DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

SPECTRUM

TECHNICAL MAGAZINE

2K21-22

December

Volume-12

NEC NARASARAOPETA ENGINEERING COLLEGE
(AUTONOMOUS)

Editorial board

MESSAGES

Chairman's message

It gives me great happiness to note that the department of Electronics and Communication Engineering, NEC is bringing out the volume-12 of the department technical magazine, "SPECTRUM". From the first edition, I understand that this magazine is intended to bring out the hidden literary talents in the students and also to inculcate leadership skills among them. The newsletter has served as a platform for the students to share their knowledge and ideas. I expect the contributions to this magazine to be of high standard and quality. I wish all the success for this venture.

Vice Chairman's message

I feel extremely delighted to observe that the department of ECE is coming out with a magazine this year also with the dedicated and committed efforts of the faculty and the students of the Editorial Board. The activity depicts the commitment and involvement of students and their thirst for knowledge.
I congratulate the efforts of the members of the Editorial Board in bringing out the volume-12 of the magazine. It is because of their selfless and untiring efforts that we see the magazine enriched with variety of articles.

Principal's message

The magazine of the department is the reflection of the creativity of the students, involved in multifarious activities. It speaks about their imaginative creativity through the medium of a language given in literary and artistic shape.

I feel gratified to see that the department is doing its best in carrying out the mission of grooming the students as such professionals who are not only competent enough to combat the challenges in their life but also become good human beings with moral excellence and social sensitivity

HOD's message

I feel privileged in presenting the volume-12 of our department association magazine. I would like to place my sincere and heartfelt thanks to all those who have contributed to make this effort a success. My special thanks to the Management, for their guidance which enabled us to bring out this volume.
The magazine has a variety of articles endowed with different subjects contributed by the students of our department and their participation in various activities round the year.

I extend my gratitude to the entire team of the Editorial Board for their constant exertion, revision and support in bringing out the magazine in the present form.

INDEX

IOT DOG DAYCARE ROBOT WITH DOG FOOD WATER FEEDING

People love their pets and vice versa, but there are times you need to leave your pets at home for long durations alone and this is a problematic issue. Well, we here propose to design a doggy daycare robot that can monitor as well as feed the dogs or cats in a timely manner.

The Raspberry Pi Powered Daycare Robot has the following key features

- Remote Monitoring of your pets over IOT
- Speaking to pets by Voice Commands
- 2x Containers: For Dog/Cat Food and Water
- Timely Feeding of Cat/Dog Food and Water through Feeding Tray
- Main Modules of Robot Well Protected from Naughty Pets using Steel Mesh

The Robot is an IOT Based robot that is capable of taking care you your pets alone at home. The robot is integrated with a camera that allows for live streaming over IOT platform to get on demand footage of home. The robot takes monitoring far beyond a security camera as you can control the robot online over internet and move through your house any time you want.

This allows you to be with your pets no matter where you are. The robot is also integrated with a speaker that speaks out to your dog's/cats allowing you to shout at them for any wrongdoings or call them when it is feeding time. An LCD display is also provided as a reference for the messages to be displayed.

The robot is a 3 wheeled drive system with a feeding tray and 2 x steel bins

Bin 1 Stores Dog Food/Cat Food

Bin 2 Stores Water

The robot dispenses appropriate amount of food and water in feeding tray as instructed by user online and then slides open the feeding tray, also it calls out your dog/cat by name to inform about feeding time. Once the pet has eaten it closes the feeding tray. All of this can be monitored online by the pet owner.

This entire system is controlled by a raspberry pi controller that allows for efficient controlling of all robot functionalities.
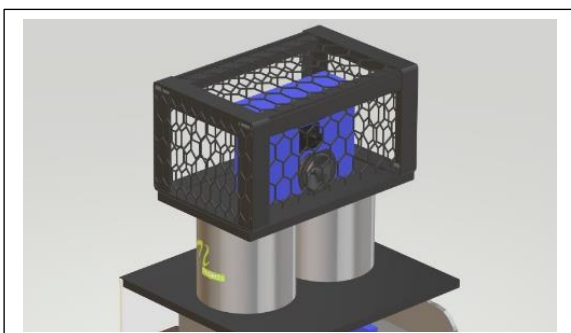
K. Venkata Ramya Sri,

II Year ECE

IOT WATER POLLUTION MONITOR RC BOAT

Water quality plays a very important part in the health of animals and human beings. Lakes and reservoirs, canals one of the major sources of drinking water. The first step towards water pollution control is to be able to monitor the actual level of water pollution. The problem with water pollution monitoring is the manual effort of taking a boat through a lake or reservoir each time to monitor pollution throughout the water body.

