SPECTRUM 23-24

NARASARAOPETA
NEC ENGINEERING COLLEGE
(AUTONOMOUS)

Editorial board

Faculty Members:

Dr. V. VenkataRao, Professor & HOD, ECE

Dr.K.Raju, Professor, ECE

Mr. P.S.S. Chakravarthy, Professor, ECE

Mr. J. NarasimhaRao, Associate Professor, ECE

Mr. V. Naveen Raja, Assistant Professor, ECE

Student Members:

Ms. K. Swathi, IV Year

Mr. K. Sreekanth Reddy, IV Year

Miss.K.V.Vijaya Lakshmi, III Year

Mr.M.Samba Siva Rao ,III Year

Ms.A.Santhoshini, II Year

Mr. T.Pavan ,II year

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-13 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-13 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-13 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 present form.

INDEX

1.   IoT Based Battery Status Monitoring System

As we know, the battery is the most important component for any device as it powers the entire system. So, it is important to monitor the voltage level of the battery otherwise improper or excess charging/discharging may lead to damage to the Battery or System Failure. Battery Management System (BMS) is a separate system used in most of the electronic appliances which monitors all the properties of the battery like the voltage, current, temperature . This ensures the safety and proper handling of Lithium-Ion or Lithium Polymer batteries.

Previously BMS only monitors the condition of the battery and alarms the user via a battery indicator. But now by using Internet of Things, we can directly notify the users remotely about health of battery. They can check the battery status on their smartphones or Computer dashboards from anywhere in the world.

In this IoT-based Battery Monitoring System, Wemos D1 Mini with ESP8266 Chip is used to send the battery status data to ThingSpeak cloud. The Thingspeak will display the battery voltage along with the battery percentage in both the charging and discharging cases.
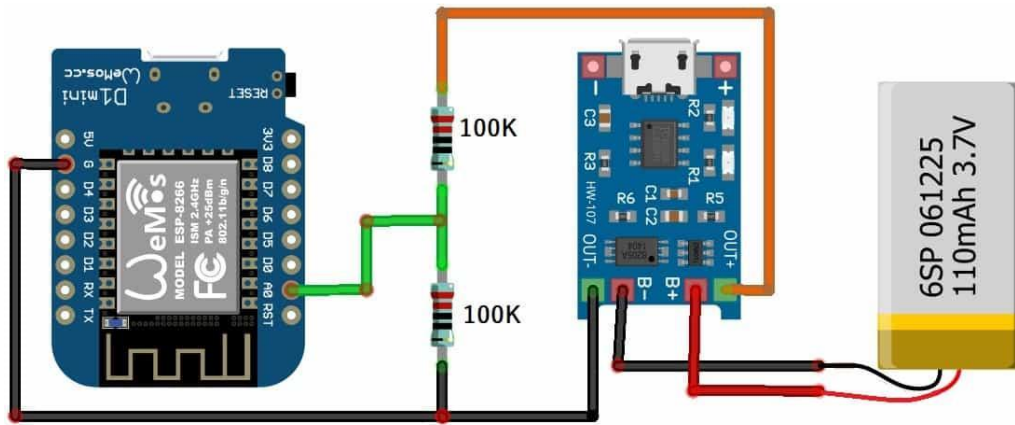

Fig 1: Circuit diagram of IoT Based Battery Status Monitoring System

Dr. K.Srinivasa Rao

2.   Electronic Skin for Rbots

Touch is a complex sensing modality owing to large number of receptors (mechano, thermal, pain) nonuniformly embedded in the soft skin all over the body. These receptors can gather and encode the large tactile data, allowing us to feel and perceive the real world. This article highlights the hardware implementations of various computational building blocks for e-skin and the ways they can be integrated to potentially realize human skin–like or peripheral nervous system–like functionalities.

 The neural-like sensing and data processing are discussed and hardware architectures is given. The integration of ultrathin neuromorphic chips for local computation and the printed electronics on soft substrate used for the development of e-skin over large areas are expected to advance robotic interaction as well as open new avenues for research in medical instrumentation, wearables, electronics, and neuroprosthetics.

