips to areas where the bins still have a lot of capacity.

Disadvantages:

Cannot detect liquid waste.

Only detects the top of the garbage level. It wouldn't realize if there is space left.

GSM module needs a 12v source.

STATIC POWER DISSIPATION BY USING BIASING AND BODY BIASING TECHNIQUES

A project report submitted to

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ABSTRACT

The VLSI design of an efficient integrated circuit in terms of power, area, and speed simultaneously, has become a very challenging problem. Power dissipation is recognized as a major problem in modern VLSI design. The market of portable, battery operated computing devices has grown rapidly in recent years and so the need for energy efficient design. The mobile computing devices are inactive for a long time and active only for a brief amount of time. So during the inactive state, the devices keep consuming certain power which is dominated by the leakage power consumption of all the components.

Various methods have been existed to reduce the leakage power like Power Gating Architecture and Multimode Power Gating Architecture. A Power Gating Architecture was presented to support Multiple Power-off modes and reduce the leakage power during short periods of inactivity. However, this scheme suffers from high wakeup time. Recently, a Multimode Power Gating method is used where the wake up time is reduced than the Power Gating Architecture method but the leakage power increases. To reduce static power reduction use low supply voltage and low threshold voltage without losing speed performance. The drawback in Multimode Power Gating method is increase in delay.

I proposed a the Body Biasing method that can be combined with Multimode Power Gating method to offer further Static Power Reduction benefits in Standby mode. The Body Biasing requires less design effort and offers greater leakage power reduction than the Multimode Power Gating method. Analysis and extensive simulation results demonstrate the effectiveness of the Body Biasing design.

6.5 CONCLUSION

In this project the existing method is Multimode Power Gating method, the power dissipation values obtained in Snore Mode, Dream Mode, Sleep Mode are 25µw, 35.31µw, 35.31µw.The power dissipation values obtained in Standby mode are higher. So a Body Biasing method is proposed.

The proposed method, **Body Biasing method** offered the advantage of simplicity. It is very simple and all-digital, and it is minimally sized since it consists of only a single small transistor for each power off mode. . A reconfigurable version of this method can be used to increase the manufacturability It requires significantly less area and **consumes much less power** than the previous Multimode Power Gating method.

The Power Dissipation values for the Body Biasing method are much smaller than that of the Multimode Power Gating method in the Snore Mode, Dream Mode and Sleep mode of nearly **10.07µw, 20.15µw, and 26.75µw**. Hence the Body Biasing method is preferred to achieve low Power Dissipation in circuits for longer battery life.

DESIGN AND IMPLEMENTATION OF A SMART AND PORTABLE WIRELESS FM TRANSMITTER FOR WIDE RANGE COMMUNICATION

A project report submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, KAKINADA

In partial fulfilment of the requirements for the award of the degree of

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2018 - 2022

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(2018-2022)

EVALUATION SHEET

Title of the Project: **Design and Implementation of a Smart & Portable Wireless FM Transmitter for Wide Range Communication**

Submitted by

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ABSTRACT

The evolution of smart technologies makes end users to choose portable, cost effective and reliable devices for their daily life of usage. The optimum service and superior quality of any such devices are always remain the centres of attraction for any customer. The advent of new technologies gives the smart FM transmitters also a unique shape. Depending on the dynamic requirements, the customer needs always changes with time. Keeping this fundamental issue in mind, in this work we have designed and implemented a smart FM transmitter model keeping the key features in mind. Its small size, long battery life, and easy portability make it very useful to be used in day-to-day life. It has the potential of real time noise cancellation features to get the optimum sound quality at the receiver end.

The Digital Frequency Modulation scheme has been used here to boost the signal strength for long range communication. The used components are very cost effective and reliable for prolonged use. The test case has given high quality sound reception at the receiving end from the source end using our model. This smart transmitter section model has been found to be very effective for the future digital communication system. The specific station catching ability and low tone scanning capability make it superior to other existing similar kinds of devices. It can be used at home, or institutional premises, or any other distant trials for effective information exchange.

Key words: Frequency modulation, Digital Communication, Transmitter, Receiver, noise cancellation, FM Transmitter.

CONCLUSION

This prototype is meant for the wireless transmission of Frequency Modulated signal from one place to another with a limited but wide distance separation. This entire setup is checked under a fixed local region without hampering the general standard FM stations available in our common communication networks. As no licensed band has been allocated here, so the trial frequency has been kept at some intermediate frequency between the FM band region and that can be manually set with the helpof the trimmer capacitor depending upon the user requirements. Since RF circuits are highly prone to noise, special care has been taken to suppress any such noise by including high- frequency capacitive filters. While tuning the transmitter with any FM radio, the absolutely silent spot is at the frequency of the transmitter. Alternatively, one can put the FM radio at a particular frequency and then start tuning the transmitter and stop it when a clear reception is heard. The detailed test case analysis has proven the effective application of our model, andin the future, it would be helpful to design smart broadcasting elements.

Design & Implementation of Wideband 4-Element Cavity Backed Substrate Integrated Waveguide Antenna

A project report submitted to

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in

ELECTRONICS AND COMMUNICATION ENGINEERING

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(Approved by AICTE, New Delhi & Affiliated to JNTU, Kakinada, A.P)

Bakkanapalem (V), Madhurawada, VISAKHAPATNAM – 530048

2018-2022

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This is to certify that the project work entitled **"Design & Implementation of Wideband 4-Element Cavity backed Substrate Integrated Waveguide Antenna"** is a bonafide record of work done by **Miss.N.Srija (Regd.No.18NR1A0448), Mr.R.Ramesh (Regd.No.19NR5A0408), Miss.P.Gayathri (Regd.No.18NR1A0455) and Miss. U.Malliswari (Regd.No.18NR1A0475), Miss.S.Spandana (Regd.No.18NR1A0467)** under the guidance of **Mr. M.Ravi Kishore, M. Tech.,(Ph.D),** Associate professor for the partial fulfillment for the award of the degree of **Bachelor of Technology** in Electronics and communication Engineering at **Jawaharlal Nehru Technological University, Kakinada** during the academic year **2018 – 2022.**

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Title of the Project: Design and Implementation of Wideband 4-Element Cavity Backed Substrate Integrated Waveguide Antenna

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Abstract

High quality factor, high power handling capability, closed construction and high degree of elimination of surface waves made the Cavity Backed Substrate Integrated Waveguide (CBSIW) antennas more popular for Microwave applications including IoT, Lower 5G and smart vehicular applications. A two layer 4-element cavity backed SIW antenna array with aperture coupled feed for microwave wide band applications is proposed in this paper. The system on Substrate (SoS) supportable SIW construction with novel combination of wider bandwidth and wide beam steering characteristics has been discussed. The proposed characteristics can be achieved by properly incorporating the partial circular shaped elements with optimum spacing in a single cavity fed with aperture coupled mechanism. A four channel SIW based divider is designed to achieve proper impedance matching and optimum power distribution to the channels.