So, we here design a solution for easy water quality checking of vast water bodies with ease. This RC water pollution monitor boat allows for recording as well as transmitting water quality data to an IOT server online. This will further help us to maintain the water clean. This project is remote-operated and controlled by an RC remote using which it can be maneuverer accordingly, a motorized propeller system to provide the forward propulsion and servo motor arrangement to provide with the steering using a rudder.

The IOT pollution monitor boat provides the following advantages:

- Ph & Turbidity Sensing
- Dissolved Oxygen Level Sensing
- Long-Range Remote-Controlled Operation
- Data Logging as well as IOT Online Transmission
- Efficient Propeller Driven Navigation system
- Easy to operate

As per the commands received by the RC receiver the controller operates the DC motor which rotates the propeller through a flexible bearing and shaft. Now we have 2x direction control rudders attached to a servo motor used to steer the boat as per controller signals received.

Additionally, we have two sensors to determine water quality, we include PH sensors as well as turbidity sensor and a dissolved oxygen sensor. These sensors will detect the presence of suspended particles in the water. We also have a GPS module and micro-SD card, which will log the data from sensors as well as GPS locations as well as transmit the same online over IOT at particular intervals. Thus, the water quality monitoring RC boat can be used for water quality monitoring on lakes and reservoirs with ease.

G. Mounika,
II Year ECE

HEART ATTACK DETECTION BY HEART BEAT SENSING

This system Heart Attack Detection by Heart Rate Monitoring Project helps to inform if a person is about to have a heart attack. This system does this by detecting the heart beat level and informs as soon as the heart beat level does not fall within the permissible limit. Thus, this system can be used to save life of many people as this system alerts the doctor about the patient's heart beat level. For this the system uses two circuits. One is the transmitting circuit which is with the patient and the other is the receiver circuit which is being supervised by the doctor or nurse. The system makes use of heart beat sensor to find out the current heart beat level and display it on the LCD screen. The transmitting circuit includes AVR family microcontroller interfaced to LCD screen and this transmitting circuit is powered by 12V transformer. Similarly, the receiving circuit includes AVR family microcontroller and RF receiver and also has a 12V transformer. The receiver circuit also includes LED light and a buzzer which are used to alert the person supervising the heartbeat rate of the patient and turns on the LED light and buzzer as soon as the heartbeat level of the patient does not fall within the normal heart beat level set.
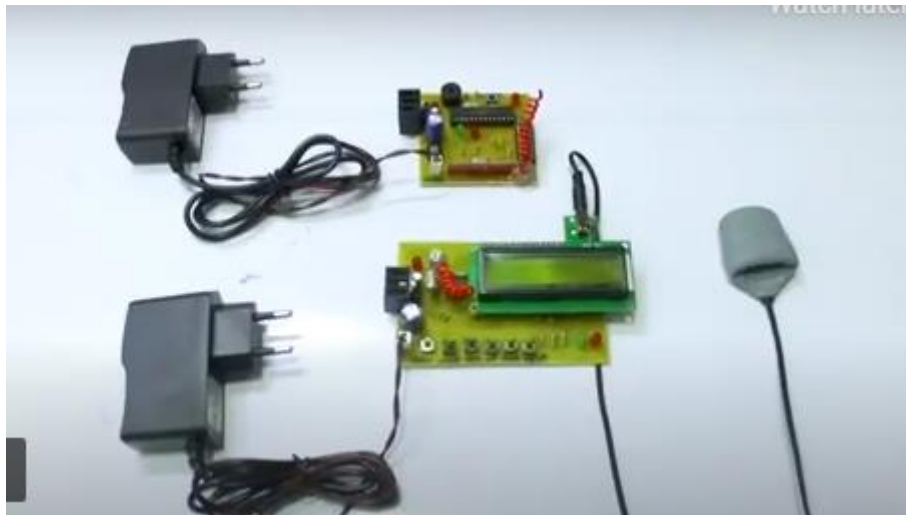