The human body acquires the tactile sensory information through thousands of mechanoreceptors distributed over the skin.This large number of receptors ensures a reliable sensation but poses challenges in data transmission. The biological solution is to use action potentials, sometimes with adaptation, to encode, communicate, and control the body. Such a manner is highly beneficial in terms of reducing power consumption and data latency.
.The hardware implementation of skin with the help of Op-amps and FET is shown below.
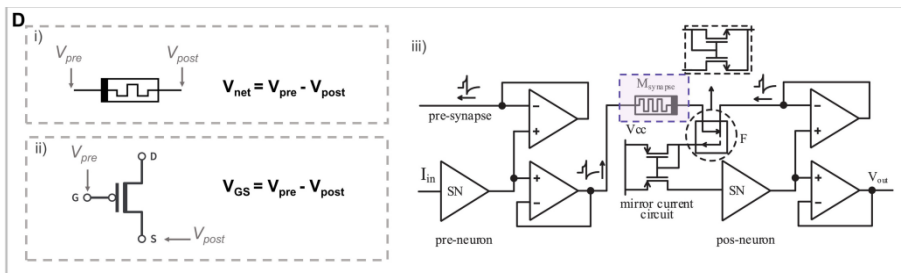

Fig 2:The neural network structure of the computational e-skin.

Dr.B.Suneetha

3.   Instrument for Lunar Seismic Activity Studies on Chandrayaan-3 Lander

This Instrument for Lunar Seismic Activity Studies (ILSA) was the first instrument of its type to be placed at the identified landing site in the south pole of the Moon.It's objective is to characterize the sesimicity around the landing site.

The instrument has three high sensitivity accelerometers realized using the silicon micro machining technology called micro-electro mechanical systems (MEMS) to measure quakes in all three axes . The data obtained from ILSA will be first classified and catalogued by the instrument development team and subsequently, the detailed analysis will be conducted by a group of scientists led by National Geophysical Research Institute, Hyderabad.
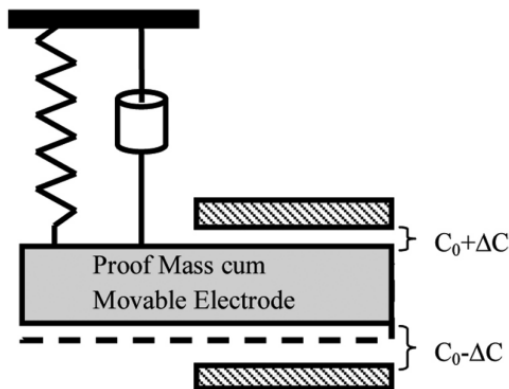

Fig3 :The basic sensing element used in ILSA

The sensing element consists of beam-plate system from single crystal silicon wafer using standard processes in MEMS technology. It has silicon on glass architecture where the microstructure is supported on a glass wafer. The heart structure is a proof mass suspended by four-folded beams and have comb electrodes defined on it as shown in above figure. These combs are inter-digitated with fixed comb electrodes to form a capacitor. The comb electrodes are distributed as four sets at both sides of the proof mass to form a differential capacitor assembly..

Working principle

The sensor is arranged to form a capacitor assembly where one of the electrodes is a part of the spring-mass system, whereas the other electrode is fixed relative to the former with an initial separation of $d0$. By design, the separation between electrodes changes as a function of external input acceleration.When there is external acceleration and deflection of movable electrode, the associated capacitance changes from its dead value C_0.For small deflections, the change in output ΔC is proportional to the magnitude of deflection of the proof mass which in turn is a function of input acceleration. The fine range sensor of ILSA has a deflection of less than 1% of $d0$ to ensure linearity in output. The output change in differential mode is picked up and processed by suitable readout electronic circuit.

K.Lavanya ,III B.Tech ECE

4.   Soil fertility testing using Aurdino

There are multiple methods of measuring the soil nutrient content like using some **optical sensors** or using the **spectrometer**. But the **spectral analysis method** is not convenient and the drawback is the data are only **60-70%** correct. So, in this method we will use a JXCT Soil NPK Sensor to detect the soil nitrogen, phosphorous & Potassium in a soil. The JXCT Soil NPK sensor is a **low cost, quick responsive, high precision & portable** Sensor that works with **Modbus RS485**. The advantage of this sensor over a traditional detection method is that it gives very **fast measurement** & data are **highly accurate**. All you need is to insert its probe in soil and get the reading using Arduino.

