**KPR** Institute of Engineering and Technology

(Autonomous)

Avinashi Road, Arasur, Coimbatore - 641 407

LEARN BEYOND

# Department of Electronics and Communication Engineering
## (Accredited by NBA)

# NEWSLETTER- JULY- SEPTEMBER 2020 ISSUE

# EDITORIAL BOARD

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   Dr.M.Kathirvelu
   Professor & Head

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   Ms.R.Aswatha
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   Mr.R.Selvam - II ECE

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   Ms.M.Indu Darshini - III ECE

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   Mr.G.Bharath - IV ECE

## ➤ Vision

To be a department of repute for learning and research with state-of-the-art facilities to enable the students to succeed in globally competitive environment

## ➤ Mission

- To impart knowledge and skill based education with competent faculty striving for academic excellence
- To instill research centres in the field that industry needs, by collaborating with organizations of repute
- To provide ethical and value based education by promoting activities addressing the societal needs and facilitates lifelong learning

## ➤ Programme Educational Objectives

- **PEO 1:** Graduates will possess an adequate knowledge and have successful technical career in Electronics and Communication Engineering or related fields
- **PEO 2:** Graduates will possess leadership qualities and demonstrate professional and ethical values
- **PEO 3:** Graduates will continue their life-long professional development through higher education or entrepreneurship

# EVENT ORGANISED

➢ A webinar on **"Career Options and Opportunities for Electronics Engineers"** was organized by Department of Electronics and Communication Engineering on 04th July 2020. Er.C.V.Renjith, Product Designer, Philips Healthcare, INDIA enlightened the participants with his insight ideas about career planning in engineering field. He briefed about the key role of electronics in industries like IT services, Product Companies and Semiconductor manufacturing companies. He insisted that students can start their career in electronics industries by acquiring a sound knowledge and skill sets in PCB design process, IC design processes and selective core field tools.
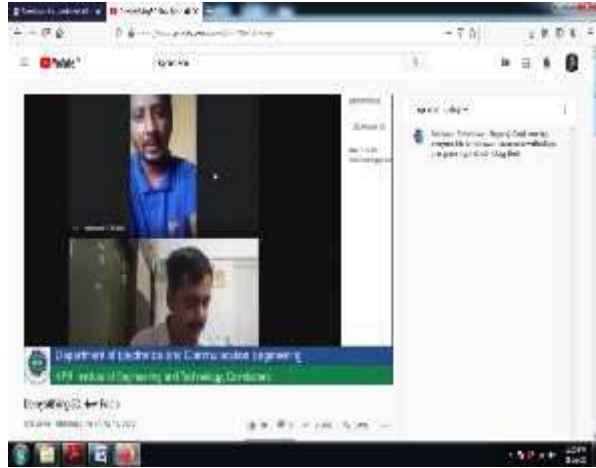


➢ A webinar on **"Internet of Things: Architecture, Applications and Future Trends"** was organized by the department of ECE, KPR Institute of Engineering and Technology on 28th July 2020 remotely through online mode. The session was handled by Dr.S.Neduncheliyan, Dean, School of Computer Science & Engineering, Bharath Institute of Higher Education and Research, Chennai. He addressed the participants in topics pertaining to IoT architectures, applications, challenges and future scopes. Total of 189 members participated from various countries including Bangladesh and Oman.



➢ Department of ECE has organized one day webinar titled **"Demystifying 5G New Radio"** on 15th July 2020. The keynote address was given by Dr.Balaji.V. He is a Research Consultant

and Founder of Radiance Technology Research Services Pvt Ltd, Coimbatore. He presented background, concept, architecture of 5G, speed on 5G progress worldwide and lead a discussion on how 5G mobile is driving the pace of change in service experience. Total of 186 Participants attended the webinar.



