DR MAHALINGAM MCET
COLLEGE OF ENGINEERING AND TECHNOLOGY
Enlightening Technical Minds

TECH QUEST

ISA - MCET STUDENT SECTION MAGAZINE

ACADEMIC YEAR

2018-2019

VOLUME 1

ABOUT MCET

Dr. Mahalingam College of Engineering and Technology (MCET) is a self – financing educational institution situated in Pollachi, Coimbatore District. MCET is the vision of Arutchelvar Dr. N. Mahalingam, whose determination and dynamism made possible the realization of this institution of excellence. MCET was established in 1998 to commemorate the 75th Birthday of this great visionary Arutchelvar Dr. N. Mahalingam.

Courses Offered

UG Programmes

B.E – Mechanical Engineering
B.E – Electronics and Communication Engineering
B.E – Electrical & Electronics Engineering
B.E – Computer Science & Engineering
B.E – Automobile Engineering
B.Tech – Information Technology
B.E – Civil Engineering
B.E – Electronics and Instrumentation Engineering
B.E – Mechatronics Engineering
B.E – Production Engineering

PG Programmes

M.E (CAD/CAM)
M.E (Applied Electronics)
M.E (Computer Science and Engineering)
M.E (Communication Systems)
M.E (Structural Engineering)
MCA – Master of Computer Applications

Research Programmes (Ph.D)
Mechanical Engineering
Electrical & Electronics Engineering
Computer Science and Engineering
Electronics and Communication Engineering
Civil Engineering

Salient Features of Educational System

- Choice Based Credit System (CBCS).
- Outcome Based Education (OBE).
- Continuous Comprehensive Evaluation (CCE).
- Industry Driven Curriculum (IDC).
- Professional Skills Development Courses (PSDC).
- One Credit Courses (OCC).
- Industry Attachment Programmes (IAP).
- Student Talent Enhancement Program – Unleashing Potential (STEP-UP).
- Collaborative Education Program (CEP).

Dr.MAHALINGAM COLLEGE OF ENGINEERING AND TECHNOLOGY

ELECTRONICS AND INSTRUMENTATION ENGINEERING

ISA – MCET SECTION

VISION OF THE INSTITUTE

We develop a globally competitive workforce and entrepreneurs.

MISSION OF THE INSTITUTE

Dr. Mahalingam College of Engineering and Technology, Pollachi endeavors to impart high quality, competency based technical education in Engineering and Technology to the younger generation with the required skills and abilities to face the challenging needs of the industry around the globe. This institution is also striving hard to attain a unique status in the international level by means of infrastructure, state-of-the-art computer facilities and techniques

VISION OF THE DEPARTMENT

To develop globally competent instrumentation engineers and entrepreneurs with societal, environmental and human values

MISSION OF THE DEPARTMENT

Supportive Learning Environment: Provide suitable learning environment to the graduates with innovative learning resources and adequate infrastructure.

Engineering Skills: Enhance electronic, instrumentation and automation skills of the engineering graduates to fulfill the industrial requirements.

Sustainable and Eco-Friendly: Create awareness among the graduates for sustainable, eco friendly products and safety standards.

Ethical and Professional Responsibility: Enrich continuous learning, communicative, collaborative and administrative skills of the engineering graduates to become ethical,social responsible engineers and entrepreneurs

VISION OF ISA

Create a better world through automation

MISSION OF ISA

Advance technical competence by connecting the automation community to achieve operational excellence

ISA-MCET STUDENT SECTION

ABOUT

ISA – MCET chapter established with the support from the management during the academic year 2012-2013. ISA-MCET is a professional society run by MCET and supported by ISA which is head quartered in United States of America. This section focuses on providing a platform to the students to learn and acquire skills in the field of automation. This section also encourages the students to organize and participate in the technical events conducted by the colleges belonging to the ISA-South India Section.

The ISA-MCET is a technical forum where the students are able to enrich their knowledge in Instrumentation, Automation etc. The students are taken to field trips to various industries once in a month which enables to know the real time applications of the curriculum. Students also have the facility to attend the webinars in the laboratories.
The section is headed by Ms. M.Deeparani, Assistant Professor (SS)/EIE

OFFICE BEARERS (2018-2019)

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R.MANIKANDAN, THIRD YEAR EIE

S.NAGAMEENA, THIRD YEAR EIE

M.MOHINLAL SAIT, SECOND YEAR EIE

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SMART DIAGNOSIS

S.NAGA MEENA , THIRD YEAR EIE

SINCE EVERY HUMAN LIFE IS VALUABLE SO ACCURACY IS MUCH IMPORTANT IN ALL ASPECTS OF MEDICAL FIELD.

The main objective of the project is to eliminate the current use of diagnosis system and help physically challenged and rural area people to get medical health check up whenever they want and this data are being send to cloud , so that doctor could check those data from where ever he is and submit an health report from the hospital itself and the patients don't have to travel a long distance and the old people could medicated from their home itself.

This product is the complete package of the required datas such as detection of heart beat, blood cholesterol, blood glucose, blood pressure and body temperature.

. It replaces the method of invasive measurements.

CC3200R1M2RGC -HELPS IN UPLOADING THE INFORMATION COLLECTED FROM THE SENSOR TO THE CLOUD THERE BY HELPS THE DOCTOR IN DOING HIS WORK.

MSP-430F2618- IT IS HELPFUL IN CONTROLLING THE FUNCTIONS OF THE SENSORS AND IT RECEIVES THE INFORMATION FROM THE SENSORS.

PIEZO ELECTRIC SENSOR - THIS HELPS IN MEASURING THE PATIENTS BLOOD PRESSURE .

LM35 -IS USED TO DETECT THE BODY TEMPERATURE OF THE PATIENT FROM WHICH THE PROPOSED SOLUTIONS CAN BE CALCULATED.

NTC THERMISTOR - THIS ALSO HELPS IN ACCURATELY DETECT THE BLOOD GLUCOSE LEVEL.

IR SENSOR- IS USED IN DETECTION OF BLOOD CHOLESTEROL.

DOLFI- THE FUTURE TECHNOLOGY

NAGENDRAMOORTHY , SECOND YEAR EIE

DOLFI'S NAME IS A "TRIBUTE TO DOLPHINS", ANIMALS THE COMPANY DESCRIBES AS "THE MOST ADVANCED USERS OF ULTRASOUND.THE DOLFI FOUNDER LENA SOLIS COMMISSIONED FANGUEIRO TO DESIGN THE PRODUCTA CULTURE OF PRODUCTIVITY

The Product designer Andre Fangueiro has created a small pebble-shaped device that uses ultrasonic sound waves to clean clothes.Andre Fangueiro, founder of Netherlands firm Studio Lata, partnered with engineers at Swiss firm MPI Ultrasonics and new company Dolfi to design a portable machine for washing textiles using ultrasound.