J. Devi,
III Year ECE

IOT GAS PIPE LEAKAGE DETECTOR INSECT ROBOT

Gas pipes play very important roles for cities, industries and thus in growing economies. So, gas leakages lead to losses as well as are a threat because they can also lead to fire accidents. Placing sensors at each section of pipe is very costly. So here we propose an innovative robot that clings on to the outer surface of the gas pipe and moves with the pipe to check for leakages. The robot consists of gas sensor that is used to detect gas leakages. As the robot keeps moving along the metal pipe it keeps monitoring for any gas leakage, on detection it uses an interface GPS sensor to transmit location of the leakage detected over to the IOT login system. Here, we use IOTgecko to receive and display the gas leakage alert and location over IOT. Thus, we have a fully automated insect like robot that moves with the gas pipe and detects gas leakages instantly at a low budget.
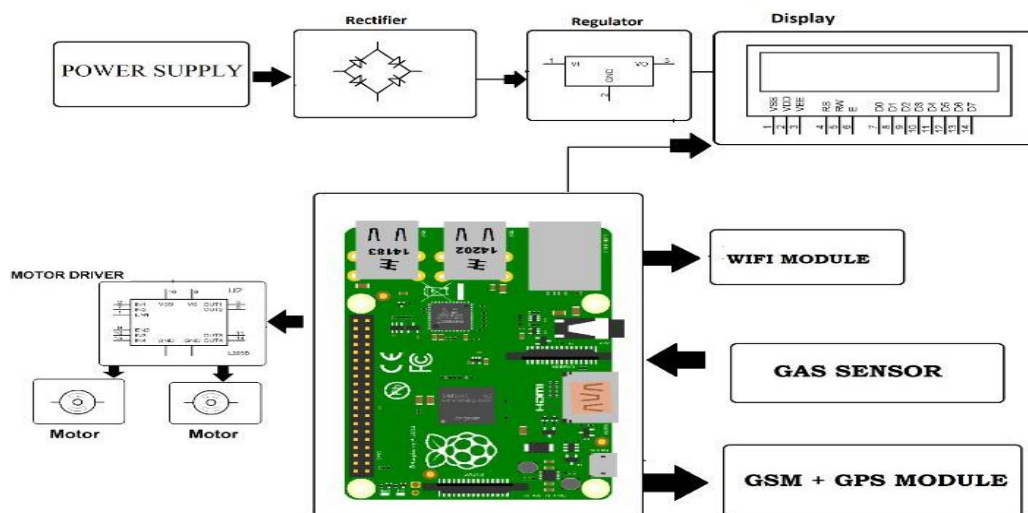

**G. S. R. Krishna Reddy,
III Year ECE**
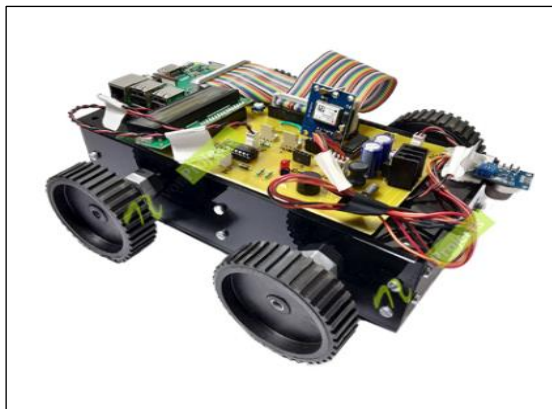
## ATMEGA BASED PLANT IRRIGATION SYSTEM USING CAPACITIVE MOISTURE SENSOR

Irrigation is the most important practice and most intensive task in daily agriculture sector. To know when and how much to water the plants are two important aspects of irrigation. This can be done automatically using sensors and it can be determined when plants may need water. This plant irrigation system project is intended to observe the moisture content of the soil to provide a correct amount of irrigation to agricultural fields and make sure the effective growth within the plant. Irrigating the fields by switching the pump ON/OFF, this project automates the process manually. This project is implemented by using a microcontroller atmega328p, programmed like to collect input signals that measure the moisture content of soil through sensing arrangement. Because the capacitive moisture sensor is removed out from the water, the LCD indicates the dry condition. The microcontroller produces an output that drives a relay and operates the water pump on receiving the signal. Hence the system reduces human intervention and provides required irrigation to the field.
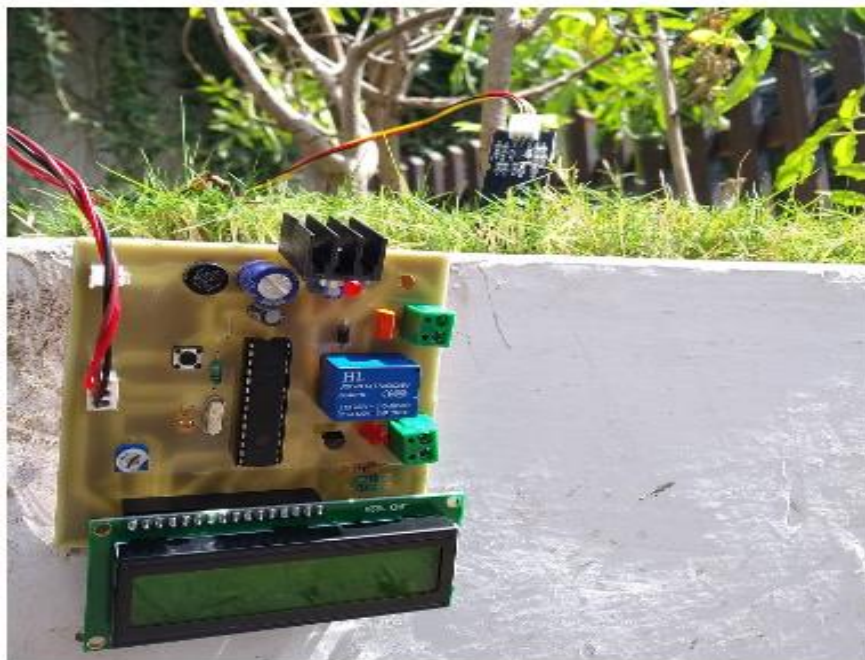
M. Chaithanya Kumar,
IV Year ECE