- The Department of Electronics and Communication Engineering and Continuing Education Programme (CEP) of KPR Institute of Engineering and Technology organized a webinar on **"Integrating Engineering Technologies and Research Avenues"** on 5th August 2020. The webinar exposed the participants to gain good knowledge in Multirate DSP, VLSI and Embedded systems. There were around 50+ active participants including faculty members and students.



- The Continuing Education Programme (CEP) of KPR Institute of Engineering and Technology organized a training programme on "Introduction to MATLAB" for faculty members and students from ECE department on 30th July 2020. The outcome of the programme will be getting exposed to basic knowledge in MATLAB Software. There were around 65 active participants including faculty members and students.

> A webinar on **"Oppurtunities in Vlsi Industry -Post Covid-19"** was organized by the department of Electronics and Communication Engineering, KPRIET on 25th July 2020. It was organised remotely through online mode of conduct for the faculty members and students of various colleges and universities all over India. Mr.N.Kanagaraj, Staff Engineer, Qualcomm, Bangalore, enlightened the participants about the design engineer role as front end and back end. The basic fundamentals with real time industry scenarios explained very well by the presenter. He also explained various coding techniques, verilog concepts, digital designs and designations available for engineers in VLSI platform. He addressed the importance of testing engineer and its preparation towards industry perspective in a structured way. The participants actively participated in the program through raising their queries and appraising the presenter through the messages. The program was attended by 162 participants through Google meet. The participants appreciated through feedback about the program and appealed to conduct patent procedure for industry requirements in the near future.



> The Department of ECE, KPR Institute of Engineering & Technology Organized a Webinar on **"Opportunities in Japan and How Indians can get benefit from it?"** on 5th August 2020. It was an interactive session by the resource person Mr.Vasudevan Dasun Jagadeesan,SAP ABAP Consultant, Mitsubishi Electric Corporeation , Japan. He addressed about work opportunities in Japan and suggested few consultancy in India.

> The Department of Electronics and Communication Engineering and Continuing Education Programme (CEP) of KPR Institute of Engineering and Technology organized a 3 days Faculty Training Programme on **"Artificial Intelligence, Image Processing, Computer Vision & Deep Learning using MATLAB"** on 28th to 30th September 2020. The faculty training programme exposed the participants to gain good knowledge in usage of Image Processing Tool box, Computer Vision Tool box, Machine Learning Tool box and Deep Learning Tool box. A real time application example was demonstrated during the training programme session. It helped and encouraged the participants to involve them in few project works.



> Virtual alumni meet was arranged for 2015-2019 batch students on 11th July 2020.

> Virtual alumni meet was arranged for 2015-2019 batch students on 12<sup>th</sup> July 2020.



> Virtual alumni meet was arranged for 2015-2019 batch students on 18<sup>th</sup> July 2020.



> Virtual alumni meet was arranged for 2015-2019 batch students on 19<sup>th</sup> July 2020.

# FACULTY PUBLICATIONS

➤ J.Muralidharan, Anand Anbalagan, K.Arun and P.Karthikeyan , "Area efficient design of a redundant binary multiplier Using modified partial product generator and Compressors", Journal Of Critical Reviews, Vol.7, no.13, pp.1800-1805, July 2020. **(Scopus)**

➤ J.Muralidharan, Mr. Ravikumar, Ms. Sri Vidya and Mr. P. Karthiikeyan, "A Novel and Efficient Design of Conflict Free Memory Address Schemes", Journal of Critical Reviews, Vol.7, no.13, pp.1794-1799, July 2020. **(Scopus)**

➤ J.Muralidharan, Dr.R.Dhanagopal and Pankaj Kumar, "Design of High Performance and Functional Verification of Dsp Board Using Vlsi Architecture", Journal of Critical Reviews, Vol.7, no.4, pp.1761-1764, August 2020. **(Scopus)**

➤ Seethalakshmi V, Nithya S, Aswatha R, Gunanandhini S, Kayathiridevi K and Sumathi K, "Performance Analysis and Simulation of Microstrip patch antenna using CST Studio for Wi-Fi applications ", Waffen-und kostumkunde Journal, Vol.09, no.8, pp.144-152, August 2020. **(Web of Science)**