In this project, a 4-element cavity backed substrate integrated waveguide (SIW) antenna with wideband characteristics has been proposed. Four semi-circular shaped elements with aperture coupled feed supported by a four-channel wave guide feed section are introduced in a single element. The antenna supports the radiation characteristics of required resonant frequencies with wide band width and efficiency. The proposed 4-element antenna can be operated from 4.6GHZ to 9.7GHZ and produce wide beam radiation pattern. The proposed antenna is simulated, optimized and analyzed using HFSS (High frequency structure simulator) software. The simulation results of the SIW antenna will be compared and validated using microwave testing facilities. The proposed antenna is promising to be embedded within the different devices employing in IOT, WI-FI and wide band microwave communication applications.

5. Conclusion

6.1 Conclusion:

In this present work, a wideband Substrate Integrated Waveguide antenna using FR4 epoxy substrate has been designed. The proposed two layer antennas is simulated, optimized and analyzed using HFSS (High Frequency Structure Simulator) software version 15.0. The performance of the designed antenna is analyzed in term of return loss, bandwidth, gain, and radiation pattern. The design was optimized to meet the best possible results.

The impedance and return loss characteristics of the proposed Wideband SIW fabricated prototype is tested using Vector Network Analyzer and the radiation pattern and gain characteristics are measured in anechoic chamber.

The results show that the CBSIW antenna exhibits a wide impedance bandwidth of 71% with the range of 4.4GHz to 9.7GHz and gain of 4.8dB with wide scanning angle of -60^0 to $+60^0$. Due to the observed wide bandwidth and flexible beam scanning characteristics, the proposed antenna is promising to be embedded in lower and medium 5G, Intelligent vehicular and IoT microwave applications.

INTELLIGENT TRAFFIC SIGNALLING PRIORITY SYSTEM FOR EMERGENCY VEHICLES

A project report submitted to

Jawaharlal Nehru technological university, Kakinada

In partial fulfilment of the requirements for the award of the degree of

BACHELOR OF TECHNOLOGY

In

ELECTRONICS AND COMMUNICATION ENGINEERING

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EVALUATION SHEET

Title of the Project: **Intelligent Traffic Signalling Priority System For Emergency Vehicles**

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ABSTRACT

Road traffic congestion becomes a major issue for highly crowded cities. Emergency service vehicles (like: Ambulance, Fire truck) are one of the major services which gets affected by traffic congestion. To smoothen the movement of these vehicles we have come up with the solution of "Intelligent Traffic Control System for Emergency Vehicles". Here the traffic lights and the emergency vehicles are connected wirelessly by RFID (Radio Frequency Identification) technology which has the range of 10 meter and we can increase the range by using other wireless technology like Zigbee. The basic idea behind the proposed system is, if any emergency vehicles halt on the way due to heavy traffic congestion, RFID installed at the traffic signal (Receiver) detects the RFID tagged vehicle (Transmitter) and sends the data to the Arduino NANO microcontroller (ATmega328P). The controller IC used here operates the traffic light according to the received data from receiver. Then the particular signal is made Green for some time, till the vehicle passes by the signal and it regains back to its original flow of signalling sequence. This system sends commands to microcontroller for controlling the traffic lights and reduce delay time in emergency periods. Thus, it acts as a life saver project.

Key Words: Microcontroller, RF Transmitter, RF Receiver, Traffic control.

CONCLUSION

The project "Intelligent Traffic Control System for Emergency Vehicle Using RF Technology" has been successfully designed and tested. In this implementation we have used Radio Frequency Technology. Itis developed with integration of all hardware components. Existence of every module has been examined out and placed carefully thus contributing to the best working of the unit. Secondly, with the benefit of expanding technology using highly advanced IC's the project has been successfully implemented.

FUTURE SCOPE

Further enhancements can be done to the prototype by testing it with longer range RFID modules. At present, we have implemented system by considering one road of the traffic junction. It can be improved by stretching to all the roads in a multi-road junction

CELL PHONE TOWER BASE SATATION SECURITY AND SAFETY SYSTEM

A project report submitted to

Jawaharlal Nehru technological university, Kakinada

In partial fulfilment of the requirements for the award of the degree of

BACHELOR OF TECHNOLOGY

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(2018-2022)

EVALUATION SHEET

Title of the Project: CELL PHONE TOWER BASE STATION SAFETY AND SECURITY SYSTEM

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ABSTRACT

The wireless technology becomes the backbone of the now a days communication system. In wireless communication networks such as Mobile communication, Base Station is a very important part of the entire mobile communication system. The smooth network functioning of base station is necessary to avoid obstacle to the functions of network base transceiver station (BTS), because BTS is centre of all network functionalities such as cell search, calling functionality for the mobile phones. Thus, objective of this paper is to develop a system which detects the faults occurring in the base station and generates alert for the cell site security immediately. These unauthorized activities are fed into a remote user cell phone with the help of GSM modem creating a message instantly. The major problems faced in management of base station includes the stolen of costly equipment, temperature variations, unauthenticated entry and the time management of site security in case of any of the stated problems. This project states the method which makes use of microcontroller to handle various sensors and wireless communication protocol. All sensors will function as the watch guard. The information will be sent to the cell site security via GSM module.

KEYWORDS: GSM, BTS, AURDINO, SENSORS

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CONCLUSION

This project introduces the worthy approaches to protect the Tower Base station and continuous undisturbed operations of Tower base station. Safety Monitoring in the Base station enables site security to remotely monitor the conditions in the tower base transceiver system such as System Temperature, Distance, Unauthorized entry in room, theft of wires. All these problems are solved by implementing the system explained in project. The important part of this project is the GSM based SMS controller which is performing all the monitoring functions which leads to the Greater management of time and require less number of security guards near Base station. With aid of proposed system, the site security is informed with any unexpected problem and they were able attend to it immediately, hence the loss is minimized. The system itself efficiently monitors and controls the BS equipment's to avoid total outage of communication system.

DESIGN AND IMPLEMENTATION OF DUAL BAND CPW ANTENNA FOR IoT APPLICATIONS

A project report submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, KAKINADA

In partial fulfilment of the requirements for the award of the degree of

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Abstract

A coplanar waveguide consists of a strip of thin metallic film on the surface of a dielectric slab with two ground electrodes running adjacent and parallel to the strip. The coplanar configuration of the transmission system not only permits easy shunt connection of external elements in hybrid integrated circuits, but also adapts well to the fabrication of monolithic integrated systems. CPW configuration is well suitable for developing system on substrate for IoT applications.