IOT BASED ANTENNA POSITIONING SYSTEM

All wireless communication systems work on antennas for reception of signals. Proper positioning of antennas is necessary according to satellites/transmitters to achieve effective wireless communication. So here we propose an IOT based antenna positioning system that allows for remotely positioning of antennas based over IOT. Here we use sensor-based system with motor on each antenna using antenna to check its facing direction that is transmitted over IOT. If the direction of a satellite or transmitting station changes over time, the antenna direction must also be changed accordingly. The receiving antennas may be placed far apart from each other across the globe. So, our system allows for antenna positioning over very long distances. The antenna positions are visible over internet to controlling operator on the IOT GUI. We here use IOT Gecko to develop the antenna monitoring GUI system. Our system allows for monitoring antenna direction as well as transmitting new coordinates to position the antenna and motor appropriately positions the antenna accordingly.

Dr. V. Venkata Rao,
Professor & HOD,
ECE Dept.,
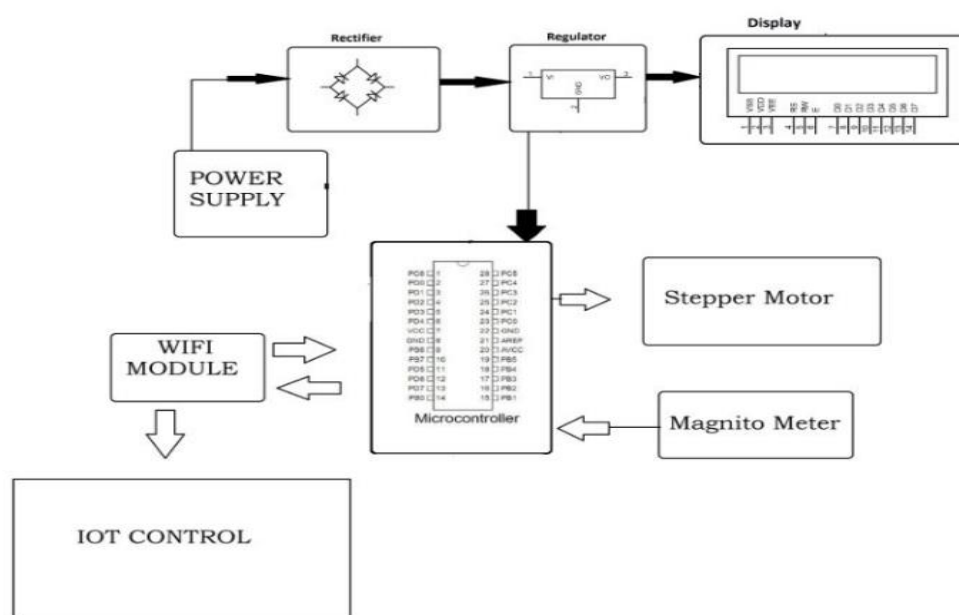
ADVANCED FOOTSTEP POWER GENERATION SYSTEM
USING RFID FOR CHARGING

Day by day, the population of the country is increasing and the requirement of the power is also increasing. At the same time the wastage of energy is also increasing in many ways. So, reforming this energy back to usable form is the major solution. In this footstep power generation project, we are generating power with the help of human's footsteps; this power is then used to charge battery. The power is stored in a battery that can be used to charge a mobile phone using RFID card. This system is powered by Atmega 328 microcontroller, it consists of Arduino IDE, RFID sensor, USB cable and LCD. When we power on the system, the system enters into registration mode. We can register three users. Once all the user is entered in the system then the system asks to swipe the card and connect the charger. Initially all the user is given 5 minutes of charging time as default. When we swipe the card and if the user is authorized, the system turns on for charging and will charge the Mobile phone. If the user is un-authorized then the system will display as unauthorized user, just in case if the user wants to stop the charging in midway the user needs to swipe the card again. As soon as the card is swiped again, the remaining time balance is displayed and the charging stops. In order to recharge a card, we need to press recharge button which is on the system, and then system will ask to swipe the card, once the user swipes the card, it adds more 5 minutes to the particular card of the user.