➤ Manikandan M, Dhivyasri G, Chandran V, Nirmal D and Prajoon P, "Luminous power improvement in InGaN V-Shaped Quantum Well LED using CSG on SiC Substrate", IOP Conference Series: Materials Science and Engineering, doi:10.1088/1757-899X/906/1/01201, August 2020. **(Scopus )**

➤ K. Kalirajan, R.Jamuna, G. Shanthi, L.Raja and G. Harikrishnan, "Edge Detection Based Feature Extraction for Intelligent Car Parking System", Waffen-und kostumkunde Journal, Vol.09, no.8, pp.108-119, August 2020. **(Web of Science)**

➤ Mr.S.Satheesh Kumar, R.Sowmya, Dr.B.Maruthi Shankar, N. Lingaraj, Dr.S.A.Sivakumar, "Analysis of Connected Word Recognition systems using Levenberg Marquardt Algorithm for cockpit control in unmanned aircrafts", Elsevier-Materials today Proceedings, August 2020. **( Scopus)**

- Kathirvelu M and Rajendran A, "Design of High Performance Binary Circuits for Low Power Applications", Bioscience Biotechnology Research Communications, Vol.13, no.6, pp.131-135, August 2020. **(Web of Science)**

- S.Kirubakaran, K.Saravanan, C.Kamalanathan, R.Gowrishankar and Senthilkumar.J, "Tree Based Routing Algorithm for Zigbee Wireless Networks", Journal of Critical Reviews, Vol.7, no.7, pp.1961-1967, August 2020. **(Scopus)**

- S.Satheesh Kumar , D.Selvakumar, N.Jeeva, J.S.Sujin and S.P.Karthi, "Hand Gesture Control Robot for Fire Detection and Prevention", International Journal of Future Generation Communication and Networking,Vol.13, no.4, pp.340-343 11, September 2020. **(Scopus)**

- Nithya S, Seethalakshmi V, Gunanandhini S and Saranya G, " Design of High Gain Microstrip Patch Antenna for 5G Communication using CST", National Taiwan University of Science and Technology,Vol.35, no.3, pp.158-162, September 2020. **(Scopus)**

## FACULTY AS RESOURCE SPEAKER

- Dr.M.kathirvelu Professor and Head/ECE and Dr D Venugopal, Professor from the Department of ECE, were designated as the Resource Persons for the Webinar titled "Career opportunities for Diploma ECE and EEE graduates" at SAKTHI POLYTECHNIC COLLEGE on 20TH July, 2020. They covered the core, IT and government sector opportunities for diploma graduates. Nearly 50 participants from various Institutions in and around Tamil Nadu were benefitted through the event.



- Mr. Dr.N.Rajesh Kumar, Assistant Professor from the Department of ECE, was designated as the Resource Person for a webinar titled "UDAL MOZHI" at UDUMALI ARIVU THIRUKOIL on 7TH July 2020. He focused on the thrust areas such as physical body language on various aspects. Nearly 60 participants from various Institutions in and around Tamil Nadu were benefitted through the event.

> Mr. Dr.N.Rajesh Kumar, Assistant Professor from the Department of ECE, was designated as the Resource Person for a webinar titled "Success for Future" at Chemical Engineering department on 6th July 2020. He focused on the thrust areas such as opportunities in chemical engineering on various aspects. Nearly 35 participants from various Institutions in and around Tamil Nadu were benefitted through the event.

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> Mr.S.Satheesh Kumar, Assistant Professor from the Department of ECE, was designated as the resource person for the webinar titled "AI and Virtual Robotics" at Gnanamani College of Technology, Namakkalon 15th July 2020. He focused on the thrust areas such as Virtual Robotics, Lego Minds and Deep Learning. Nearly 375 participants from various Institutions in and around India were benefitted through the event.