In this project, a Coplanar Waveguide (CPW) based antenna with two radiating arms surrounded by coplanar ground has been proposed. The proposed antenna posseses a method to minimize the monopole antenna by loading of inverted L-strip over the conventional monopole patch antenna to lower the height of the antenna. The ground was vertically extended toward two sides of the single radiator. Therefore, the large space around the radiator that is usually wasted can be effectively saved. Optimization of lengths and widths of the CPW antenna arms produce better impedance matching, better gain and multiband radiation characteristics. The high gain antenna can be operated for two resonance frequencies namely 3.6 GHz and 5.8GHz with optimum bandwidth with peak gain of 10dB.The proposed antenna is simulated, optimized and analyzed using HFSS (High Frequency Structure Simulator) software. The simulation results of the CPWantenna will be compared and validated using microwave testing facilities. Measured results show a good agreement with simulated results. The prototype with overall size of mm achieves good impedance matching, constant gain, stable radiation patterns. The proposed antenna is promising to be embedded within the different compact devices employing in IoT applications.

5. Conclusion

5.1 Conclusion:

In this present work, a Duel band Coplanar Waveguide antenna (CPW using FR4 epoxy substrate has been designed. The proposed antenna is simulated, optimized and analyzed using HFSS (High Frequency Structure Simulator) software version 15.0. The performance of the designed antenna is analyzed in term of return loss, bandwidth, gain, and radiation pattern. The design was optimized to meet the best possible results.

The impedance and return loss characteristics of the proposed CPW fabricated prototype is tested using Vector Network Analyzer and the radiation pattern and gain characteristics are measured in anechoic chamber. The results show that the high gain antenna can be operated for two resonance frequencies namely 3.6 GHz and 5.8GHz with optimum bandwidth with peak gain of 10dB. The proposed antenna is promising to be embedded within the different devices employing in IoT, WiFi and Vehicular multiband applications.

IOT BASED UNDERGROUND CABLE FAULT DETECTOR

A project submitted in the partial fulfilment of the requirements for the award of the degree of

BACHELOR OF TECHNOLOGY

in

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The results embodied in this thesis have not been submitted to any other University or Institute for the award of any degree or diploma.

27/6/2022

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ABSTRACT

Underground cables are prone to a wide variety of faults due to underground conditions, wear and tear, rodents etc. Also detecting fault source is difficult and entire line is to be dug in order to check entire line and fix faults. So here we propose cable fault detection over IOT that detects the exact fault position over IOT that makes repairing work very easy. The repairmen know exactly which part has fault and only that area is to be dug to detect the fault source. This saves a lot of time, money and efforts and also allows to service underground cables faster. We use IOT technology that allows the authorities to monitor and check faults over internet. The system detects fault with the help of potential divider network laid across the cable.

Whenever a fault gets created at a point shorting two lines together, a specific voltage gets generated as per the resistor network combination. This voltage is sensed by the microcontroller and is updated to the user. The information conveyed to the user is the distance to which that voltage corresponds. The microcontroller retrieves the fault line data and displays over LCD display, also it transfers this data over internet to display online. We use IOT GECKO to develop the online system that links with the system to display the cable

5.1 CONCLUSION

Cables have so many defects that it is difficult to find the defects in these cables. The system uses Arduino Uno to fix an error. Turn up cable. Nowadays in many non-rural areas. the generally, underground cables are used instead of overhead lines. The system uses the Arduino Uno board. The fault is caused by multiple turnouts, and the track fault is displayed on the LCD screen and website

IOT based underground fault detector is used for detecting any flaws in an underground cable system. This system can clearly choose the region where the fault has occurred and can send The co-ordinates to the user as well as displays in the LCD display screen. Henceforth the strategy used in this paper works in a consecutive way and ends up being helpful in discovery and area of deficiencies in underground cables.

Through this project we simplified the actual problem of the detecting the fault in the underground area. We discover the position or location were the fault will be occur and also find the accurate distance of breaker point.

The line to line, single line, line to ground fault in the underground cable is located to rectify the fault efficiently using simple concepts of Ohms law. The work automatically displays the phase, distance and time of occurrence of fault with the help of ATMEGA16 and ESP8266 Wi - Fi module in a webpage.

The benefits of accurate location of fault are fast repair to revive back the power system. it improves the system performance, it reduce the operating expense and the time to locate the faults in the field.

The open circuit fault can be detected using a capacitor in ac circuit which measures the change in impedance and calculate the distance of fault.

5.2 FUTURE SCOPE

The proposed system in this detect only the location of short circuit fault in underground cable line, and also detect the location of open circuit fault, to detect the open circuit fault capacitor used in circuit which measure the change in resistance & calculate the distance of fault. For future research, the system would proceed with similar neural networks structure for different types fault section and fault location estimation.

DESIGN AND SIMULATION OF SLIDING MODE CONTROL FOR BUCK CONVERTER

A Project submitted in the partial fulfilment of the requirements for the award of the degree of

BACHELOR OF TECHNOLOGY

in

ELECTRICAL & ELECTRONICS ENGINEERING

By

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2018-2022

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ABSTRACT

The development and implementation of a sliding mode control for closed loop control of a DC-DC buck converter is presented in this project. We are using SMC type of an Integral sliding mode controller (ISMC). Which is formulated to tackle the poor voltage regulation problem faced during load and supply variations in conventional sliding mode controlled buck converters.

The poor voltage regulation is undesirable as it leads to complications while designing filters for the system. ISMC aims to alleviate this problem through appropriate transformation of the sliding mode control law-making use of pulse width modulation scheme. The control algorithm is validated through detailed simulation studies in MATLAB/Simulink environment.

sliding mode control (SMC) has received much attention due to its major advantages such as stability, robustness against parameter variations, fast dynamic response and simplicity in design. In this present work, sliding mode controller is designed for a buck converter for output voltage regulation. Also, two control schemes of SMC are compared in order to investigate the effectiveness of each scheme.