Dolfi is placed in a sink or container filled with water and switched on, a device inside it known as a transducer converts electrical power into a range of high-frequency soundwaves that create millions of tiny bubbles in the liquid – an action known as cavitation.These bubbles implode in on themselves, generating jets that drive detergent and water through the fibres of a piece of clothing without the need for extra movement.

THESE BUBBLES IMPLODE IN ON THEMSELVES, GENERATING JETS THAT DRIVE DETERGENT AND WATER THROUGH THE FIBRES OF A PIECE OF CLOTHING WITHOUT THE NEED FOR EXTRA MOVEMENT.FANGUEIRO CREATED A SMOOTH WHITE PLASTIC PEBBLE TO HOUSE THE TRANSDUCER. THE PEBBLE IS SEALED TO MAKE IT WATERPROOF AND IS ATTACHED TO AN ELECTRIC POWER SOURCE VIA A FLEXIBLE CABLE.

ITS SMOOTH FORM PROVIDES THE END USER WITH THE SENSE OF FRIENDLINESS AND SECURITY THAT THIS OBJECT WOULD HELP WASH THEIR MOST PRECIOUS TEXTILES."THE CURVATURE AND ACCELERATION OF THE SURFACES ARE DESIGNED TO COMMUNICATE A HIGH-END CONSUMER PRODUCT WITHIN ITS TECHNOLOGICAL SIZE. THE END RESULT IS THE SMALL-SIZE, HAND-HELD PRODUCT THAT IS BOTH HIGH-TECH AND HIGH-PERFORMING."

SMART HOME AUTOMATION USING IoT

K. VISHNU PRIYA , SECOND YEAR , EIE

IoT involves enhancing network to proficiently collect and analyze the data from various sensors and actuators then sends the data to the mobile phone or a personal computer over a wireless connection. Security is an important issue nowadays, as the possibilities of intrusion are increasing day by day. The IoT allows objects to be sensed and controlled remotely across existing network infrastructure, creating opportunities for more direct integration of the physical world into computer-based systems, and resulting in improved efficiency, accuracy and economic benefit; when IoT is augmented with sensors and actuators, the technology becomes an instance of the more general class of cyber-physical systems

FUTURE SCOPE

The Home Automation could be developed further by making it more stable and put more effort on the visual design of the product. We could reduce the size of the product by replacing the power supply module and Arduino microcontroller with much smaller pieces. All the devices could be equipped with IR receiver to control the electrical devices at home that support the IR communication. A lot of improvements could be done in the computer program as well. It should be more use an environment of a remote customizable for an end user and it should have some password protection for security reasons. It would be also nice to make it web-based so that users can control their home remotely.

Industrial Automation

DHARNISH, SECOND YEAR EIE

Industrial automation is pervading most industries these days. It wouldn't be surprising if much of the industrial intelligentsia have already begun looking into the prospects of precision agriculture, smart manufacturing, or digital medicine. And these industries, including automotive, aren't novice to automation technologies such as Artificial Intelligence (AI) or machine learning. The recent deterring speech by automotive titan Tesla CEO Elon Musk on the use of level-5 AI and robotics in automobiles made one thing clear: the stellar leaps in current automation and robotics are indeed causing shockwaves and beaming our industries into the future, which may usher in a new industrial revolution. Of course, any claim of Skynet metamorphosing into reality or robots taking over all our jobs can be considered a hyperbole at this point.

- Now pervading the automotive industry, robots are handling even the most complex manufacturing tasks, and completing them several times faster than human workers. Advanced robotics, combined with automation technologies and learning modules, are performing jobs with more precision than ever and increasing industrial productivity. Although much of robotics technology such as AI or IoT is in its infancy, it is still a colossal leap from what our industries had until the late 1980s. It is barely possible to tabulate an exhaustive list of all the intriguing marvels erupting from the most brilliant, industrious minds in the industry.
- Here are the four most advanced automation technologies used in the automotive industry:

1.MachineVision
2.CollaborativeRobots
3.ArtificialIntelligence for Driverless/Autonomous Cars
4.Cognitive Computing in IoT Connected Cars.

"Automation is going to cause unemployment, and we need to prepare for it.."

THE ASAP CONNECTORS

MANIMARAN , SECOND YEAR EIE

In This Issue

Asap Connect will change the way you connect your phone forever.

ASAP Connect have dual reversible connectors. This means first connection every time on both ends of the cable. Now you can connect your phone even in the dark.

The patent-pending magnetic technology coupled with superior materials including rare earth neodymium magnets, 18K gold plated connectors, aluminium shield and nylon braided cables.

Asap Connector will connect correctly even if the tip is flipped 180° due to both the strong neodymium magnets having their polarity perfectly positioned and the unique outward and concave magnetic connector design.

Through years of design and material testing, they have reduced the size of the ASAP Connect tip to only 10mm (0.39") wide which fits perfectly into all your Apple and Android devices.They have tested the tips on over 100 phone cases and found it fit on all of them. The only exception is for some phone cases which have a protective flap on the charging port which may not be able to close properly with the tip in place. This also the case for the Samsung S5 phone due to its inbuilt protective flap.

Through this careful 360° exterior positioning of 2 strong neodymium magnets on both ends, the tip only needs to be within the magnetic field of the cable end to be quickly attracted and connect seamlessly.

SENSORS AND INSTRUMENTATION

NITHISH , SECOND YEAR EIE

The technology and innovation research report covers the top 10 Sensors and Instrumentation technologies that will have highest impact in the near- to medium-term. Key technologies in the Sensors and Instrumentation cluster were evaluated to arrive at the top 10 technologies for 2018.

The technologies were selected after critical evaluation of an exhaustive list of technologies usingproprietary selection methodology. The research service assesses technologies from various aspects such as nature of disruption, key technology drivers, market potential, patents, funding, applications and megatrends impacted. The top 10 technologies covered in this research service are Biosensors, LiDAR sensors, Sensor Fusion, ADAS, Smart sensors, Photonic Sensors, Gesture Recognition, Large area sensors, Energy Harvesting and Electronic Skin/ Skinput.

SMART WEARABLES WILL INVOLVE DEEPER PATIENT ENGAGEMENT LEADING TO PREDICTIVE HEALTHCARE

MOST USED SENSORS:
BIOSENSORS

Biosensors are devices used to detect the presence or concentration of a biological analyte, such as a biomolecule, a biological structure or a microorganism. Biosensors consist of three parts: a component that recognizes the analyte and produces a signal, a signal transducer, and a reader device.

PHOTONIC SENSORS

Photonic Sensors is a fully sponsored, double-blind peer-reviewed open access journal published under the brand SpringerOpen. It presents original, peer-reviewed articles that report on new developments of interest to members of the photonics and sensor communities in all fields of photonic sensing science and technology.