The **soil NPK sensor** is suitable for detecting the content of **nitrogen, phosphorus,** and **potassium** in the soil. The sensor can be buried in the soil for a long time. It has a **High-quality probe**, **rust resistance**, **electrolytic resistance**, **salt & alkali corrosion resistance**, to ensure the long-term operation of the probe part. Therefore, it is suitable for all kinds of soil.The **MAX485 TTL to RS-485 Interface Module** allows us to use the RS-485 differential signaling for robust long-distance serial communications up to **1200 meters** or in electrically noisy environments and is commonly used in industrial environments. It supports up to **2.5MBit/Sec** data rates, but as distance goes up, the maximum data rate that can be supported comes down. Arduino code is designed to interact with an NPK (Nitrogen, Phosphorus, and Potassium) sensor, which are typically used to measure the levels of these nutrients in soil. This information is then displayed on an OLED screen.Once the sensor gets becomes stable, we can dip the sensor in the soil to get the NPK Reading. The volume of Nitrogen, Phosphorous & Potassium which are the Ammonium content in the soil will be displayed as mg/Kg.
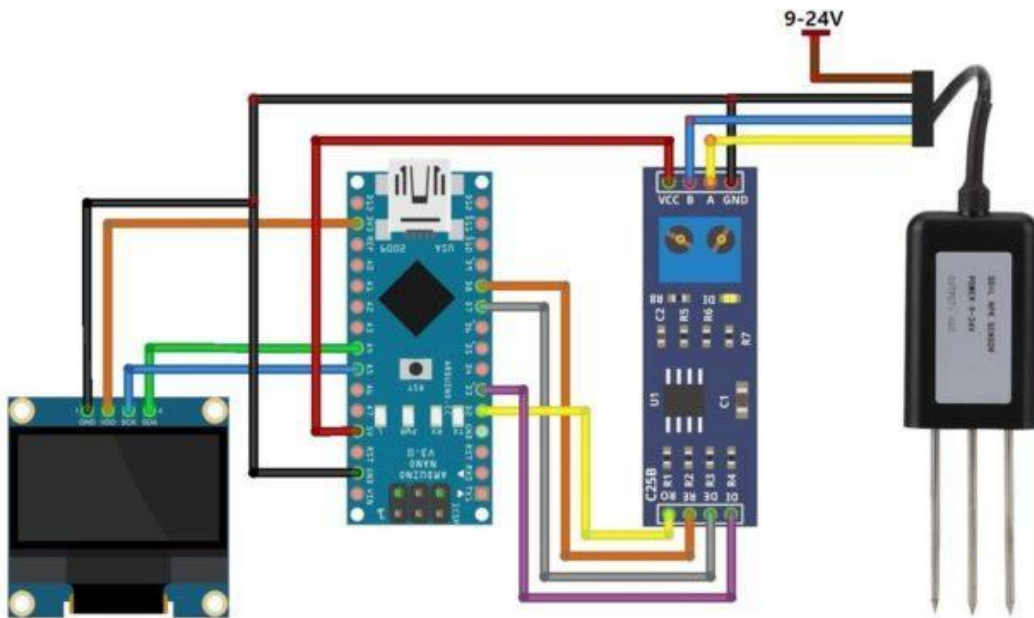

Fig 4: Aurdino base soil fertility testing module

G.Shalini Priya ,III .BTech,ECE

5.   Water leakage Detection system with Aurdino

Wastage and theft of water has become one of the major issues in India, a major source of wastage is leakage in the pipelines which are not noticed immediately. India contains over around 17 percent of the global population but only 4 percent of freshwater access and this will result in major water shortage in the country, whose effects will be compounded by climate change in the future.