CHAPTER-VI

RESULTS AND CONCLUSION

. Simulation output for buck converter with conventional SMC

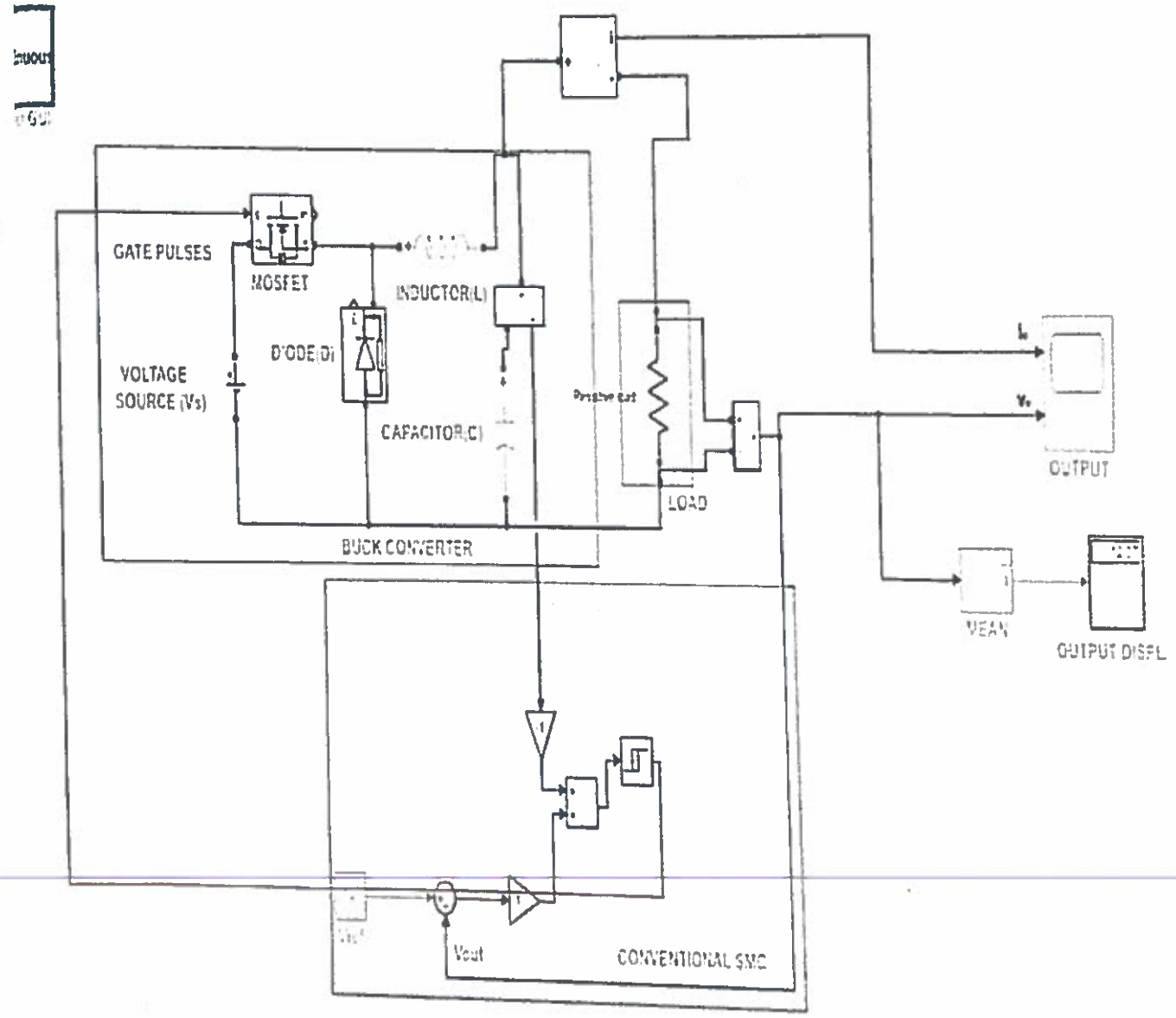

Fig.6.1. Designing of Simulation of Buck Converter with Conventional SMC.

IOT BASED HOME AUTOMATION WITH GAS LEAKAGE SECURITY AND FIRE SAFETY SYSTEM

A Thesis submitted in partial fulfillment of the requirements for the award of the degree of

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ABSTRACT

Switches that control the electricity to these devices are traditionally used to operate electrical equipment in a home. We observe new technology encroaching deeper and deeper into our personal life, even at home, as the globe becomes more and more technologically savvy. Home automation is becoming more and more commonplace and popular all around the world. By employing technology to regulate and carry out tasks that we would typically carry out manually, home automation makes everything in the house automatically controlled. The safety measures should also play an important role.

This project's goal is to use a web browser to operate household appliances utilizing Wi-Fi as the communication channel and a NodeMCU server system and a safety system for gas leakage and fire accidents. In this case, the user will interact directly with the system via a web-based interface, whereas household appliances like lights, fans, etc. are controlled remotely by the Blynk app. Relay hardware circuits that manage the home's running appliances will be interfaced with the server. The relevant relays and the server exchange information. A smartphone application called Blynk has a dedicated server that handles all user queries. Along with this when any abnormal conditions like fire accidents and gas leakages happens the gas sensor and flame sensor sense the abnormal condition and sends signals to the safety system which initiates its appropriate functions like sprinkling water and give alarm.