HMI

SUNMATHI ,
SECOND YEAR EIE

Developing Trends in HMI Technology:

High-Performance HMIs

Touch Screens and Mobile Devices

Remote Monitoring

Edge-of-Network and Cloud HMIs

ALTHOUGH HMI IS THE MOST COMMON TERM FOR THIS TECHNOLOGY, IT IS SOMETIMES REFERRED TO AS MAN-MACHINE INTERFACE (MMI), OPERATOR INTERFACE TERMINAL (OIT), LOCAL OPERATOR INTERFACE (LOI), OR OPERATOR TERMINAL (OT). HMI AND GRAPHICAL USER INTERFACE (GUI) ARE SIMILAR BUT NOT SYNONYMOUS: GUIS ARE OFTEN LEVERAGED WITHIN HMIS FOR VISUALIZATION CAPABILITIES.

HMIs communicate with Programmable Logic Controllers (PLCs) and input/output sensors to get and display information for users to view. HMI screens can be used for a single function, like monitoring and tracking, or for performing more sophisticated operations, like switching machines off or increasing production speed, depending on how they are implemented. HMIs are used to optimize an industrial process by digitizing and centralizing data for a viewer. By leveraging HMI, operators can see important information displayed in graphs, charts, or digital dashboards, view and manage alarms, and connect with SCADA and MES systems, all through one console. Previously, operators would need to walk the floor constantly to review mechanical progress and record it on a piece of paper or a whiteboard. By allowing PLCs to communicate real-time information straight to an HMI display, HMI technology eliminates the need for this outdated practice and thereby reduces many costly problems caused by lack of information or human error.

HMI technology is used by almost all industrial organizations, as well as a wide range of other companies, to interact with their machines and optimize their industrial processes.
Industries using HMI include:

- Energy
- Food and beverage
- Manufacturing
- Oil and gas

ARTIFICIAL INTELLIGENCE FOR AUTONOMOUS CAR

KANISH , SECOND YEAR EIE

Artificial intelligence in cars works by first creating and storing an internal map of the surroundings (street, locality or region) using smart sensors such as radar, sonar and/or laser.

MAJOR PLAYERS SUCH AS NVIDIA AND BOSCH ARE PLAYING A MAJOR ROLE IN DEVELOPING AND IMPROVING DEEP LEARNING OR MACHINE LEARNING TO IMPROVE AI.

It then processes these inputs, plots the most plausible trajectory, and sends instructions to the vehicle's actuators which control acceleration, braking, and steering. Coded driving protocols, predictive modeling, and smart object discrimination help the car follow traffic rules and navigate past obstacles.

COGNITIVE COMPUTING IN IOT CONNECTED CARS

COGNITIVE COMPUTING (CC) ARE TECHNOLOGY PLATFORMS BASED ON ARTIFICIAL INTELLIGENCE AND SIGNAL PROCESSING. THESE PLATFORMS ENCOMPASS AND USE MACHINE LEARNING, REASONING, HUMAN LANGUAGE PROCESSING, SPEECH AND OBJECT, HUMAN-COMPUTER INTERACTION, DIALOG AND NARRATIVE GENERATION, AMONG OTHERS. . AN EXAMPLE OF IOT PLATFORM IS THINGWORX, ON WHICH AUTOMAKERS CAN DEVELOP A CLOUD-BASED SERVICE FOR CONNECTING TO REMOTE OBDII DEVICES AND VEHICLES, MANAGE THE VEHICLE DIAGNOSTIC AND DRIVING BEHAVIOR DATA, INTEGRATE THE DATA WITH ENTERPRISE SYSTEMS, AND DEVELOP NEW INNOVATIVE CONNECTED-VEHICLE APPLICATIONS.

ROBOTICS TECHNOLOGY

M.BHARANIDHARAN ,THIRD YEAR EIE

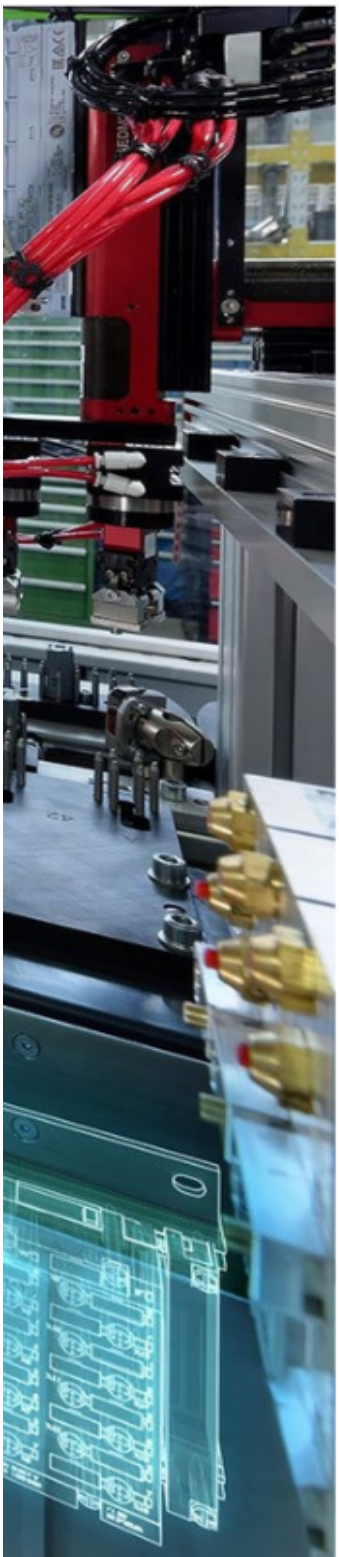
Even with primitive intelligence, robots have demonstrated ability to generate good gains in factory productivity, efficiency and quality. Beyond that, some of the "smartest" robots are not in manufacturing; they are used as space explorers, remotely operated surgeons and even pets – like Sony's AIBO mechanical dog. In some ways, some of these other applications show what might be possible on production floors if manufacturers realize that industrial robots don't have to be bolted to the floor, or constrained by the limitations of yesterday's machinery concepts.

With the rapidly increasing power of the microprocessor and artificial intelligence techniques, robots have dramatically increased their potential as flexible automation tools. The new surge of robotics is in applications demanding advanced intelligence. Robotic technology is converging with a wide variety of complementary technologies – machine vision, force sensing (touch), speech recognition and advanced mechanics. This results in exciting new levels of functionality for jobs that were never before considered practical for robots.