## FACULTY PATENT PUBLICATION

| S. No. | Name of the Applicant/Inventor | Title of the Project/Invention | Application No. | Date of Publication | Current Status |
|---|---|---|---|---|---|
| 1 | Muralidharan J | A Method Of Designing Advertisement Boards Using Conductive 3d Printable Electronic Sensors | Patent No: 020101637 | 04.08.2020 | Published with Certificate of Grant |
| 2 | Dr.S.Kirubakaran | Smart Walking Stick For Sightless People | 202041032056 | 07.08.2020 | Published |
| 3 | Mr. M.Manikandan Dr.K.S. Tamilselvan Dr.G. Dhivyasri Mr. V.Chandran | Automatic E-Sanitizer Spray For Vehicles | 02041032057 | 07.08.2020 | Published |
| 4 | Reethika A | System For Time Variant Back Pain Data Recording Using IoT | Patent No: 020101847 | 16.08.2020 | Published with Certificate of Grant |
| 5 | Dr.D.Venugopal | Internet of Things (IoT) Network Architecture System based application method | 202041039647 | 25.09.2020 | Published |

# FACULTY INTERNSHIP

| Name of the Faculty | Name of the Industry/Organization | subject/area | Date |
|---|---|---|---|
| Mr.K.Saravanan | Sai Incubation Centre, Coimbatore | Internship on Internet of Things | 21-09-2020 to 03-10-2020 |
| Dr.N.Rajeshkumar | Sai Incubation Centre, Coimbatore | Internship on Internet of Things | 21-09-2020 to 03-10-2020 |
| Dr.S.Kirubakaran | Sai Incubation Centre, Coimbatore | Internship on Internet of Things | 21-09-2020 to 03-10-2020 |
| Mr.Siddharthraju | Sai Incubation Centre, Coimbatore | Internship on Internet of Things | 21-09-2020 to 03-10-2020 |
| Mr.T.Jagadesh | Sai Incubation Centre, Coimbatore | Internship on Internet of Things | 21-09-2020 to 03-10-2020 |
| Dr.V.Seethalakshmi | Silicon systems, Coimbatore | Internship on antenna design, fabrication and testing | 26-09-2020 to 06-10-2020 |
| Ms.S.Nithya | Silicon systems, Coimbatore | Internship on antenna design, fabrication and testing | 26-09-2020 to 06-10-2020 |
| Mr.V.Chandraprasad | Silicon systems, Coimbatore | Internship on antenna design, fabrication and testing | 26-09-2020 to 06-10-2020 |
| Ms.R.Aswatha | Silicon systems, Coimbatore | Internship on antenna design, fabrication and testing | 26-09-2020 to 06-10-2020 |
| Ms.S.Gunanandhini | Silicon systems, Coimbatore | Internship on antenna design, fabrication and testing | 26-09-2020 to 06-10-2020 |
| Mr.N.Sathish Kumar | Silicon systems, Coimbatore | Internship on antenna design, fabrication and testing | 26-09-2020 to 06-10-2020 |
| Mr.M.Singaram | Silicon systems, Coimbatore | Internship on antenna design, fabrication and testing | 26-09-2020 to 06-10-2020 |
| Mr.S.P.Cowsigan | Silicon systems, Coimbatore | Internship on antenna design, fabrication and testing | 26-09-2020 to 06-10-2020 |