CHAPTER-6
PROJECT OUTPUT AND CONCLUSION

Results

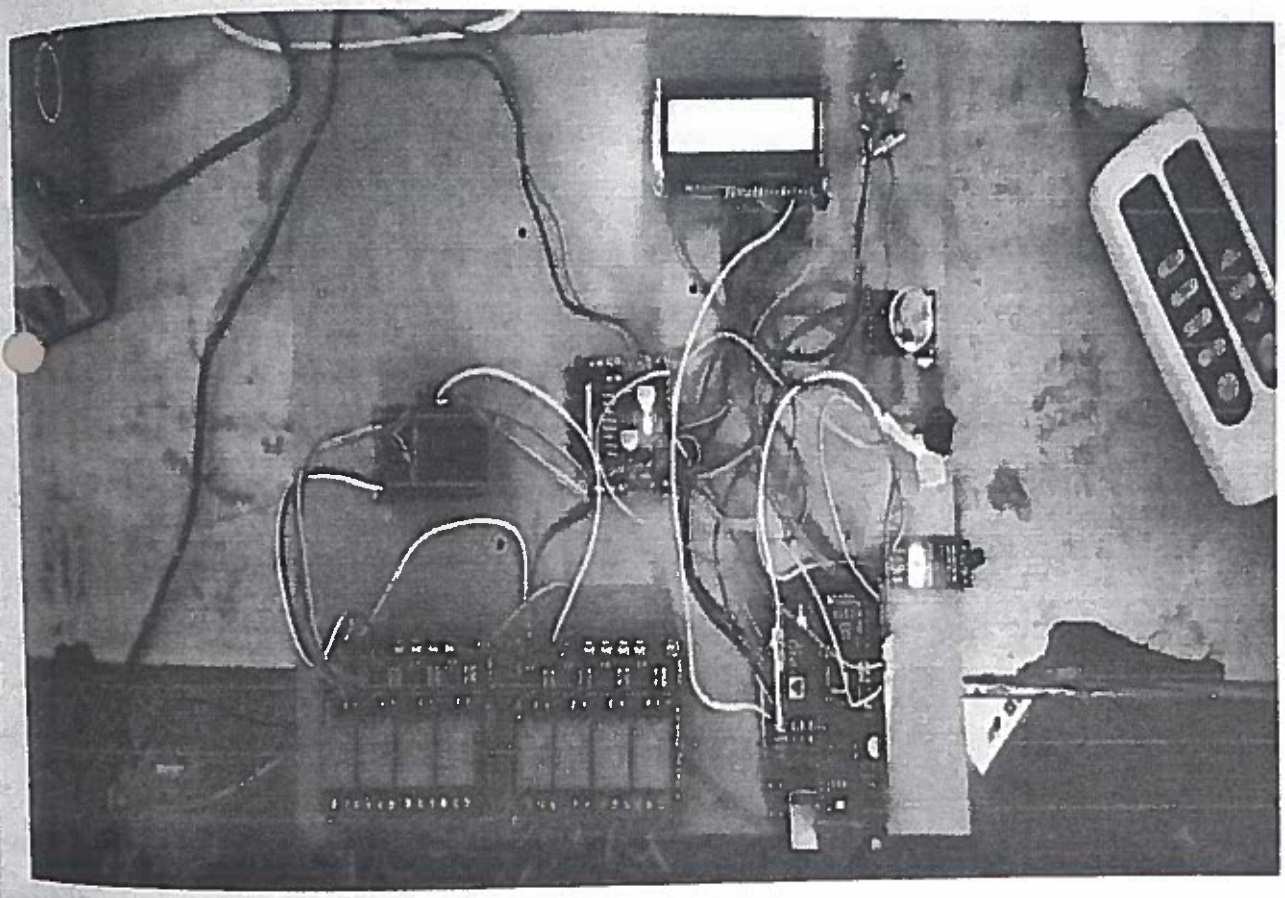
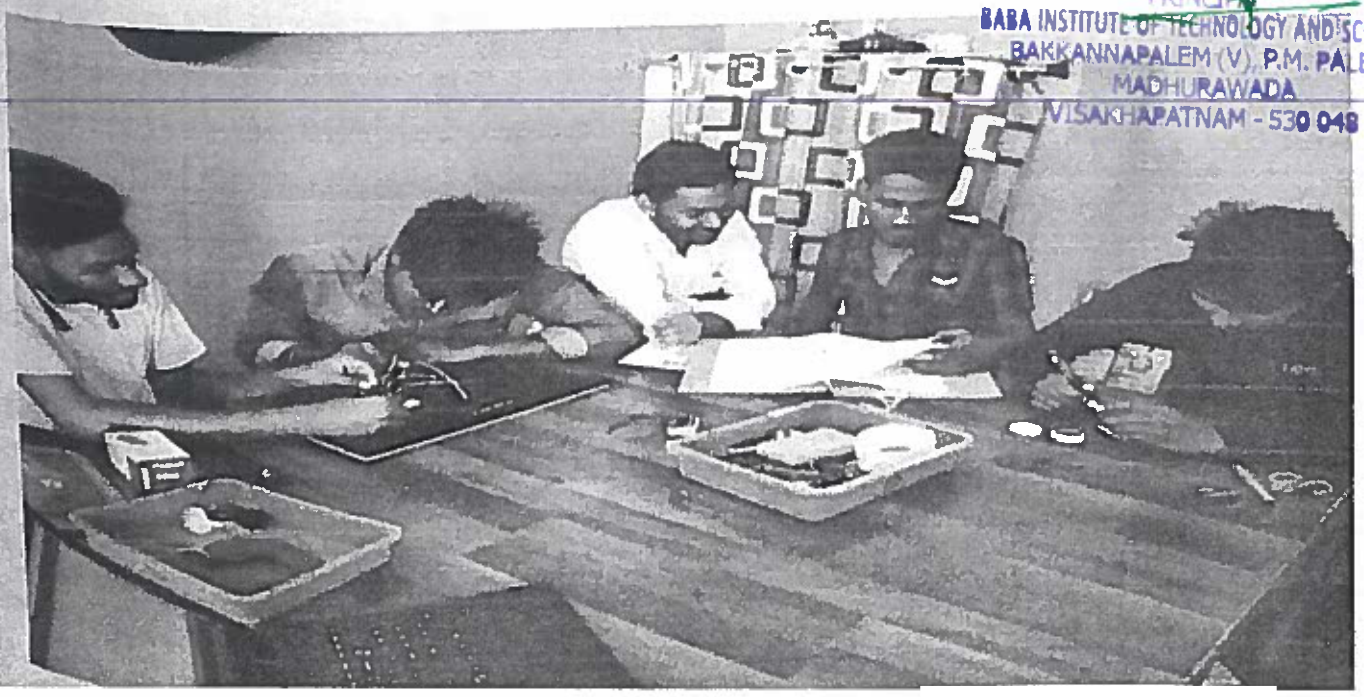


Fig 6.1 Final view of our Project



The experimental model was made according to the circuit diagram and the results were as pected. The loads are switched ON when the NodeMCU gets the signal correctly from Blynk plication and it drives the particular load relay correctly. The loads are switched OFF only when e NodeMCU gets the OFF signal from Blynk application i.e., from the user. The kit is connected to C Supply and this 230V 50HZ will converted into 12V by means of Step-down Transformer. This V is regulated by voltage regulator here NodeMCU needs 5Vto activate similarly relay requires 5v r working. Whenever the user presses an icon in the application the information will be send to odeMCU via Wi-Fi the NodeMCU analyses the received commands and turns ON/OFF of the spective device via relay. When any abnormal condition happens like fire and gas leakage then fire nsor sense fire and give signal to motor to pump or sprinkle water thus, we can protect home from re catch-up. In the same manner if gas is leaked in home the gas sensor senses the gas leakage and end signals to alarm circuit. Thus, we can be alert and take necessary actions to prevent the major roblem.