The introduction of robots with integrated vision and touch dramatically changes the speed and efficiency of new production and delivery systems. Robots have become so accurate that they can be applied where manual operations are no longer a viable option. Semiconductor manufacturing is one example, where a consistent high level of throughput and quality cannot be achieved with humans and simple mechanization. In addition, significant gains are achieved through enabling rapid product changeover and evolution that can't be matched with conventional hard tooling.

TOP 5 DISRUPTIVE TRENDS IN THE INDUSTRIAL AUTOMATION MARKET

RAM PRASAD , SECOND YEAR EIE



WHEN INTEGRATED END-TO-END, AUTOMATED PRODUCTION IS RELIABLE, EFFICIENT, TRANSPARENT, AND PREDICTABLE. THIS IS THE PROMISE OF INDUSTRIAL AUTOMATION, A CORE COMPONENT OF THE INDUSTRIAL INTERNET OF THINGS (IIOT)

IMPROVING ACCURACY WITH MACHINE LEARNING:

MACHINE LEARNING AND AI ARE RAPIDLY GOING MAINSTREAM. THE TECHNOLOGY HAS ALREADY PENETRATED THE CUSTOMER RELATIONSHIP MANAGEMENT SEGMENTS, AND IS A CORNERSTONE OF IOT, BIG DATA, AND INDUSTRY 4.0.

Digital twins and industrial automation:

The concept of 'digital twins' allows for the creation of a virtual copy of a machine or system. This is now becoming a prerequisite in the product development landscape. Also, digitalization of plants and machinery ensures efficient commissioning, optimized machine design, smooth operations and short changeover time. This process reduces the dependence on costly prototypes while speeding up the time to market. Additionally, digital twins are now active on factory floors, analyzing production efficiencies and prompting predictive maintenance

Advances in industrial cybersecurity:

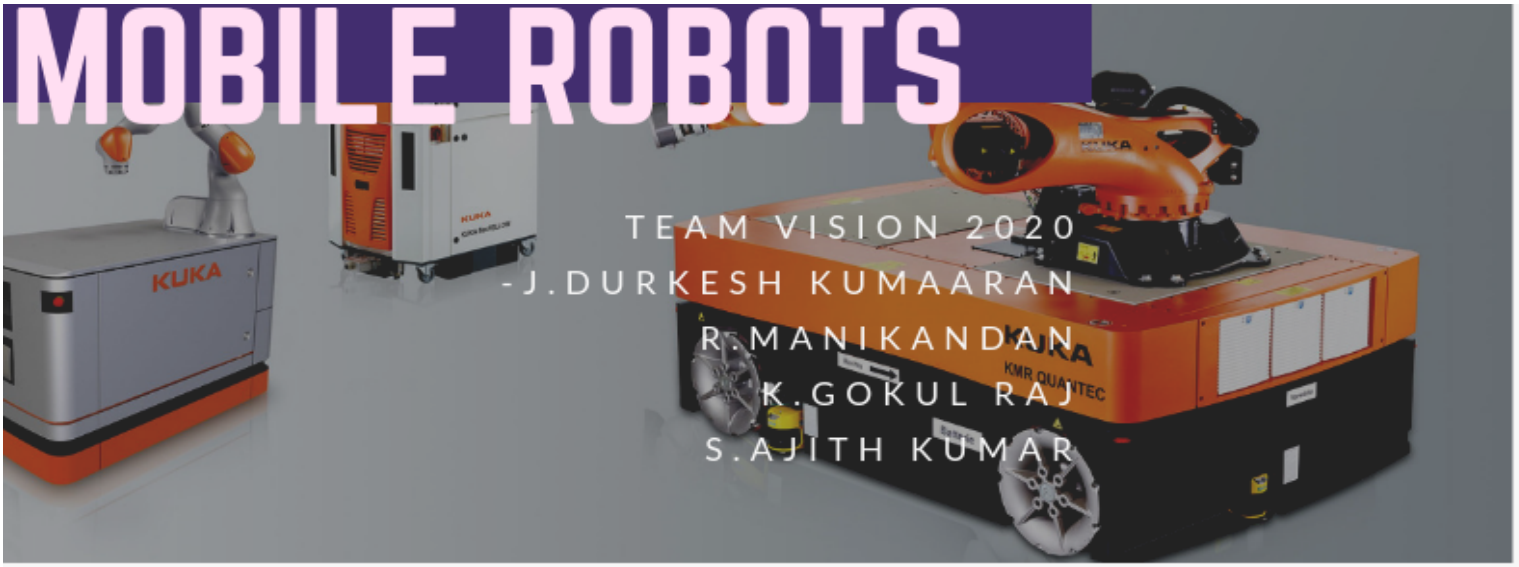
Over the past decade, the rise in cyber-attacks on critical infrastructure has resulted in cyber security becoming a key concern amongst the users and vendors of industrial automation control systems. Fortunately, advances in industrial cybersecurity management is helping to address the crucial requirements of industrial automation applications, equipment and plants as these relate to stringent constraints on network communications and system updates.

Virtual reality and augmented reality:

Today, augmented reality (AR) and virtual reality (VR) are being used in several contexts from consumer applications to manufacturing. However, it is in the latter that AR offers immense value in myriad forms, in combination with various other technologies.

The rise of smart industrial robots:
The increasing presence of intelligent industrial robotics on factory floors is a win for the fourth industrial revolution (Industry 4.0).

MOBILE ROBOTS



TEAM VISION 2020
-J.DURKESH KUMAARAN
R.MANIKANDAN
K.GOKUL RAJ
S.AJITH KUMAR

THE FACTORY OF THE FUTURE DEMANDS MOBILITY AND FLEXIBILITY. STATIC PRODUCTION LINES ARE MAKING WAY FOR THE NEXT GENERATION OF ROBOTS: THEY ARE BEING REPLACED BY INTELLIGENT, MOBILE ROBOT UNITS. MOBILE ROBOTS NAVIGATE AUTONOMOUSLY, ACT IN SWARMS AND OFFER TOTAL FLEXIBILITY FOR INDUSTRIAL MANUFACTURING.

MOBILE ROBOTS HAVE THE CAPABILITY TO MOVE AROUND IN THEIR ENVIRONMENT AND ARE NOT FIXED TO ONE PHYSICAL LOCATION. MOBILE ROBOTS CAN BE "AUTONOMOUS" (AMR - AUTONOMOUS MOBILE ROBOT) WHICH MEANS THEY ARE CAPABLE OF NAVIGATING AN UNCONTROLLED ENVIRONMENT WITHOUT THE NEED FOR PHYSICAL OR ELECTRO-MECHANICAL GUIDANCE DEVICES.

Alternatively, mobile robots can rely on guidance devices that allow them to travel a pre-defined navigation route in relatively controlled space (AGV - autonomous guided vehicle). By contrast, industrial robots are usually more-or-less stationary, consisting of a jointed arm (multi-linked manipulator) and gripper assembly (or end effector), attached to a fixed surface.
Mobile robots have become more commonplace in commercial and industrial settings. Hospitals have been using autonomous mobile robots to move materials for many years.