SK. Zuber Basha
Asst. Professor,
ECE Dept.,

WORKSHOP DETAILS

Sl.no	Name of the FDP/STTP/Workshop/Guest lecture	Name of the Resource person and Organization	Name of the Coordinator	Dates	No. of Participants
1	Interaction Program with III-IECE Students	Alumni V. Bhargavi (15471A0474)	Dr. V. Venkata Rao, Professor & HoD	28-9-2021	III-I ECE-51
2	Interaction Program with IV-I ECE Students	Alumni M. Pradeep (10471A0422) Softwear Engineer	Dr. V. Venkata Rao, Professor & HoD	28-9-2021	IV-I ECE-54
3	Webinar on IOT Technical Session-1 on IoT, e-Yantra Team IIT Bombay	e-Yantra Team Faculty and students of ECE attended	Sk.Zuber Bhasha Assistant Professor	1-10-2021	30
4	Webinar on System On Chip & Network on Chip	Dr. B K N Srinivasarao NIT Warangal	Dr. V. Venkata Rao, Professor & HoD	7-10-2021	54 III-I ECE-C
5	LIFE CLUB Interaction Session	Alumni Avinash & Anil	G Vishnu Reddy IV ECE-C	9-10-2021	28 III-I ECE
6	Guest Lecture for Faculty on "5G Wireless technology"	Dr.Sita devi Bharathula Assistant Professor ECE Department Amrita School of Engineering, Chennai.	Dr. V. Venkata Rao, Professor & HoD	13-10-2021	35
7	LIFE CLUB Group Discussions	R. Shanamuka Venkatesh and Organizers	G Vishnu Reddy IV ECE-C	23-10-2021	12 III-I ECE-A,B
8	Webinar on Career Opportunities for ECE students	Y. Srivasthava Software Developer, Siemens Healthcare, Banglore	Mr. M. H.H Sastry Associate Professor	01-11-2021	III-I ECE-A-50
9	Interaction Program with II-IECE-A Students	Alumni S.SriVarshini (15471A04C8), Associate Technology, Publicis Sapient, Bangalore	Dr. V. Venkata Rao, Professor & HoD	6-11-2021	II-I ECE-A-58
10	Interaction Program with II-I ECE-B Students	Alumni P. Khayyum Khan (15471A0485), Associate Technology, Publicis Sapient,	Dr. V. Venkata Rao, Professor & HoD	6-11-2021	II-I ECE-B-59

|		Bangalore			
11	LIFE CLUB session is about Technical games and quiz	A.Rishita and Organizers	G Vishnu Reddy IV ECE-C	11-11-2021	28 III-I ECE
12	LIFE CLUB activity about JAM and making students to develop their quick responses	K. Navya Harika and Organizers	G Vishnu Reddy IV ECE-C	12-11-2021	25 III-I ECE
13	Webinar on "Application of Thin-film transistors in the Transparent and Flexible electronics" in association with NEC IEEE SB	Dr. Shashikant Dargar Assc. Prof Senior IEEE member	Dr.K. Raju Professor	19-11-2021	III-I ECE-C-58
14	A Two-week workshop on Embedded Systems In association with APSSDC	Mr. Reddi Anishkumar, G.Sireesha & Mittameedi Gokula Sukanya	Mr. A. Ravindra Babu, Assistant professor, NEC	15-11-2021 to 27-11-2021	II-I ECE-A 55
15	A Two-week workshop on Internet of Things In association with APSSDC	Mr. Reddi Anishkumar, G.Sireesha & Mittameedi Gokula Sukanya	Mr. A. Ravindra Babu, Assistant professor	15-11-2021 to 27-11-2021	II-I ECE-B 55
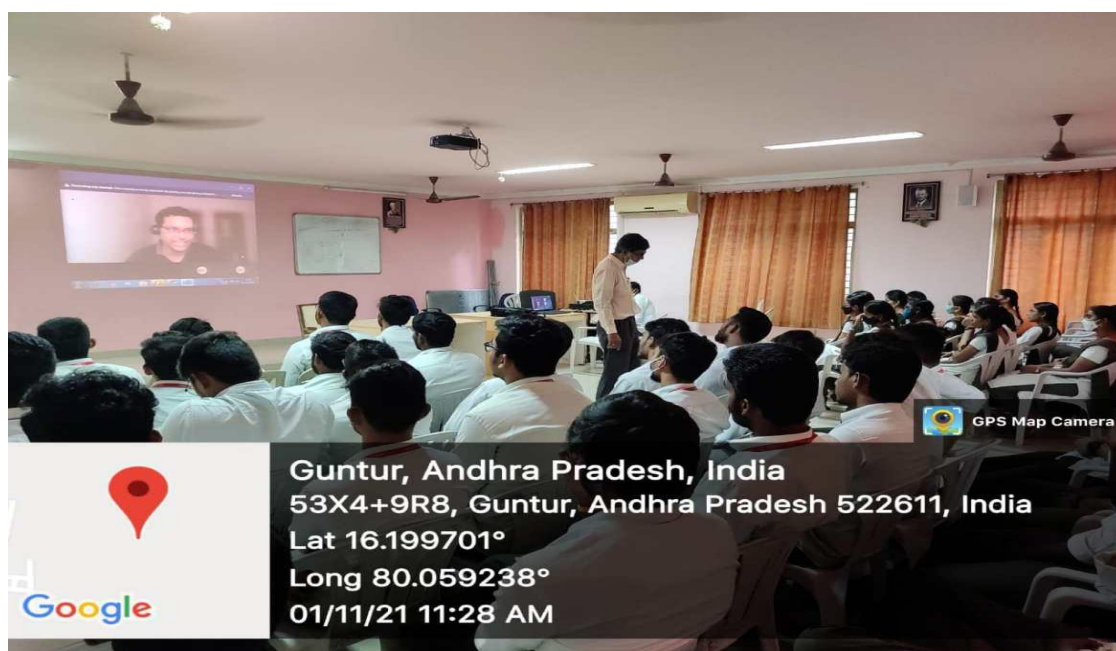
Webinar on Career Opportunities for ECE students on 01-11-2021
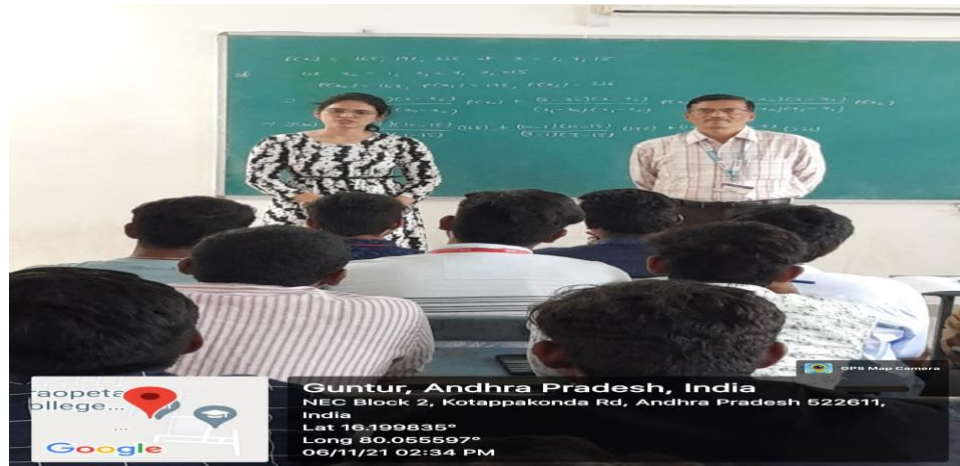
Interaction Program with II-IECE-A Students on 6-11-2021