6.2 Conclusion

Here we have used NODEMCU which has inbuilt Wi-Fi module to control relays locally as well as globally. It is one of the easiest and most pocket friendly home automationcontrol system based on IOT. The project proposes an efficient implementation for IoT (Internet of Things) used for monitoring and controlling the home appliances via World Wide Web. Home automation system uses the portable devices as a user interface. They cancommunicate with home automation network through an Internet gateway, by means of lowpower communication protocols like Zigbee, Blynk and Wi-Fi etc. The user here will movedirectly with the system through a web-based interface over the web. whereas home appliances like lights, fan etc. are remotely controlled through easy website. The server willbe interfaced with relay hardware circuits that control the appliances running at home. The server communicates with the corresponding relays. If the web affiliation is down or the server isn't up, the embedded system board still will manage and operate the appliances domestically. By this we provide a climbable and price effective Home Automation system. As an ad-on to this the security system is very helpful for safeguard the home.

6.3 Future Scope

Future scope for the home automation systems involves making homes even smarter. Homes can be interfaced with sensors including motion sensors, light sensors and temperature sensors and provide automated toggling of devices based on conditions. Home Automation offers a global standard for interoperable products. The sensor technology is also improving day by day. This helps us to more accurate protection to the home as well as we can implement where security is necessary.

ARDUINO BASED MULTI-LEVEL INVERTER

A project submitted in the partial fulfilment of the requirements for the award of the degree of

BACHELOR OF TECHNOLOGY

IN

ELECTRICAL & ELECTRONICS ENGINEERING

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ABSTRACT

This project presents the hardware implementation of the single phase in seven level multilevel inverter using the Cascaded H-Bridge using Separated DC sources. The main objective of this paper is to increases the number of levels with a lower number of switches at the output without adding any complexity to the power circuit. The main advantages of the proposed method are to reduce the Total Harmonic Distortion, lower order harmonics and electromagnetic interference and to get high output voltage. To minimize the total harmonic distortion equal area criteria (EAC) switching technique is presented and it can enhance the output voltages from proposed work. The Inverter is operated by using Arduino controller which generates PWM pulses. The use of Arduino makes the process of using electronics in multidisciplinary projects more accessible. It is well suited for processing control parameters such as speed of an Induction Motor.

CHAPTER 5
RESULTS

5.1 Result

The gating signals required for triggering the switches of bridge H1 from S1-S4 is measured in the DSO. The gating signals for switches from S5-S8 is measured in the DSO. The HCMLI circuit is wired. Input supply of 12V dc is supplied to the input terminals of the Arduino. The two output terminals of H-bridges are connected across the probes of the DSO.

The output of HCMLI is seen across its output terminals. By making necessary adjustments in the DSO a seven level voltage waveform is obtained in the DSO. which is the required result. The output waveform obtained by connecting the seven level hybrid cascaded multilevel inverter in the DSO. Hardware kit is represented in figure 5.1

In this experiment by cascading the output voltages of two H-bridges here output is produced. Here output waveform is produced with reduced number of switches and dc input sources by this method. Also a reduced harmonic waveform can be generated by using this circuit. By changing the ratings of switches used, capacitor value, and small changes in this low power rated prototype can be extended to high power single phase and three phase circuits. The seven level output voltage waveform is represented in figure 5.2

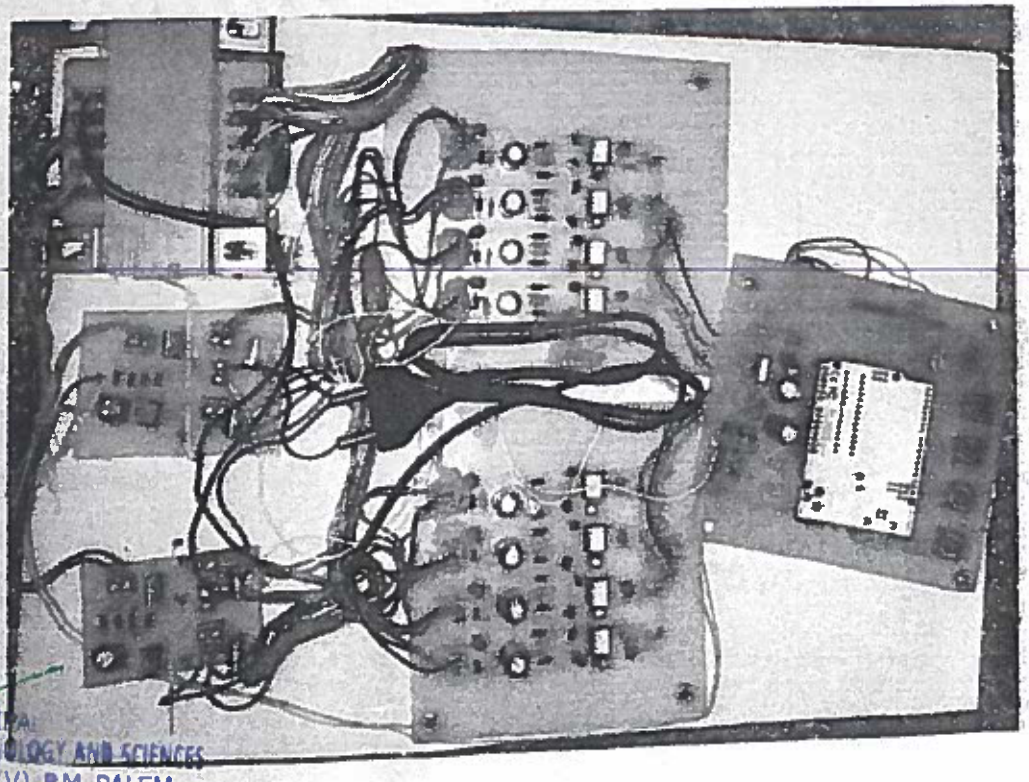

Fig 5.1 Multi-level inverter hardware kit

ELECTRIC VEHICLE CHARGING STATION

A thesis submitted in the partial fulfilment of the requirements

for the award of the degree of

BACHELOR OF TECHNOLOGY

IN

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ABSTRACT

Electric vehicles are widely used because of their advantages over internal combustion engine (ICE) vehicle such as low emission and environment friendly. In Visakhapatnam, electric vehicles have begun to be marketed and developed. One of the weaknesses of electric vehicles in Visakhapatnam is the limited availability of charger stations. For this reason, our project focuses to design and install a low-cost charger station. The charging station will be user friendly that will give a status on power that will be purchased and an LCD to monitor the usage. This station can be used to charge both electric motorcycle/ bicycle and a three-wheeler prototype will be installed and made to use for public and staff for normal charging with satisfactory results.

This project on charging station will be equipped with EV charging point and equipment that supplies electrical power charging plug-in electrical vehicles. Most EV's have an onboard AC to DC converter that allows them to be plugged into a low power AC point will also provide AC power known as AC Charging point.