AUTONOMOUS MOBILE ROBOTS WILL EMPOWER THE WORKFORCE

MOBILE ROBOTS ARE ALSO A MAJOR FOCUS OF CURRENT RESEARCH AND ALMOST EVERY MAJOR UNIVERSITY HAS ONE OR MORE LABS THAT FOCUS ON MOBILE ROBOT RESEARCH. MOBILE ROBOTS ARE ALSO FOUND IN INDUSTRIAL, MILITARY AND SECURITY SETTINGS. DOMESTIC ROBOTS ARE CONSUMER PRODUCTS, INCLUDING ENTERTAINMENT ROBOTS AND THOSE THAT PERFORM CERTAIN HOUSEHOLD TASKS SUCH AS VACUUMING OR GARDENING.

Sensors, Computer Vision, Computer Audio

MACHINE VISION

Carnegie Mellon University
Machine Learning

VENKAT , SECOND YEAR EIE

THE NEED FOR SAFER, MORE RELIABLE AND ROBUST AUTOMOBILES TO JUSTIFY PRICE POINTS IS PUSHING AUTOMAKERS TO ADOPT MACHINE INSPECTION. AND MACHINE VISION (MV) HELPS THEM FULFILL THIS NEED BY PROVIDING AN AUTOMATED INTERNAL MACHINE INSPECTION METHOD.

ALSO TERMED "COMPUTER VISION," MV IS A MOTHER LODE OF A LARGE NUMBER OF HIGH-END TECHNOLOGIES, SOFTWARE AND HARDWARE PRODUCTS, INTEGRATED SYSTEMS, AND OF COURSE, EXPERTISE.

This technology works as the eye of the automotive production process using imaging processes including conventional imaging, hyperspectral imaging, infrared imaging, line scan imaging, 3D imaging of surfaces, and X-ray imaging.

Smart camera or smart sensors with frame grabbers are used along with interfaces such as Camera Link or CoaXPress (or custom interface) to record or capture images of the surface to be inspected. Digital cameras capable of direct connections to a computer via FireWire, USB or Gigabit Ethernet interfaces are also used by several companies.

COLLABORATIVE ROBOTS

GENERALLY CALLED COBOTS, THESE ARE OFTEN CONFUSED WITH ROBOTS THAT COLLABORATE WITH HUMANS. WHILE THAT IS PARTIALLY TRUE, COBOTS ARE ROBOTS THAT WORK INDEPENDENTLY WITHOUT HUMANS INVADING THEIR WORKSPACE.

A COBOT USES MACHINE LEARNING TO PAUSE ALL ITS OPERATIONS WHEN A HUMAN WORKER ENTERS ITS SPACE.

SO WHY ARE THEY CALLED COLLABORATIVE DESPITE THEIR FUNCTIONS BEING THE CONTRARY? COBOTS ACTUALLY HELP HUMAN TECHNICIANS BY HANDLING A LARGE PART OF THE JOB. WHEN A CERTAIN JOB REQUIRES MULTIPLE FUNCTIONS TO BE DONE AT ONCE, THE COBOT WILL ALLOW THE LABOURER TO WORK ON IT AND LATER SHUT DOWN ONCE THE LATTER'S JOB IS DONE. HOWEVER, NOT ALL COBOTS ARE MADE EQUALLY. SOME ARE DESIGNED TO STOP WHILE OTHERS ARE NOT.

POWER OF INTERNET:

R.SURYA , SECOND YEAR EIE

This is a great time to be alive. We millenials are born and blessed with a silver spoon called the internet.

ITS REALLY SADDENING THAT WE GROSSLY UNDERESTIMATE THE POWER OF INTERNET.THE INTERNET IS A GREAT TOOL BECAUSE IT IS A OPEN FORUM. ONE PIECE OF CONTENT THAT YOU PRODUCE MIGHT ELEVATE YOUR LIFE AND GIVE YOU THE BREAK YOU HAVE BEEN WAITING FOR.

Consistency and faith are the key to success on the internet. There are people who had gone viral throughout the internet overnight and also there are people who had produced content for 10 years and got recognition only on their 11th year of journey. There are people whose passion is different from their profession.For those kind of people who has passion for one thing and a job for a living, internet serves as the greatest tool of success.

He monetized his youtube channel with google Ad sense.He didn't make any money from his youtube as well.So one day his son who was then studying 2nd grade came with an assignment. The assignment is that they should ask themselves a question and find the answer for it themselves.Dan wanted to know what's inside different things.
So the father and the son started to buy different balls and cut them open and see what's inside? Dan shot the whole process in his mobile phone and uploaded it to the youtube.So a week later he saw that he got about 4 dollars.It was not from any of his websites or side hustles, he found out that it was from the youtube video.

Then life turned upside down. Marketing agencies started approaching him for advertising.
His youtube channel What's inside? now has a 6 million followers and he is one of the top youtubers around the world.Just imagine this a guy working as a med rep became a youtuber and made a deal with Bill gates.

So let me explain the power of internet using a real life example.Daniel Markham, the creator of WHAT'S INSIDE? Youtube channel. He was a middle class guy who after finishing his college degree, became a sales rep in biotech industry. Daniel always wanted to become an business man. He had all these side hustles and small businesses which totally failed.He also had a youtube channel where he posts videos of his families who were living away from him.

He saw the potential in It and started posting videos by cutting things into half an see what's inside it.After some traction from his content, he got his first project from a advertising company for cutting open a Rubik's cube. He earned about 1000 dollars from it. He started reaching out advertising agency for his brand.He started attending youtubers conferences and learnt the art of youtubing.One of the advertising agency replied and accepted his offer. That advertising agency belonged to Bill and Melinda gates.He met then in person for advertising their content through his brand.

" BILLION DOLLAR BUSINESS ARE CREATED FROM NOTHING BUT VIRTUAL CODES."

RADIO FREQUENCY IDENTIFICATION AND DETECTION

M. Mohinlal Sait , SECOND YEAR EIE

RFID IS BEING USED FOR A WIDE VARIETY OF APPLICATIONS RANGING FROM BUILDING ACCESS CONTROL PROXIMITY CARDS TO SUPPLY CHAIN TRACKING, TOLL COLLECTION, LIBRARY BOOKS TRACKING, THEFT PREVENTION, VEHICLE IMMOBILIZER SYSTEMS, AND RAILWAY ROLLING STOCK IDENTIFICATION AND MOVEMENT TRACKING

RFID is one of the Automatic Identification and Data Capture (AIDC) technologies. The purpose of such technologies is to identify objects, automatically collect data about the objects and update the data into a computer system without human intervention. RFID is an electronic information technology that utilizes wireless radio waves to transmit, identify, trace, sequence and confirm various objects .