A Two-week workshop on Internet of Things In association with APSSDC 15-11-2021 to 27-11-2021
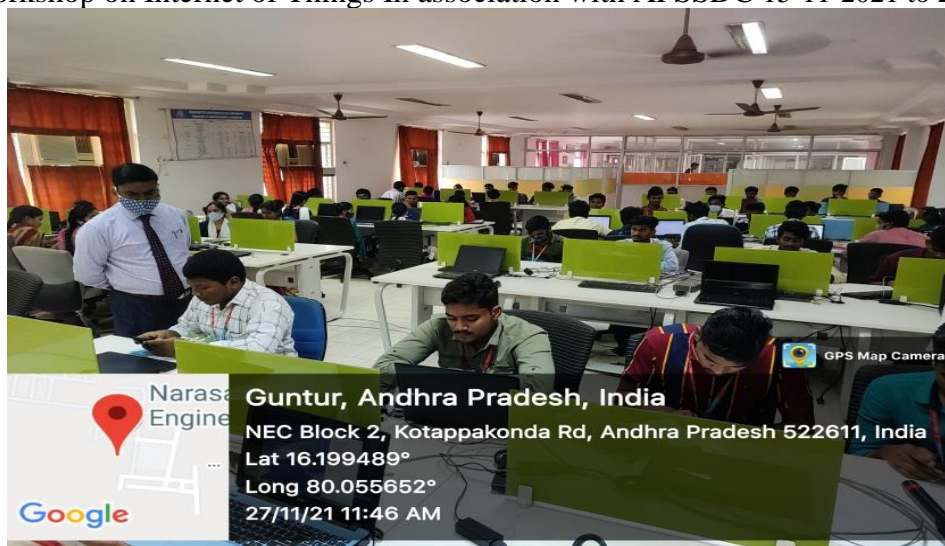
A Two-week workshop on Embedded Systems In association with APSSDC 15-11-2021 to 27-11-2021

STUDENT TOPPERS

NARASARAOPETA ENGINEERING COLLEGE (AUTONOMOUS)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

I B.Tech. I Semester, ECE Toppers List (2020 Batch)

Name	ID	Percentage
K. Swathi	20471A04J2	9.15%
K. Venkata Ramya Sri	20471A04F1	9.08%
M. Subhasri	20471A04F8	9.08%
M. Yamuna	20471A0434	8.92%
G. Mounika	20471A04D9	8.92%
K. Kousalya	20471A04J3	8.92%
V.Sri Lakshmi	20471A04H7	8.69%
D.Venkata Naga Meghana	20471A04D5	8.62%
A. Prathyusha	20471A04I3	8.62%
B. Siva Latha	20471A04I4	8.62%
K. Sreekanth Reddy	20471A04J8	8.62%

Management, Principal, HoD & faculty Express their Hearty Congratulations to Toppers in Ist B.Tech. Ist Sem.