# FACULTY PARTICIPATION

| Name of the Faculty | FDP/STTP/OFDP Title | Organization Name | Start Date | End Date |
|---|---|---|---|---|
| Mr.G.Pradeepkumar | FDP on Academic Transformation with Secrets of Empowerment | Rajiv Gandhi Institute of Technology, Mumbai | 23-07-2020 | 25-07-2020 |

| | | | | |
|---|---|---|---|---|
| Mr.G.Pradeepkumar | FDP on Applications of Mathematics in Engineering | KPR Institute of Engineering and Technology | 27-07-2020 | 31-07-2020 |
| Mr.G.Pradeepkumar | Research Opportunities in Image Processing and Machine | Chaitanya Bharathi Institute of Technology | 29-06-2020 | 03-07-2020 |
| Mr.G.Pradeepkumar | Recent Advances in Biomedical Applications and communication Neworks | GRM Institute of Technology | 13-07-2020 | 18-07-2020 |
| Mr.T.Venkatesh | Recent advances in Bio medical Applications and communication Networks | GMR Institute of technology | 13-07-2020 | 18-07-2020 |
| Mr.T.Venkatesh | Recents Trends in E & C | Balaji Institute of Technology and sciences | 13-07-2020 | 18-07-2020 |
| Ms.A.Reethika | Recent advances in biomedical applications and communication networks | GMR Institute of Engineering and Technology | 13-07-2020 | 18-07-2020 |
| Ms.A.Reethika | National Level Online Faculty Development Program | VIKAS College of Engineering and Technology | 27-06-2020 | 07-10-2020 |
| Ms.A.Reethika | Five Day National Level Online FDP Program on Recent Trends in Computer Science | Computer Science & Engineering, RGMCET, | 30-06-2020 | 04-07-2020 |
| Ms.A.Reethika | Applications of Maths in Engineering | KPR Institute of Engineering and Technology | 20-07-2020 | 25-07-2020 |
| Ms.A.Reethika | Emerging Trends in Data Science & IoT | Arka Jain University | 20-07-2020 | 25-07-2020 |
| Ms.A.Reethika | Recent trends in Electronics and Communication | Balaji institute of technology & science | 13-07-2020 | 18-07-2020 |
| Dr.N.Rajeshkumar | Demystifying 5G | KPR Institute of Engineering and Technology | 17-07-2020 | 17-07-2020 |
| Ms.MD.Saranya | Cognitive radio WSN Application challenges and research trends | Vivekananda Engineering College | 20-07-2020 | 25-07-2020 |
| Ms.MD.Saranya | Programming Enhanced mid range pic microcontroller using mplabx ide and digital proteus | SSN College of Engineering | 20-07-2020 | 22-07-2020 |
| Ms.M.Supriya | Recent advances in BIomedical applications and communication networks | GMR Institute of Technology | 13-07-2020 | 18-07-2020 |
| Ms.M.Supriya | Recent trends in Electronics and communication | Balaji Institute of Engineering and science | 13-07-2020 | 18-07-2020 |