It can be characterized as an electromagnetic proximity identification and data transaction system. Two components in RFID are the tag and reader. RIFD tags are used to tag objects or assets, and an RFID reader gathers the tag information. RFID technology is a replacement for barcode technology in terms of non-optical proximity communication, information density and twoway communication. Compared to barcode technology, RFID technology possesses powerful properties which include being waterproof, having a magnetic scratch-resistant protection layer, being heat resistant, being long lasting, transmitting data transmission over long and short distances, data encryption, and relatively large memory capacity. RFID technology is also more powerful than other AIDC technologies such as cameras, magnetic cards and identity card because of its data read and write functions, easy miniaturization and diversification of the shape, environmental resistance, reusability,

THE BASIC CONCEPTS IN RFID DIAGRAM TYPICALLY COMPRISE THE FOLLOWING :
- **AN RFID DEVICE (TAG)**
- **A TAG READER WITH AN ANTENNA AND TRANSCEIVER**
- **A HOST SYSTEM OR CONNECTION TO AN ENTERPRISE SYSTEM.**

RFID DEVICES CAN BE DIVIDED INTO TWO CATEGORIES:
- **RFID DEVICES WITH POWER SUPPLY (BATTERY)**
- **RFID DEVICES WITHOUT POWER SUPPLY**

RFID devices with power supply are known as transponders. Sometimes they are called “active tags.” RFID devices without power supply are known simply as “tags,” or “passive tags.” Active tags are more expensive than passive tags. Passive tags have an unlimited life and are lighter, smaller and cheaper.

IOT

S.PRIYA VARSHINI, SECOND YEAR EIE

FOR EXAMPLE BOSCH IS THE TECHNOLOGY GIANT BASED ON GERMANY. BOSCH USES OPEN STANDARD AND OPEN SOURCE AND TAKES INTO ACCOUNT THE MAJOR REQUIREMENTS OF PROJECTS HAVING CONNECTED DEVICES AND TECHNOLOGIES.

The Bosch iot suits the full app development cycle from prototype development to application deployment and maintenances.

The future of Iot is virtually unlimited due to the advancement in technology.

With so much of data travelling from device to device security in technology will be required. Government will undoubtedly face tough decision as to how far the private sector is allowed to go in terms of robotics and information sharing. The possibilities are exciting ,productivity will increase and amazing things will come by connecting the world.

It is the network of devices such as vehicles and home which contains electronics, software, sensors, actuators and allowing these things to interact and exchange data. The iot device is typically be connected to an IP network to the global internet. Many industries are moving towards Iot

IMPACT OF AUTOMATION ON EMPLOYMENT

A.C.ARUL SHIRLEY, SECOND YEAR EIE

AUTOMATION HAS ALSO AN IMPORTANT IMPACT ON THE STAGE OF ECONOMIC DEVELOPMENT OF THE COUNTRY. BUT THE INTRODUCTION OF AUTOMATION IS NOT EASY BECAUSE IT INVOLVES THE INVESTMENT OF A SUFFICIENT AMOUNT OF CAPITAL AND SPENDING OF WORKING CAPITAL FOR THE MAINTENANCE OF EQUIPMENT.

automation should be introduced only when it is really necessary. Electronic data processing equipment or computers should not be installed just to look modern.

THERE IS GENERALLY RESISTANCE BY THE WORKERS TO ANY SCHEME OF AUTOMATION. THE WORKERS ARE AFRAID THAT THE INTRODUCTION OF AUTOMATION WILL CREATE UNEMPLOYMENT.

The committee on automation found that there was no direct retrenchment of labour due to introduction of computers. There was reduction in the number of jobs in the initial stages, but surplus employees could be adjusted for filling vacancies resulting from the deaths, retirements and resignation of the retained staff.

The immediate Affect of automation is the reduction in the demand for operative and clerical employees. At the same time, higher number of managers are needed to run the automatic plants.

Automation also creates employment firstly by creating the need for technicians required to design, repair and maintain the new machines and secondly, introduction of new trades demanding highly skilled and well-trained personnel.

Use it as a source to share relevant information, updates, and yes, entertainment too. Put in reeling articles on the cover with strong messages that capture attention. Keep readers eager to continue with even more fascinating previews of what else they can find in the issue.

MAGAZINE

AI TECHNOLOGIES

VETRIVELAN

second year
EIE

AI-ENHANCED ANALYTICS SOLUTIONS

AI-enhanced Analytics Solutions:
Forrester defines this category as one that helps orchestrate the customer journey and experience. These systems can understand the customer, learn preferences, predict next best action/solution, and surface insights. We believe this is a top priority area for the contact center as AI-enhanced analytics solutions can deliver new and stronger business benefit. Fraud detection is just one example.

DEEP LEARNING (DL)

Deep Learning (DL):
DL is a type of machine learning algorithm that is a game changer in its ability to generate better predictions/insights, scale up with large data sets, and reduce the effort to build the model. In the contact center, DL is used in conversational systems (speech rec, NLG, NLU, etc), Speech Analytics, and other areas. Contact Solutions and Verint use DL in their products today and believe this will be one of the primary drivers of future innovation.

NATURAL LANGUAGE GENERATION (NLG)

Natural Language Generation (NLG):
NLG is a part of the tech stack in conversational systems. NLG uses advanced AI algorithms to generate speech from text. NLG is used to generate speech in Alexa, in Virtual Assistants and in a Natural Language IVR. We use NLG as part of our SmartCare conversational platform that powers IVR and Chatbot channels.

SPEECH ANALYTICS

Speech Analytics:
Speech analytics uses AI technology to recognize speech, convert speech into text, and perform analytics on the text data set. This technology is used today in many contact centers to improve customer interactions, CX and agent performance. See, Verint's speech analytics product as an example.

SMART GRID HOUSE

R.KEERTHI , SECOND YEAR EIE

India is all set to comfortably achieve 100GW of solar energy capacity by 2022 and has already installed solar capacity of 23.12 GW till july 2018. In future, we can plan for a home solar electric system. Each house can be constructed with a solar panel on the roof top. Each house can be made accessible to its own electric system. This will help people to generate electricity for their own purpose and remaining power can be transmitted to the main grid. Smart grids can be used to generate electricity in an effective way. For a newsletter that people will look forward to receiving, align the look and feel of your design with your brand's identity. Write quality content and add matching images.

The smart grid consists of millions of pieces and parts-controls, computers, power lines, and new technologies and equipment. It will take some more time for the development of technologies. It is about giving you the information and tools you need to make choices about your energy use.