NARASARAOPETA ENGINEERING COLLEGE (AUTONOMOUS)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

II B.Tech. II Semester, ECE Toppers List (R-19 - 2019 Batch)

Name	ID	Percentage
K.Sneha Sathvika	19471A04F6	9.21%
Ch.Nikhiteswari	19471A0406	9.14%
Ch.Amareswari	19471A0408	9.14%
J.Sai Pooja	19471A0480	9.0%
Ch.Sai Poojitha	19471A04I8	9.0%
Jalagam Devi	19471A04J8	8.93%
GadiparthiKavitha	19471A0415	8.86%
Sk.Shaziah Banu	19471A0448	8.86%
Vangavolu Deepthi	19471A0458	8.86%
G.S.R Krishna Reddy	19471A04E0	8.86%

Management, Principal, HoD & faculty Express their Hearty Congratulations to Toppers in IInd B.Tech. IInd Sem.

NARASARAOPETA ENGINEERING COLLEGE (AUTONOMOUS)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

III B.Tech. II Semester, ECE Toppers List (R-16 - 2020 Batch)

| Sk. Johnvali 18471A04G9 9.59% | P. Bhavya Lakshmi 18471A0447 9.45% | K.Naga Mahendra 18471A0431 9.18% | Shaik Naseema 18471A04H1 9.18% | Irri Sravani 18471A04E4 9.05% |
| Shaik Naseema 18471A04H2 9.05% | B.Prakash Babu 18471A0403 8.95% | K.Sree Devi 18471A0430 8.91% | Sk.Ayesha Siddika 18471A0450 8.91% | Upputholla Tabitha 18471A0458 8.91% |

Management, Principal, HoD & faculty Express their Hearty Congratulations to Toppers in IIIrd B.Tech. IInd Sem.

NARASARAOPETA ENGINEERING COLLEGE (AUTONOMOUS)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

I B.Tech. II Semester, ECE Toppers List (R-20 - 2020 Batch)

| M. Subhasri 20471A04F8 9.08% | K. Swathi 20471A04J2 8.92% | K.V.Ramy Sri 20471A04F1 8.85% | K.Kousalya 20471A04J3 8.85% | M.Yamuna 20471A0434 8.77% |
| P.J.Sai Baba 20471A0445 8.77% | K.Avinash 20471A04E8 8.69% | S.Gopinadh 20471A04K9 8.62% | C.Navaneesh 20471A04C7 8.54% | G.Mounika 20471A04D9 8.54% |

Management, Principal, HoD & faculty Express their Hearty Congratulations to Toppers in Ist B.Tech. IInd Sem.

NPTEL CERTIFICATION DETAILS

S.No	Name of the Student	Name of the Course	Type of certificate
1	A.Parameswara reddy	Digital Circuits	Successfully completed
2	N.Naveen	Digital Circuits	Successfully completed
3	T.Sai teja	Digital Circuits	Successfully completed
4	B.Vamsi krishna	Digital Circuits	Successfully completed
5	A.H.Lakshman kumar	Digital Circuits	Successfully completed
6	M.Nithin Reddy	Digital Circuits	Successfully completed
7	P.Veneela	Digital Circuits	Successfully completed
8	A.R.Rajayalakshmi	Digital Circuits	Successfully completed
9	Sk.Tanveer suheera	Digital Circuits	Successfully completed
10	V.Deepthi	Digital Circuits	Successfully completed
11	Ch.Amareswari	Digital Circuits	Successfully completed
12	Ch.V.S.Naveen kumar	Digital Circuits	Successfully completed
13	Ch.Naveen kumar	Digital Circuits	Successfully completed
14	K.Chandu	Digital Circuits	Successfully completed
15	P.V.Subhramanya chari	Digital Circuits	Successfully completed
16	G.Vijaya lakshmi	Digital Circuits	Successfully completed
17	T.Harichandana	Digital Circuits	Successfully completed
18	I.Venkata bhargav	Design for Internet of Things	Successfully completed
19	B.Atchyuth	Design for Internet of Things	Successfully completed
20	V.Naveena	Design for Internet of Things	Successfully completed
21	M.Pavan kumar	Design for Internet of Things	Successfully completed
22	N.Jagadeesh	Design for Internet of Things	Successfully completed
23	J.Venugopala chari	Design for Internet of Things	Successfully completed
24	B.Chiranjeevi	Design for Internet of Things	Successfully completed
25	Cherukuri.SrinivasaRao	Digital Circuits	Successfully completed