Internet of Things is the idea of connecting remote devices together using the internet. This project aims to reduce water theft and leakage by using a system consisting of flow sensors, solenoid valves and a GSM module connected to an Arduino board which sends the data to the server which displays the results on a dashboard resulting in the real time monitoring of the flow rate of water on both ends of the pipe. It uses the solenoid valve to immediately shut off the water supply if there is a difference in the flow rate between the ends of the pipe and alerts the authority with a SMS using the GSM module with the last recorded flow rates and the location of the system.
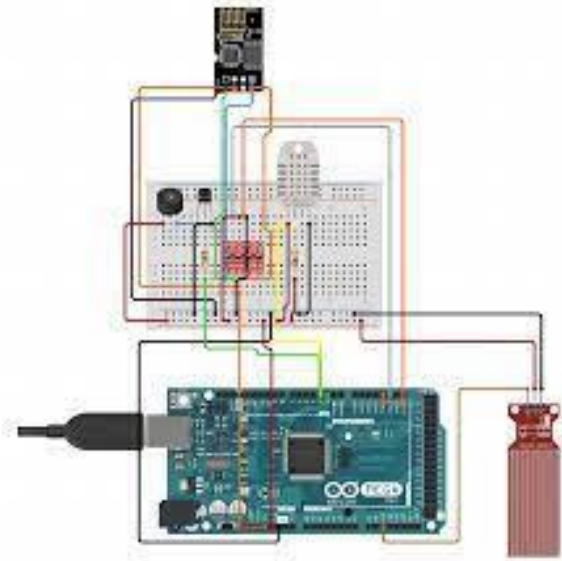
Fig 5: Water leakage detection module with Aurdino

Here is a model to develop a modern, efficient leak detection system with fast and accurate data transfer with location reporting. It uses Arduino and a slew of sensors to keep the cost down and fetch the water flow readings continuously, to measure the flow and amount of water passing through also with shutting down the water flow immediately when a leak is detected. Leaks can be caused by damage in the pipes or illegal water siphoning by creating openings in the pipes. The connections have a ic on representing the state they are in, green being the water flow is occurring and red being the water flow has been stopped. This module is useful for reducing water waste due to leaks and water thefts and provide real time monitoring of the system.

D.Amusha ,II.B.Tech,ECE

6. Ripening and quality detection of mango using Arduino

Ripening is the methodology of maturing fruit to become more palatable. The ripening procedure of mango contains different stages in which a mango develops. There is a specific example in which the way toward maturing of mango is satisfied. In this paper, we are developing a technique for identifying the different ripening stages of Climacteric fruit like mango by utilizing an Arduino framework which will predict the quality of mango and show the total ripening procedure as per the color changing stages with the help of MATLAB. The HSV color space is used to read the color changes of mango and the information about the ripening is
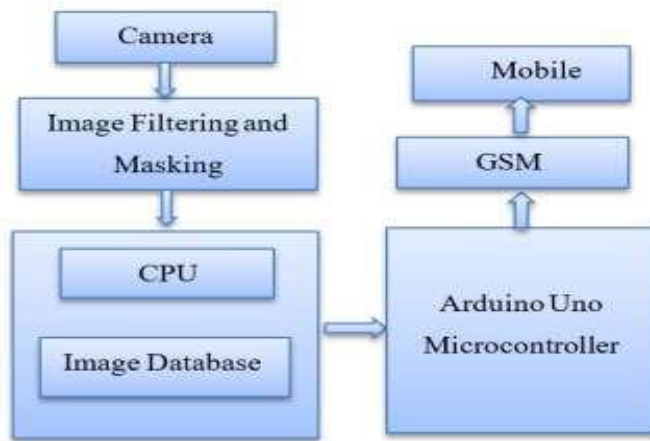send to the user via GSM module using Arduino.

Fig 6.Flow diagram to find ripening of Mango

The block diagram of the system is shown above consists of the USB camera which is used for the image Capturing of Mango fruit from agriculture field. It is processed with the help MATLAB R 2016a the reading of the image . After this analysis, the HSV color space values of acquired images are being obtained and these values are compared with the stored database. By comparing images, we get information about ripening stage of mango as well as the quality of it corresponding to the quality grades are assigned to mango. This data will be sent to Arduino microcontroller serially and then it is transferred to the user via GSM module .