RESULT:

Let us consider an electrical vehicle called E-PLUTO 7G. It contains battery capacity of 2.5kwh which requires charging time of 4 hours to full charge that means we need 80 rupees to full charge for this vehicle. By charging this vehicle we can travel nearly 90 to 120 km. By comparing it with petrol vehicles we cannot travel that much distance with 80 rupees as the petrol cost is increasing day by day.

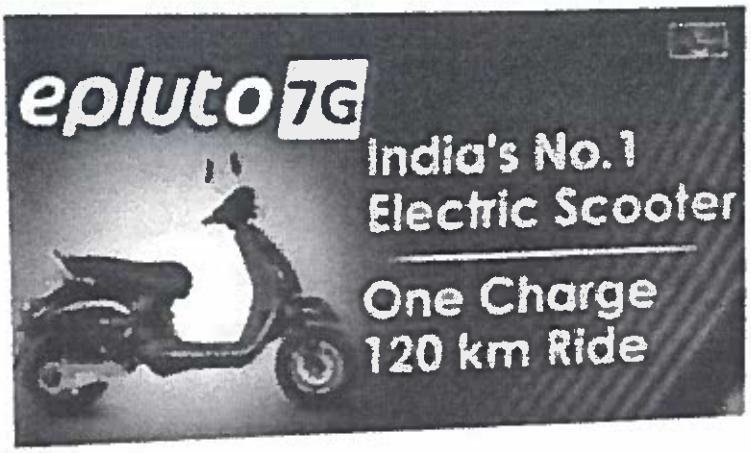

Fig: epluto 7G

Fig: Charging a mini electric scooter by our "BITS VIZAG EV - Charging station".

POWER TRANSMISSION USING ELBOW MECHANISM

A Thesis submitted by

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, KAKINADA

in the partial fulfillment of the requirements for The award oh the degree of

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IN

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Under our guidance in the partial fulfillment of then requirement for the award of degree of Bachelor of Technology in Mechanical Engineering of Jawaharlal Nehru Technological University, Kakinada during the academic year 2021-2022.

INTERNAL EXAMINER

EXTERNAL EXAMINER

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ABSTRACT

Gearless transmission which is compact and portable equipment, which is skillful and is having something practice in the transmitting power at right angle without any gears being manufactured.This project is the equipment useful to improve the quality of the gear being manufactured and canbe made in less time. This project uses el-bow mechanism which is an ingenious link mechanism of slider and kinematic chain principle. This is also called as "gearless transmission mechanism" and is very useful for transmitting motion at right angle. The real time study is carried out by applying a motor to one of the shafts supported on bearings. Motion analysis is performed by running the mechanism at 15 revolutions per minute; reaction forces and reaction moment are plotted against clock run of 5 seconds by using post processor. Similar motion analysis is carried out at different higher revolutions per minute and peak values of forces and moments are taken from the plot and compared with allowable stress. Theoretical calculations are made to obtain allowable stress by making use of design data values. As a result, response of elbow rod and hub is investigated to find the permissible speed of mechanism. Further simulation is performed to verify the motion analysis results.

KEY WORDS :- ELBOW RODS, PULLY, HUB, SHAFT, BEARING, MOTOR.

CHAPTER -5

RESULT & CONCLUSION

5.1 RESULT :

WE CONCLUDE WITH THE HELP OF ELBOW MECHANISM (GEAR LESS) THERE IS GOOD POWER TRANSMISSION THAN USING GEAR MECHANISM.& ALSO FOUND LESS LOSSES IN ELBOW MECHANISM , COMPARED TO GEAR MECHANISM.

GEAR DRIVE (at 600 rpm)	GEAR LESS DRIVE (at 600 rpm)
1. EFFICIENCY -91.5%	1. EFFICIENCY-95.2%
2. FRICTIONAL LOSSES -4.5%	2. FRICTIONAL LOSSES – 1.57 %
3. BEARING LOSSES -3.64 %	3. BEARING LOSSES -2.74 %

5.2 CONCLUSION:

- It can be conclude from the results that the proposed conceptual design can be applied forthe transmission of power between two intersecting shafts having proper angular misalignment by employing different geometries of L-pins and it is found that minimum number of L-pins required are 3, for continuous smooth power transmission. Smoothness of operation depends upon the number of pins, more smoother the operation.
- This project which looks very simple and easy to construct was actually very difficult to conceive and imagine without seeing an actual one in practice. It is an event a fact in the creative mental processes the forces.

- It find that while acceptable analysis for existing mechanism can often be made quite easily we cannot without insight and imagination make effective synthesis of new mechanism hence we are mould to present this our project gearless power transmission at 90°(El-bow mechanism) which we have managed to successfully device after long and hard input in conceiving its working principle.

5.3 FUTURE SCOPE:

- Torque bearing capacity can be improved.
- Flexible bent links can be used.
- A bright future in automobile and robotics.
- Automobile industry in near future.

FABRICATION AND INVESTIGATION ON MECHANICAL PROPERTIES OF ALUMINIUM (6063) BASED HYBRID METAL MATRIX COMPOSITES

A project report submitted in Jawaharlal Nehru Technological University Kakinada

the partial fulfillment of the requirements for The award of the degree of

"Bachelors of Technology in Mechanical Engineering"

Submitted by

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PROJECT EVALUATION REPORT

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ABSTRACT

In the past few years the global need for low cost, high performance and good quality materials has caused a shift in research from evaluation of purely metallic constituents into light weight composite structures. Considered with the matrix phase of aluminum alloy of the same metal and the reinforcement material used is a non-metallic ceramic such as SiC and metal such as copper contribute greatly to the structural behavior once it is processed and tested in the standard conditions. Present work highlights the crucial effect of silicon carbide particulates and specified amount of copper on aluminum 6063 matrix material. The fabrication of samples were done by most convenient technique called stir casting by adding reinforcing materials by weight percentage which is effectively mixed in to the matrix of aluminum 6063 alloys by maintaining the standard conditions. The effect of different weight percentage of aluminium alloy (6063), silicon carbide and copper composites on tensile strength, compression strength, impact strength and hardness were examined. This project work details only about the influence of silicon carbide and copper mixture is added in varied proportion on aluminium alloy 6063 composites.

Keywords: *Aluminium alloy (6063), Silicon carbide, Copper, Mechanical Properties and stir casting.*

5.1 Conclusion

The current experimental investigation on mechanical properties of AA6063 metal matrix composites reinforced with varying Silicon Carbide and Copper content was prepared using stir casting technique. The hardness, tensile strength and Impact strength of prepared composite were studied. Based on experimental evaluation the following conclusion can be expressed.