| | | | | |
|---|---|---|---|---|
| Dr.J.Muralidharan | High Performance Intelligent Real Time Embedded System Design and IoT to Accelerate Automation System into Autonomous System | R.M.K. Engineering College | 20-07-2020 | 25-07-2020 |
| Dr.J.Muralidharan | G Suite and Allied Tools | Sant Gadge Baba Amravati University | 29-06-2020 | 04-07-2020 |
| Dr.J.Muralidharan | Recent Challenges in Industrial Automation and Embedded System | Sri Ramakrishna Institute of Technology | 06-07-2020 | 11-07-2020 |
| Dr.J.Muralidharan | VLSI in Industry 4.0. | Karunya Institute of Technology | 15-07-2020 | 17-07-2020 |
| Dr.J.Muralidharan | Artificial Intelligence in healthcare | Kumaraguru College of Technology | 16-07-2020 | 22-07-2020 |
| Mr.N.SathishKumar | Emerging trends in data science and IoT | Jain University | 20-07-2020 | 25-07-2020 |
| Mr.N.SathishKumar | Application of Mathematics in Engineering | KPR Institute of Engineering and Technology | 27-07-2020 | 31-07-2020 |
| Mr.N.SathishKumar | Next Generation Smart Machines | Karunya Institute of Technology | 27-07-2020 | 29-07-2020 |
| Mr.N.SathishKumar | Recent Advances in Bio Medical Applications and Communication Networks | GMR Institute of Technology | 13-07-2020 | 18-07-2020 |
| Ms.R.Aswatha | Recent Advances in Biomedical Applications and Communication Networks | GMR Institute of Technology | 13-07-2020 | 18-07-2020 |
| Ms.R.Aswatha | Deep Learning Unfolded-2020 | KPR Institute of Engineering and Technology | 13-07-2020 | 17-07-2020 |
| Ms.R.Aswatha | Applications of Mathematics in Engineering | KPR Institute of Engineering and Technology | 27-07-2020 | 31-07-2020 |
| Ms.R.Aswatha | Recent trends in ECE | Balaji Institute of Technology and Science | 13-07-2020 | 18-07-2020 |
| Dr.S.Kirubakaran | Applications of Mathematics in Engineering | KPR Institute of Engineering and Technology | 27-07-2020 | 31-07-2020 |
| Dr.S.Kirubakaran | Recent Advances in Antennas and Applications | KL University | 14-07-2020 | 18-07-2020 |
| Mr.T.Shanmugaraja | Recent Trends in Electronics and Communication | Balaji Institute of Engineering and Science | 13-07-2020 | 18-07-2020 |
| Mr.T.Shanmugaraja | Recent Trends in biomedical application and Communication networks | GMR Institute of Technology | 13-07-2020 | 18-07-2020 |
| Dr.V.Seethalakshmi | Technologies with Social Relevance" | GMR Institute of Technology | 27-07-2020 | 01-08-2020 |

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|---|---|---|---|---|
| Dr.V.Seethalakshmi | Artificial Intelligence and Data Analytics for Automation | Karunya Institute of Technology | 27-07-2020 | 31-07-2020 |
| Dr.V.Seethalakshmi | Applications of Mathematics in Engineering | KPR Institute of Engineering and Technology | 27-07-2020 | 31-07-2020 |
| Mr.M.Singaram | Applications of mathematics in Engineering | KPR Institute of Engineering and Technology | 27-07-2020 | 31-07-2020 |
| Dr.K.Kalirajan | Applications of Mathematics in Engineering | KPR Institute of Engineering and Technology | 27-07-2020 | 31-07-2020 |
| Dr.K.Kalirajan | Exploring the Nuances of Deep Learning for Research Applications - A Deeper Experience | Karunya Institute of Technology and Sciences. | 13-07-2020 | 17-07-2020 |
| Dr.K.Kalirajan | AritificalIntelligence and Data Analytics for Automation- A practical Approach | Karunya Institute of Technology and Sciences | 27-07-2020 | 01-08-2020 |
| Ms.S.Nithya | Evolution of 5G | KGISL Institute of Technology | 29-06-2020 | 05-07-2020 |
| Mr.M.Manikandan | Recent trends in Electronics and Communication | Balaji Institute of Technology and Sciences | 13-07-2020 | 18-07-2020 |
| Dr.D.Venugopal | FDP on AI | AICTE Training And Learning (ATAL) Academy | 21-09-2020 | 25-09-2020 |
| Mr.G.Pradeepkumar | FDP on Artificial Intelligence | AICTE Training And Learning (ATAL) Academy | 31-08-2020 | 04-09-2020 |
| Dr.K.Murugan | FDP on Augmented and Virtual Reality | Thiagarajar Polytechnic college | 17-08-2020 | 21-08-2020 |
| Ms.R.Dhivya Devi | FDP on VLSI Physical Design Using Cadence Innovus Tool | St.Joseph college of engineering | 20-07-2020 | 24-07-2020 |
| Ms.R.Dhivya Devi | ATAL FDP on Organizational Behaviour | PSGR Krishnammal College for Women. | 21-09-2020 | 25-09-2020 |
| Ms.A.Reethika | Technologies with Social Relevance | GMR Institute of Technology | 27-07-2020 | 01-08-2020 |
| Ms.A.Reethika | Artificial Intelligence and Data Analytics for Automation | Karunya Institute of Technology and Sciences. | 27-07-2020 | 31-07-2020 |
| Ms.A.Reethika | Recent Trends in Embedded Systems | MGIT,Hyderabad | 07-08-2020 | 11-08-2020 |
| Ms.A.Reethika | Control Systems & Sensors Technology | AICTE Training And Learning (ATAL) Academy | 21-09-2020 | 25-09-2020 |
| Ms.R.Aswatha | Wearable Devices | AICTE Training And Learning (ATAL) Academy | 14-09-2020 | 18-09-2020 |