The quality of mango is decided depending on the number of brownish spots and its darkness of brownish spot finding on mango.
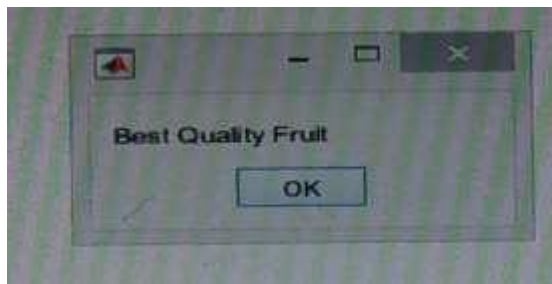

Fig 6. Result of tesing a mango

S.Mubeena,II .B.Tech

7.   Fake currency detection using image processing

The advancement of color printing technology has increased the rate of fake currency note printing and duplicating the notes on a very large scale. Few years back, the printing could be done in a print house, but now anyone can print a currency note with maximum accuracy using a simple laser printer. As a result the issue of fake notes instead of the genuine ones has been increased very largely. India has been unfortunately cursed with the problems like corruption and black money. And counterfeit of currency notes is also a big problem to it. This leads to design of a system that detects the fake currency note in a less time and in a more efficient manner. The proposed system gives an approach to verify the Indian currency notes. Verification of currency note is done by the concepts of image processing. This article describes extraction of various features of Indian currency notes. MATLAB software is used to extract the features of the note. The proposed system has got advantages like simplicity and high performance speed. The result will predict whether the currency note is fake or not.

2. Methodology
The system proposed here work here on the image of currency note under ultraviolet light acquired by a digital camera. The algorithm which is applied here is as follows
1. Acquisition of image of currency note under ultraviolet light by simple digital camera or scanner and convert RGB image to grayscale image.
2. Edge detection of whole gray scale image and characteristics features of the paper currency will be cropped and segmented.
3. After segmentation, characteristics of currency note are extracted.
4. Intensity of each feature is calculated.
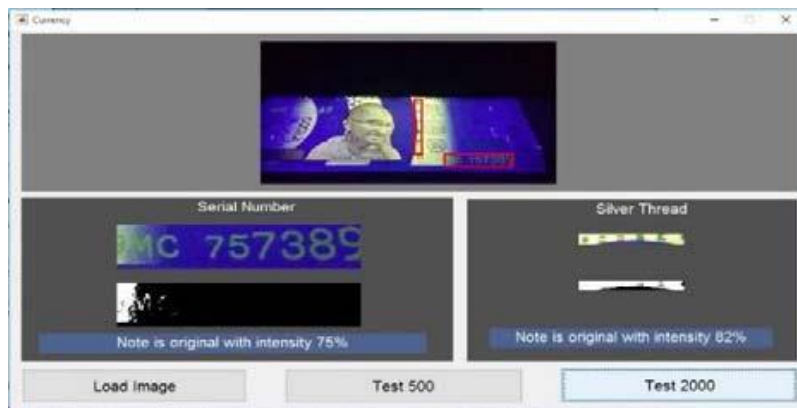5. If the condition is satisfied, then the currency note is said as original otherwise fake.

Fig 7.Testing a 2000 denomination note.