In this paper, I present a methodology to explore and evaluate the renewable energy sources. The energy crisis is a major threat in recent times due to the depletion of major fossil fuels. Countries across the globe are still dependent on fossil fuels as their primary source of electricity and transportation fuel. Fossil fuels emit hazardous gases which are dangerous to the environment. One of the possible ways to tackle this crisis is the identification of an alternative energy known as renewable energy

Home automation energy system can be constructed all over the country in an effective manner.

PROJECT SOLI

G.GOBIVIJAYARAM , SECOND YEAR EIE

SOLI WAS DEVELOPED BY GOOGLE GROUPS NAMED AS ADVANCED TECHNOLOGY AND PROJECTS GROUP (ATAP)

It is mainly employed in smart watch and smart gesture technology in mobile phones and in gadgets.The smart gesture technology is on development stage.

VIRTUAL VIEW ON SOLI:

THE SOLI CHIP IS INCORPORATED WITH SENSORS AND ANTENNA INTO A ULTRA-COMPACT 8MM*10MM PACKAGE. THE CONCEPT OF VIRTUAL TOOL IS KEY FOR SOLI INTERACTION .VIRTUAL TOOLS IS MIMIC FAMILIAR INTERACTION WITH PHYSICAL TOOL.IN THIS DETECTION THERE IS AN INVISIBLE BUTTON BETWEEN HUMAN THUMB AND INDEX FINGER.OR A VIRTUAL PULLING,SLIDING AND GRABING IN AIR USING OUR THUMB AND INDEX FINGER

THIS VIRTUAL INTERACTION ENHANCE THE COMFORT INTERACTION BETWEEN HUMAN HAND AND GADGETS.THIS VIRTUAL DEVELOPMENT IN TOUCHLESS GESTURE IS ON ALPHA DEVELOPMENT STAGE.

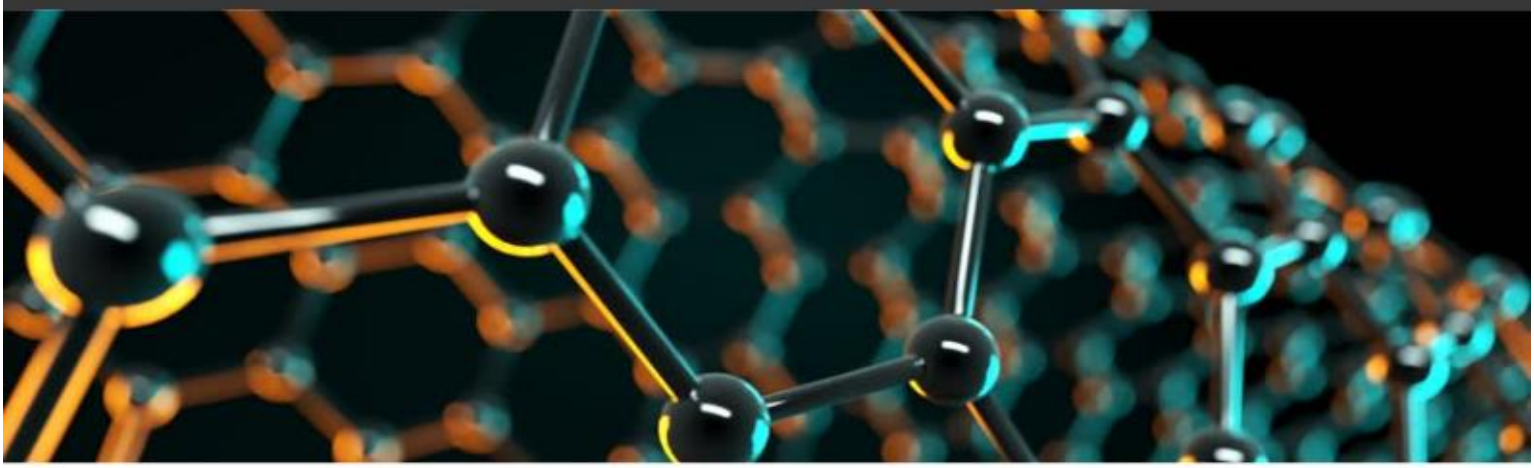
THE SOLI SENSOR:
SOLI'S USES RADAR SENSOR,IT IS AN MARVEL IN MANY ASPECTS.RADAR IS CAPABLE OF INTERPRETING OBJECTS POSITION AND MOTION EVEN THROUGH OTHER OBJECTS,MAKING IT PERFECT AND IDLE FOR DEVELOPING SENSOR THAT CAN BE INCORPORATED IN DIFFERENT KINDS OF DEVICE IN DEVELOPING INTERACTIVE DEVICES.AT FIRST SIZE OF RADAR IS LIKE BRIEFCASE,WITHIN SPAN OF TEN MONTHS IT HAS BEEN DIMENISHED.THE SOLI SENSOR EVALUATION BOARD,ITSELF HAS TWO TRANSMIT ANTENNAS AND FOUR RECEIVE ANTENNAS.FOR EVALUATING NORMAL RADAR INFORMATION OFTEN REQUIRES THE USE OF SUPERCOMPUTER AND AI DEVELOPMENT.

ALGORITHMIC INTERPRETATION:- In order to achieve the gesture control,this device puts out a beam and the reflection of beam had been done due to intrepet it is an human hand.

SOLI HAS NO MOVING PARTS,IT FITS ONTO A CHIP AND CONSUMES LITTLE ENERGY

NANOTECHNOLOGY

S.DHIVYA , THIRD YEAR EIE



IT DEALS WITH THE SIZE OF 1-100 NM RANGE

. There are several important modern developments. The atomic force microscope (AFM) and the Scanning Tunneling Microscope (STM) are two early versions of scanning probes. Feature – oriented scanning methodology can implement the nano manipulations in automatic mode.

The Nanotechnology applications are used in Medicine, Electronics, Food, Fuel cells, Solar cells, Batteries, Space, Fuels, Better air quality Cleaner water, Chemical sensors, Sporting goods and Fabric etc.. One of the major applications of nanotechnology is the MOSFET's being made of small nanowires which is equal to 10 nm in length in the nano electronic. Nanowires lasers for ultrafast transmission of information in light pulses. Nanotechnology has the potential to become a more important revolutionary force for business than the Industrial revolution or the information technology revolution.

NANOTECHNOLOGY IS A IDEA THAT MOST PEOPLE SIMPLY DIDN'T BELIEVE"

HAWKEYE - AN INDOOR DRONE SECURITY GUARD

P.SUGUMAR , SECOND YEAR EIE

Hawkeye Innovations claims Hawkeye is the “first ever fully autonomous IoT Indoor Drone Security Guard.”

Hawkeye protects your home in two ways by patrolling and by detecting disturbances.