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|---|---|---|---|---|
| Dr.N.Rajeshkumar | Enhancing Customer Experience Using AI | Sri Eshwar College of Engineering | 13-08-2020 | 13-08-2020 |
| Dr.N.Rajeshkumar | Future Trends in Automotive Industry | Sri Eshwar College of Engineering | 12-08-2020 | 12-08-2020 |
| Dr.N.Rajeshkumar | Evolving as a Healthy Engineer | Sri Eshwar College of Engineering | 08-08-2020 | 08-08-2020 |
| Dr.V.Seethalakshmi | STTP on Wearable Devices | AICTE Training And Learning (ATAL) Academy | 14-09-2020 | 18-09-2020 |
| Dr.V.Seethalakshmi | STTP on Sensors Technology | AICTE Training And Learning (ATAL) Academy | 17-08-2020 | 21-08-2020 |
| Mr.S.Satheesh kumar | FDP report on 3D Printing & Design | Sri Krishna College of Engineering and Technology | 07-09-2020 | 11-09-2020 |
| Dr.J.Muralidharan | FDP on Data Science | IFET College of Engineering | 28-09-2020 | 02-10-2020 |
| Dr.J.Muralidharan | FDP on Block Chain | Mahendra Engineering College | 31-08-2020 | 04-09-2020 |
| Mr.S.P.Cowsigan | Wearable Devices for Assistive Technology | Kongu Engineering College | 14-09-2020 | 18-09-2020 |
| Ms.MD.Saranya | Power Electronics in Smart grid and Electric Vehicle | Sri Ramakrishna Engineering College | 03-08-2020 | 07-08-2020 |
| Dr.J.Muralidharan | Evolving Research Trends in Electronics & Communications | Talla Padmavathi College of Engineering | 03-08-2020 | 08-08-2020 |
| Dr.J.Muralidharan | To Bridge Gap Between Industry and Academia | Don Bosco Institute of Technology | 03-08-2020 | 07-08-2020 |
| Ms.K.Kayathiri Devi | Recent Advances in Embedded Systems | MGIT,Hyderabad | 07-08-2020 | 11-08-2020 |
| Dr.G.Dhivyasri | Emerging Research Trends in VLSI, MEMs and Signal Processing | Saintgits College of Engineering | 10-08-2020 | 13-08-2020 |