Ms. K. Swathi, IV Year

List of Work Shops &FDPs conducted

1	Interaction program on "Benefits of Python software"	Mr. Kurra yaswanth Sairam (18471A04E9), Company:Eitacies, Role: Python intern., Hitec city Hyderabad.	Mr. P. Bhagya Raju	08/07/2023	IV/I ECE-A Students (57)	Students
2	Interaction program on "Internet of Things"	Ms. Susmitha Polisetti (18471A04A6),Analyst , Deloitte Pvt. Limited, Hyderabad.	Mr. P. Bhagya Raju	08/07/2023	IV/I ECE-D Students (60)	Students
3	"PPT Presentation" by Department of ECE under IEEE WiE Society Chapter. on the occasion of "Woman In Engineering day"	1.Dr.A. Amrutha Valli , Associate Professor, Dept. of Botany & Micro Biology. ANU 2.Dr. Harivardhagini Subhadra, IEEE WIE Chair, Hyderabad Section	Dr. K. Raju	10/07/2023	III/I & IV/I ECE Students	Students
4	Interaction program on "Microwave Products"	Alumni Mr. Panchumarthi Dileep Kumar (17471A0482), Company: Astra Microwave Products Limited, Hyderabad, Role: Testing Engineer.	Mr. P. Bhagya Raju	15/07/2023	IV/I ECE-C Students (56)	Students
5	Interaction program on "Internet of Things"	Alumni Mr. Yerramsetty Sai Pavan (17471A04A6), Company: Accenture, Bangalore, Role: Engineering Analyst.	Mr. P. Bhagya Raju	15/07/2023	III/I ECE-D Students (60)	Students
6	Three Days workshop on "Industrial Internet of things" in association with IEEE NEC SB & Make Skilled innovations Park	Mr.P.Madhu, Make Skilled Innovations Park, Hyderabad	Dr. K. Raju	17/07/2023 to 19/07/2023	III/I ECE Students (100)	Students
7	Interaction program on "Importance of Aerospace related Jobs"	Alumni Mr. D. V. Bharghav Narayana (15471A04H5), Organization: Collins Aerospace, Bangalore, Role: Team Leader.		22/07/2023	IV/I ECE - A Students (50)	Students
8	"The Brain Teaser & Pick "N"Speak events" by ECE IEEE Student branch		Dr. K. Raju	12-08-2023.	II/1 ECE Students	Students

9	Interaction program on " Importance of technical Jobs"	Alumni Mr.P. Sri Manideep (19471A0439), Company: vi, Location : Hyderabad, Designation : Technical Assistant Controller internet protocol	Mr. P. Bhagya Raju	12-08-2023	III/I ECE-B Section students (65)	Students
10	Interaction program on " Importance of Technical Courses"	Alumni Ms.S. Sri Lakshmi Tulasi (19471A0453), Company: amdocs, Location: Pune, Designation : functional test engineer.	Mr. P. Bhagya Raju	12-08-2023	III/I ECE-B Section students (65)	Students
11	A seminar on " Awareness on GATE"	Mr. A. ASHOK, Asst.Manager - Business Development, OHM Institute Hyderabad	Dr. V. VenkataRao	23-08-2023	IV/I ECE Students (100).	Students
12	Interaction program on "Importance of Python related jobs"	Alumni: Mr. K.Kasi Viswanath (16471A04C8), Designation: Systems Engineer, Organization: TCS, Location: Hyderabad,	Mr. P. Bhagya Raju	26-08-2023	II/I ECE-D section students (55)	Students
13	On the eve of "Engineer's day" , 1. Power Point Presentation, 2.Technical Quiz events by ISTE		Dr. Y.Jaipal Reddy	14-09-2023	PPT:8 Batches, Technical Quiz: 12 Batches	Students
14	On the eve "Engineer's Day Celebrations", "Paper presentation and poster presentation competition" in Association with IETE Students Forum (ISF).	Mr. Bandi Bhaskar, Sub-Divisional Engineer, Broad Band BSNL, Guntur	Dr. A.V.NageswaraRao	15-09-2023	Paper Presentation: 15 Batches , poster Presentation:5 Batches.	Students
15	Guest Lecture on "Face the Global Competition:Higher Education & Job Opportunities" by Department of ECE, IQAC & IIC.	Mr. Royadas (Roy) Manthena, Senior Vice President, JP Morgan Chase, USA	Dr. V. Venkata Rao	27-09-2023	IV/I ECE Students (190)	Students