- It was found those samples which contain 3% of Cu have more tensile strength and hardness than the rest of the samples. This may be attributed to the presence of only copper, which can increase tensile strength and hardness.
- In the compression test the sample (Sample 4) which contains 2% SiC and 1% Cu has more compressive strength compared to other samples. This may be attributed to the presence of less percentage of copper which is balanced by the presence of Silicon carbide.
- In the charpy impact test the sample 3 which contains 1% SiC and 2% Cu has more impact strength compared to other samples.

5.2 Scope of future work

1. By change in base metal and stirring rpm new observations can be obtain.
2. Percentage of reinforcement can also change to obtain the new results.
3. This can further be extended by varying the geometrical angle of the stirrer & by varying the stirring speed.
4. Heat treatment can be done to improve the properties.
5. Results can be varying by reinforcement grain size.

Fabrication and Testing of Composite Material Using Natural Fibres

A project report submitted in partial fulfilment of the requirements for

the award of the degree

Bachelors of Technology

In

Mechanical Engineering

Submitted by

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PROJECT EVALUATION REPORT

This is to certify that the bonafied record of the project entitled **"Fabrication and Testing of Composite Material Using Natural Fibres"** is submitted by A. Ganga Prasad (19NR5A0301), B. Sanjay (19NR5A0302), T. Sunil (19NR5A0340), B. Pavan Kumar (18NR1A0391) and V. Vasu (18NR1A0388) Under our guidance in the partial fulfillment of the award of Degree of Bachelor of Technology in Mechanical Engineering from the Baba Institute of Technology and Sciences.

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ABSTRACT

Though there is significant work published in recent years regarding natural Fibres polymeric composites, most of the studies are either concerned with glass & carbon fibres and only limited to aerospace or automotive applications. There are dozens of types of natural Fibres each different properties influencing their usage in various applications. This project presents the combination of such materials with results that are fit for household applications and also discusses about the sustainable future scope of these materials. The present work deals with the fabrication and testing of natural fibre composites made up of Banana and Sisal. Banana fibres are light in weight, fire resistance quality, high strength, smaller elongation, biodegradability, great potentialities and robust moisture absorption quality. Sisal fibre have good strength, durability, ability to stretch and resistance to deterioration in saltwater. The five specimens of different compositions using Banana and Sisal fibre such as, specimen 1(banana-19%, sisal-1.98%), specimen 2 (banana-17%, sisal-5%), specimen 3(banana-13%, sisal-9%), specimen 4(banana-8%, sisal-15%) and specimen 5(banana-17%, sisal-5%) were fabricated for testing. Mechanical properties like Tensile, flexural, impact & hardness tests have been done and the properties of the specimens are investigated and the results are tabulated. The Characteristics of composite are represented graphically.

Keywords: Natural Fibres, composites, Banana Fibre, Sisal Fibre, Epoxy, Mechanical Properties, Biodegradability, Automotive Applications.

CHAPTER-5

CONCLUSION

5.1 Conclusion

The present work is carried out to bring out a new composite fibre material which can be used for different household and Automobile applications that is light in weight & can withstand more loads, and the result seems to be successful. As per the results obtained addition of sisal fibre to banana fibre has reduced the deflection of hybrid composite to a maximum level when compared to individual specimens. Based on the results obtained from mechanical testing methods like tensile, flexural, impact and hardness, the specimen 4 (banana – 8%, sisal – 15%, epoxy-70% and hardener-7%) has proved to be the best specimen for application point of view.

Based on the obtained test results the impact strength shows a drastic change from 4.082 Joules to 8.085 Joules for specimen 4 (banana - 8% and sisal – 15%) when compared with specimen 1 (banana – 19% and sisal – 1.98%). Similarly tensile test values shows a change from 9.89 MPa to 20.58 MPa, whereas from flexural test, it shows a drastic change from 20.32 MPa to 65.43 MPa for specimen 4, and the hardness test results shows a change from 21.173 kgf/mm^2 to 23.17 kgf/mm^2.

Overall results evaluation leads to the conclusion that the selected material and specimen 4 (banana - 8% and sisal – 15%) is best suited for the intended application, under the tested working conditions.

AN INVESTIGATION ON SURFACE ROUGHNESS OF GRANITE MACHINED BY ABRASIVE WATER JET

A Project report submitted in partial fulfillment of the requirements for the award of the degree

BACHELOR OF TECHNOLOGY

IN

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ABSTRACT

With the increase in the use of Unconventional machining, which is becoming popular day by day with its ability to machine any object, we are finding out the effect of different parameters like traverse speed, abrasive mass flow rate, stand-off distance in abrasive water jet used on three different kind of granites to find out the kind of surface roughness it gives. Abrasive water jet (AWJ) cutting is an emerging technology which enables the shaping of practically all engineering materials. However, AWJ cutting may cause roughness and waviness on the cut surface. This significantly affects the dimensional accuracy of the machined part and the quality of surface finish. In this study, the surface roughness of three granites is experimentally investigated for varying process parameters in abrasive water jet. Effects of the control (process) factors on the surface roughness are presented in terms of the mean of means responses. Furthermore, effects of the material properties on the surface roughness are assessed. It was statistically found that the traverse speed and the abrasive flow rate are the most significant factors influencing the surface roughness of granites.

Keywords: *Abrasive water jet, granite, stand-off distance, surface roughness, abrasive mass flow rate*

CHAPTER–5
CONCLUSION

Hence we can conclude that different parameters like Traverse Speed , Abrasive Mass Flow rate , Stand-off Distance have different impacts on the Surface roughness on different kind of surfaces of granites and from this we can achieve the best possible combination of Traverse speed , abrasive mass flow rate , stand-off distance for the different types of granites used and the different possible combination of parameters are plotted out from the experiment conducted And from this experimental analysis

Out of all the granites taken for this experiment Black Pearl granite gave the best results when all the parameters like traverse speed, abrasive mass flow rate, stand-off distance are varied. Finally Black Pearl granite gave the best surface smoothness 3.726 microns at a traverse speed (195mm/min).

Future Scope :

This project can also be specifically modified by using some other parameters . They are :

- Abrasive can be varied according to machining process as like using different kinds of abrasives for the machining process.
- Nozzle can also be varied , different kinds of nozzles can be used for machining processs.
- Different kinds of materials can also be used for machining process.
- Material removal rate can also be observed for the above machining process.
- Water pressure can also be varied throughout the machining process.
- Nozzle size can also be varied throughout the experimental process.
- Abrasive grain size can be varied throughout the process.
- Meshing of the water and abrasive can also be varied in the process.
- Thickness of the materials can also be varied throughout the process.