MOUs

FALCON IT Training & Educational Services LLP

DEDICATION TO EDUCATION

MEMORANDUM OF UNDERSTANDING (MoU)

BETWEEN

NARASARAOPETA ENGINEERING COLLEGE
AND
FALCON IT TRAINING & EDUCATIONAL SERVICES LLP

This Memorandum of Understanding (hereinafter called as the 'MoU') is entered into on this the 30TH day of AUGUST 2021 by and between.

NARASARAOPETA ENGINEERING COLLEGE, the First Party represented herein by its Principal / Director / Head of Institution < NARASARAOPETA ENGINEERING COLLEGE And **FALCON IT TRAINING & EDUCATIONAL SERVICES LLP** The Second party, and represented herein by its Centre Head / Director / Managing Director V LAKSHMI KANTHAN, Director

WHEREAS:

A) First Party is a Higher Educational Institution named: **NARASARAOPETA ENGINEERING COLLEGE**

B) First Party & Second Party believe that collaboration and co-operation between themselves will promote more effective use of each of their resources, and provide each of them with enhanced opportunities.

C) The Parties intent to cooperate and focus their efforts on cooperation within area of Skill Based Training, Education, Placement Assistance, Industrial Visit, Expert Lecture.

CLAUSE 4   RELATIONSHIP BETWEEN THE PARTIES

5.1 It is expressly agreed that First Party and Second Party are acting under this MOU as independent contractors, and the relationship established under this MOU shall not be construed as a partnership.

FirstParty

Principal

PRINCIPAL
NARASARAOPETA ENGINEERING COLLEGE
(AUTONOMOUS)
NARASARAOPET - 522 601
Guntur (Dist.), A.P.

Second Party

CV. LAKSHMI KANTHAN
Director

FALCON IT TRAINING AND EDUCATIONAL SERVICES LLP
ARUMBAKKAM
600 106

VECTRA
TECHNOSOFT

MEMORANDUM OF UNDERSTANDING (MoU)

BETWEEN

Narasaraopeta Engineering college, Narasaraopeta, AP
AND
Vectra Technosoft Pvt Ltd here after will be called as Advantage Pro

This Memorandum of Understanding (hereinafter called as the 'MoU') is entered into on this the 30TH day of AUGUST 2021 by and between.

Narasaraopeta Engineering college the First Party represented herein by its Principal / Director Head of Institution And **Vectra Technosoft Pvt Ltd - Advantage Pro**, The Second party, and represented herein by its **Director Ranjit Sengupta** ,
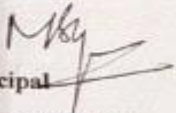
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Narasaraopeta Engineering college

Principal

PRINCIPAL
ARAOPETA ENGINEERING COLLEGE
(AUTONOMOUS)
RASARAOPET - 522 601
Guntur (Dist.), A.P.

Vectra Technosoft Pvt Ltd

Director
Ranjit Sengupta

VECTRA TECHNOSOFT PRIVATE LIMITED

Regd Office: Wing 1 & 2, IV Floor, Jhaver Plaza, 1A, Nungambakkam High Road, Nungambakkam, Chennai - 600034.
Phone: 044 28263530 / 40   Telefax: 28263527   E-mail: enquiry@vectratech.in
Web: www.advantagepro.in / www.vectratech.in
GST No: 33AABCV1002H1Z1

1129

AGIIT
AXIS GLOBAL
INSTITUTE OF
INDUSTRIAL
TRAINING

An Advanced Automation Training Institute

NEW TECHNOLOGY FOR
THE NEXT GENERATION

MEMORANDUM OF UNDERSTANDING (MoU)

BETWEEN

NARASARAOPETA ENGINEERING COLLEGE
AND
AXIS GLOBAL INSTITUTE OF INDUSTRIAL TRAINING

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NARASARAOPETA ENGINEERING COLLEGE, the First Party represented herein by its Principal / Director / Head of Institution **NARASARAOPETA ENGINEERING COLLEGE** And **AXIS GLOBAL INSTITUTE OF INDUSTRIAL TRAINING** The Second party, and represented herein by its Centre Head / Director / Managing Director EZHIL MARAN.A Director
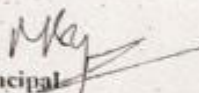
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First Party

Principal

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(AUTONOMOUS)
NARASARAOPET - 522 601
Guntur (Dist.), A.P.

Second Party

Director
42656485
www.agatrg.com

Our Group of Companies

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