16	One week workshop on "EMBEDDED SYSTEMS". Organised by IQAC &Dept of ECE in association with ISTE, NEC SB.	B.Jagadeesh Chanrda Bose Sr Technical Resource Person, Axis Global Istitute of industrial Training (AGIIT) Chennai.	Y.JAIPAL REDDY	29-01-24 TO 03/02/24	II/II ECE Students (62)	Students
17	One Week Workshop on 5G Deployment and Appproach for 6G communications	Mr.R.Venkata Ramana Radiate Solutions,Vijayawada	Dr. K. Raju	12-02-24 TO 17-02-24	II-II & III-II-B-Tech ECE students 62	Students
18	A Peer Learning Programme Two Days Workshop on TEACHING WITH TINKERCARD	III -II B.Tech students	Dr. K. Raju	23.02.2024 TO 24.02.2024	II-II ECE Students 63	Students
19	"JUBILATION-2K24- A National Level Student Tech Fest" in Association IETE, IEEE and ISTE. Events: 1. Project Expo, 2. Technical PPT, 3. Circuitrix, 4. Technical Quiz.	Department of ECE.	Dr. V. Venkata Rao	01-03-2024 TO 02-03-2024		64 (External) +58 (Internal) = 122.
20	A 7th International Conference on "Advances in Signal Processing and Communications NEC-ICASPC-2K24"	Organized by Department of ECE, in Narasaraopeta Engineering College	Dr. SK. Bajidvali	19-04-2024 & 20-04-2024.	ECE Dept: HOD, Faculty, IV-Year Students, out side college Faculty and Students, Principal and Management.	Faculty &Students

NARASARAOPETA ENGINEERING COLLEGE
(AUTONOMOUS)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
III B.Tech. I Semester, ECE Toppers List (2021 Batch)

K.V.VIJAYA LAKSHMI 21471A04D8 9.30	**G.CHAITANYA PRIYA** 21471A04I9 9.23	**P.DURGA PRASAD** 21471A04L1 9.09
M.YOGA AMULYA 21471A0426 9.02	**SK.NAZMA** 21471A0428 9.02	**B.SAI NANDU** 21471A04C3 9.02
K.KARTHIK 21471A04D4 9.02	**T.SAI TEJA** 22475A0419 9.02	**P.NAGA KRISHNA** 21471A0436 8.88
D.JASWANTH 21471A04C9 8.88	**K.SRI KAVYA** 21471A04E0 8.88	**B.KOMAL SAI** 21471A04I4 8.88
P.ASWINI 21471A04L0 8.88		

Management, Principal, HOD & Faculty Express their Hearty Congratulations to Toppers in III B.Tech. I Sem

NARASARAOPETA ENGINEERING COLLEGE
(AUTONOMOUS)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
II B.Tech. I Semester, ECE Toppers List (2022 Batch)

J.BHAVANI 22471A0420 9.44	**K.G.V.N.TRIVENI** 22471A0429 9.44	**R.B.P.UMA DEVI** 22471A0446 9.44
D.VENKATA LAKSHMI 22471A04F5 9.44	**AALLA YASASWI** 22471A0471 9.3	**V.ROSHINI** 23475A0407 9.3
M.V.N.M.S.S.NAVYA 22471A04A7 9.02	**K.NAVYA** 22471A0428 8.88	**M.NAVYA TEJA** 22471A0434 8.88
P.NAGA VAMSI 22471A0444 8.88	**P.L.PRANATHI** 22471A04B2 8.88	**CH.L.THRIVENI** 22471A04L7 8.88

Management, Principal, HOD & Faculty Express their Hearty Congratulations to Toppers in II B.Tech. I Sem

NPTEL CERTIFICATION DETAILS(Students)

S.NO	Name of the Course	Duration	Number of Students Completed	Class
1	Introduction to Internet of things	Jul-Oct-2023	21	IV-1 ECE
2	Introduction to Internet of things	Jan-Apr-2023	248	IV-1 ECE

List of Industries/ academic institutions with which the Institute has entered into Memorandum of Understanding (MOUs) for the department of ECE.