# PLACEMENT DETAILS

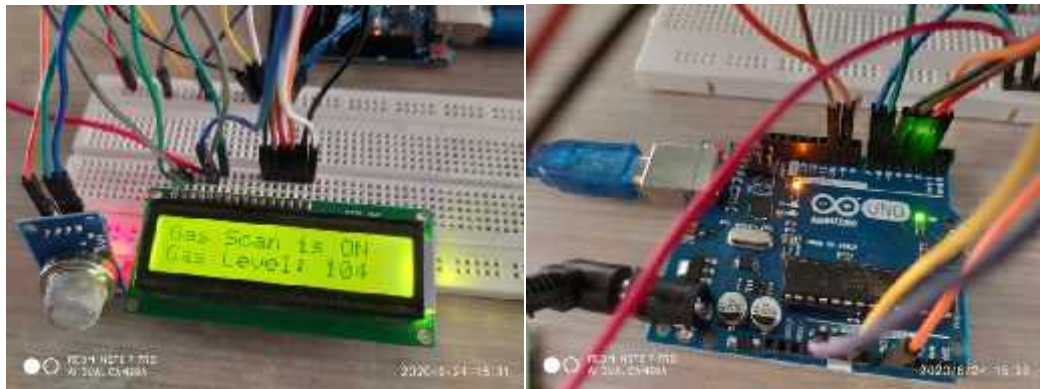| Name of the student | Name of the company | CTC |
|---|---|---|
| ADARSH J | TCS | 3.5 CTC |
| ADARSH J | HEXAWARE | 3.5 CTC |
| ASVITHA R | HEXAWARE | 3.5 CTC |
| KAVIYAA VARSHANI  V S | HEXAWARE | 3.5 CTC |
| POOJA KUMARI B | HEXAWARE | 3.5 CTC |
| MADHUMITHA R | HEXAWARE | 3.5 CTC |
| MUKUNTHAN L | HEXAWARE | 3.5 CTC |
| BHARAT RAM J | VVDN | 3.2 CTC |
| CATHERINE HARINI G | VVDN | 3.2 CTC |
| GOKUL R | VVDN | 3.2 CTC |
| KOWSHIK KUMARAN R | VVDN | 3.2 CTC |
| RAJESHWARI B | VVDN | 3.2 CTC |
| SURJITH M | VVDN | 3.2 CTC |
| SIDHARTH T | KAAR | 6.5 |
| MUTHUKUMARAN N | BSH CHENNAI | 4-5 CTC |
| RANJITH KUMAR R | BSH(LABVIEW) | 5 CTC |
| RUBIKA M | BSH CHENNAI | 4-5 CTC |
| NITHYA LEKSHMI A | IOPEX | 3 CTC |
| SHAILA SHREE R | IOPEX | 3 CTC |
| ANAND K | TALENT RECRUIT | 3 CTC |
| NAVEENKUMAR P | SPIN GAMES | 3 CTC |
| ARUNPRASATH M | SYSTEL ENERGY | 3 CTC |
| KABILESH B | SYSTEL ENERGY | 3 CTC |
| VIVIN M | GENESIS AUTOMATION | 3 CTC |

# PRODUCT DEVELOPMENT
## ODOUR DETECTION SYSTEM FOR SMART TOILETS

**Project Features**:

- Facilitate the usage of clean toilets.

- Keep the toilets free from foul smell.

- Spread awareness among the users about the cleanliness of the toilet.

- Better implementation of smart systems for toilet management using IoT.

- Prevention of causing various diseases due to unhygienic toilet environment

**Significance of the Project / Applications:**

- The proposed innovation finds its significance in implementing especially in Public toilets, Schools, Colleges, Government hospitals and other huge gathering areas where at most hygienic is necessary for the healthy society.

- Large scale implementation of this project will bring up healthy usage of shit house and promotes the prevention of pandemic diseases like COVID-19 to a greater extent.

- Can also act as air quality management system which could monitor the toxic contents present in the atmospheric air.



## AUTOMATIC HAND SANITIZER

The main objective of this project is to develop a cost-effective contactless sensor based automatic hand sanitizer for hand sanitization to support the front line health workers as well as the public. In normal working condition, the light is falling on the LDR and microcontroller sends no signal to the relay module. At this condition, motor pump is in OFF condition and therefore, the sanitizer is in OFF mode.  When anyone is interrupted by hand, then LDR does not receive the light signal and

thus, microcontroller turns ON the motor pump through relay module to pour the alcohol based sanitizer liquid for few seconds. After the time limit, the relay will turn OFF and motor pump stops the liquid. If the sanitizer liquid is empty, then the level switch will be closed and the microcontroller will stop the submersible DC motor pump until the sanitizer liquid is refilled. It is used to disinfect the Covid-19 virus at hands and thereby, used to prevent the COVID-19 pandemic in all public places such as educational institutions, banks, malls and airports etc.