S. No.	Name and Address of Organization	Date of MoU	Period	Nature of MOU
1	Vectra Technosoft Pvt. Ltd, CHENNAI, Tamil Nadu	30-08-2021	3 years	Industrial Training & Visits, Internship & Placements to students, R&D, Guest Lectures, FDPs, Skill Development
2	AGIIT (AXIS Global Institute of Industrial Training . Hyderabad	30-08-2021	3 years	Skill Development Programs
3	Falcon IT Training & Educational Services LLP, Hyderabad	30-08-2021	3 years	R&D, FDPs
4	Lineysha & Thevan Software Technologies Pvt Ltd,Vijayawada	24-11-2021	2 years	Organize Training Programs, seminars, workshops and Conferences
5	AVODHA Edutech Pvt Ltd, Banglore.	29-11-2021	2 years	Organizing Training Programs, Conferences
6	Edu Skills National Building Through Skills	24-11-2022	5 years	Skill Development Programs and Training Programs-
7	LEO Global Overseas Educational Consultancy	24-02-2023	3 years	Industry Training, Guest Lectures and Placement and training and Technical resource support
8	Ve-Educare	17-04-2023	3 years	Organize Training Programs, seminars,
9	Celonis SE	27-04-2023	2 years	To cooperate in the academic area for technology and trainings for sharing technology useful in academic activities
10	MCoreta	7/10/2023	3years	MCoreta will provide necessary support & Consulting, related services as and when required to the team members.
11	SRC e solutions	15/12/2023	2 years	Skill Development Programs and Training Programs

List of Industries/ academic institutions with which the Institute has entered into Memorandum of Understanding (MOUs) for the department of ECE.

S. No.	Name and Address of Organization	Date of MoU	Period	Nature of MOU
1	Byte^{XL} India Pvt. Ltd., Hyderabad 500032	16-10-2020	3 years	Skill Development Programs
2	Vectra Technosoft Pvt. Ltd, CHENNAI, Tamil Nadu	30-08-2021	3 years	Industrial Training & Visits, Internship & Placements to students, R&D, Guest Lectures, FDPs, Skill Development
3	AGIIT (AXIS Global Institute of Industrial Training . Hyderabad	30-08-2021	3 years	Skill Development Programs
4	Falcon IT Training & Educational Services LLP, Hyderabad	30-08-2021	3 years	R&D, FDPs
5	Lineysha & Thevan Software Technologies Pvt Ltd,Vijayawada	24-11-2021	2 years	Organize Training Programs, seminars, workshops and Conferences
6	AVODHA Edutech Pvt Ltd, Banglore.	29-11-2021	2 years	Organizing Training Programs, Conferences
7	Edu Skills National Building Through Skills	24-11-2022	5 years	Skill Development Programs and Training Programs-
8	LEO Global Overseas Educational Consultancy	24-02-2023	3 years	Industry Training, Guest Lectures and Placement and training and Technical resource support
9	Ve-Educare	17-04-2023	3 years	Organize Training Programs, seminars,
10	Celonis SE	27-04-2023	2 years	To cooperate in the academic area for technology and trainings for sharing technology useful in academic activities

MEMORANDUM OF UNDERSTANDING

(MoU)

BETWEEN

ExcelR Solutions

&

**Narasaraopeta Engineering College,
Narasaraopet, Guntur**

FOR

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 KANTH
Director

LEO GLOBAL OVERSEAS EDUCATIONAL CONSULTANCY

Vijaya Complex, Opp. Vijetha Super Market, 5th Lane Brindavan Gardens, Guntur - 522006.

Guntur - 8519955599, 8519855999, Ph : 0863-2255959

MEMORANDUM OF UNDERSTANDING (MOU)

BETWEEN

NARASARAOPETA ENGINEERING COLLEGE (AUTONOMOUS)

AND

LEO GLOBAL OVERSEAS EDUCATIONAL CONSULTANCY

This Memorandum of Understanding (herein after called as the 'MoU') is entered into on this the 24th day of FEB 2023 by and between **Narasaraopeta Engineering College (Autonomous)**, the First Party represented herein by its Principal, **Dr. M. Sreenivasa Kumar**

And

LEO Global Overseas Educational Consultancy, the second party and represented herein by its Director, **Dr. Veeranjaneyulu Lagadapati (Managing Director).**

WHEREAS:

A) First Party is a Higher Educational Institution named: **Narasaraopeta Engineering College (Autonomous)**.

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, Industrial Visit, Expert Lecture.

D) **LEO Global Overseas Educational Consultancy** - the Second Party is engaged in providing overseas career consultancy and placement services.