In patrol mode, you can set what time or how often you want Hawkeye to patrol, set specific routes for different times, or simply have it patrol random routes at random times. You can also manually patrol your house and watch a live feed as you fly around.

While patrolling, Hawkeye activates infrared detection. It uses this to look for things that emit infrared, like people. If there's a person, it immediately notifies you and gives you the option to disarm, talk to the intruder using two-way voice, or activate the strobe lights and siren. It will also follow the person while it records and stores videos in the Hawkeye cloud.little bit of body text

They can make this claim because the device is guided by nothing but algorithms and a map of your home. The company does not specify how Hawkeye will map your home, but it may be by placing it in different rooms or by walking around your house with your smartphone to create a virtual map. Regardless of how it’s done, once the map is ready, Hawkeye analyzes it and creates routes to cover a larger area within a shorter period of time. The current prototype effectively covers a 1600 square foot area, but they plan to eventually make Hawkeyes that can work as a team, covering larger homes or businesses.

Since pets also emit infrared, Hawkeye includes technology that allows it to avoid pets. Though they haven’t shared how this is done, my best guess is that the infrared detector is set to a lower sensitivity level .When disturbance detection mode is armed, Hawkeye sits on its charging base while keeping watch for disturbances like breaking glass or forcible entry. It does so using its sound sensor. If it hears anything out of the ordinary,

CONTROL AND AUTOMATION

A.AKALYA ,SECOND YEAR EIE

Control and automation endeavors the problem which comples a system to desired situation via appropriate software and hardware and which develops and implements information and technology providing electrical, electronics, mechanical and computer based all industrial system to work intended and planned manner.

Automation or automatic control is the use of various control systems for operating equipment.Control and Automation System Integrators are adept at connecting a factory's manufacturing equipment to the automation system's disparate computing and communications devices and programming them all to perform the required control and information gathering chores. Automation has been achieved by various means including mechanical, hydraulic, pne umatic, electrical, electronic devices and computers, usually in combination

Automation is the technology by which a process or procedure is performed with minimum human assistance

In recent years, automation has affected many industries in general and some in particular. Automation and the technology change that it represents have transformed economic arrangements and human lives in numerous ways.
The nameplate is one of the most noticeable elements of a newsletter. Make yours simple but memorable, preferably with a catchy tagline.

It has profoundly impacted production processes by increasing speed, accuracy, and sheer output volume, while eliminating some kinds of tedious, repetitive work.

Automation that extends the reach of information transmission, processing, and control generates economies of scale that lead to firms being larger and allows production in more disparate regions, thereby increasing the intensity of global c

Automation of helmet is only in full face due to the safety purposes. According to 449A tamilnadu motorcycle act 1948 ,bikers has to has to wear helmet while riding a motorcycle.

PROBLEM

The main problem that a rider to see traffic behind him/her

In city's bikers has to be in the city speed limit . It is difficult to see the speedometer in traffic.

While going to a unknown place we and bikers use the Google Maps it's different to see the map or navigation system in a traffic

Many of the bikers will forgot to turn off there blinkers after turning the corner

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Automation

THE MAIN PROBLEM CAN BE WE SOLVED BY USING A MOTION CAMERA WHICH IS NOT ONLY USED TO SHOW ALSO USED TO RECORD THE TRAFFIC BEHIND THE RIDER.

IN CITYS IT IS DIFFICULT TO SEE THE SPEEDOMETER AND THE PETROL INDICATOR, ETC ALL INDICATION ARE DISPLAYED INSIDE THE HELMET WINDSHELD WITH TRANSPARANCE

THE NAVIGATION SYSTEM IS ALL SO BEEN DISPLAY IN THE WINDSHIELD WITH TRANSPARANCE SO FORWARD TRAFFIC CAN ALSO BEEN SEEN BY THE RIDER'S AND NAVIGATION SYSTEM TOO.

IN FULL FACE HELMET VENTILATION IS LOW SO TWO SLIDERS AND AIR HOLES HAS TO BEEN FIX IN IT. AND FINALLY SMALL SPEAKER ARE INSTALLED JUST FOR NAVIGATION AND TO WARNING THE RIDER

MACHINE LEARNING

G DHIVYA, SECOND YEAR EIE

Machine learning is the scientific study of algorithms and statistical models. It used to effectively perform a specific task without using explicit instructions. It is used in applications like email filtering and computer vision

Machine learning reorganised as a separate field, started to flourish in the 1990s.The field changed its goal from achieving artificial intelligences to tackling solvable problems of a practical nature.

Although machine learning has been transformative in some fields, machine learning programs often fails to deliver expected results. Reasons may be lack of data privacy problems, badly chosen tasks and algorithms. For example in 2018 a self driving car of Uber failed to detect a pedestrian who was killed after a collision. However there are some factors to correct these mistakes.

IN THE COMING YEARS ,WE ARE LIKELY TO SEE MORE ADVANCED APPLICATIONS THAT STRETCH ITS CAPABILITIES TO UNIMAGINABLE LEVELS.

Machine learning is one the most disruptive technologies of the 21st century .Though this technology can still be considered nascent, its future is bright. The above five predictions have just scratched the surface of what could be possible with machine learning .

Although machine learning has been transformative in some fields, machine learning programs often fails to deliver expected results. Reasons may be lack of data privacy problems, badly chosen tasks and algorithms. For example in 2018 a self driving car of Uber failed to detect a pedestrian who was killed after a collision. However there are some factors to correct these mistakes.

“

INTERESTING IN PREDICTIVE ANALYTICS?

ISA -MCET SECTION

ACTIVITIES OF ACADEMIC YEAR 2018-2019

1.INAUGURATION

ISA has conducted its inaugural function on 14.07.2018. Function started at 9.00 a.m. with Induction of ISA MCET section and Guest Lecture was given by Mr. A Ganesan ,DGM Manufacturing and Services, Hybrid Pressure control- Chennai.

After the induction of our ISA-MCET section, the Guest lecture was given by Mr.A.Ganesan , on “Necessity of Industrial Safety”. He gave a brief talk on industries and the accidents occurring due to the unawareness about industrial safety. He also gave impact, that all employees working in hazardous area should be cautious in handling equipments and in outfits.

ISA -MCET SECTION

2.TECHNOBUZZ

DATE: 28.08.2018

ISA conducted an event TECHNOBUZZ the QUIZ event. It consisted of three rounds.

Round-1: (Prelims)

Each team consisted of 4 members. The questions were posted commonly and all teammates were asked to present their answers.

Round-2: (Riddles)

Various icons consisting of various questions were displayed to them from which teammates had to choose any one of the icon.

Round-3: (Crack the circuit)

The question for circuit to design by the teammates was given with few clues of the components. Also teammates are asked to design stimulation circuit in PC.

ISA -MCET SECTION

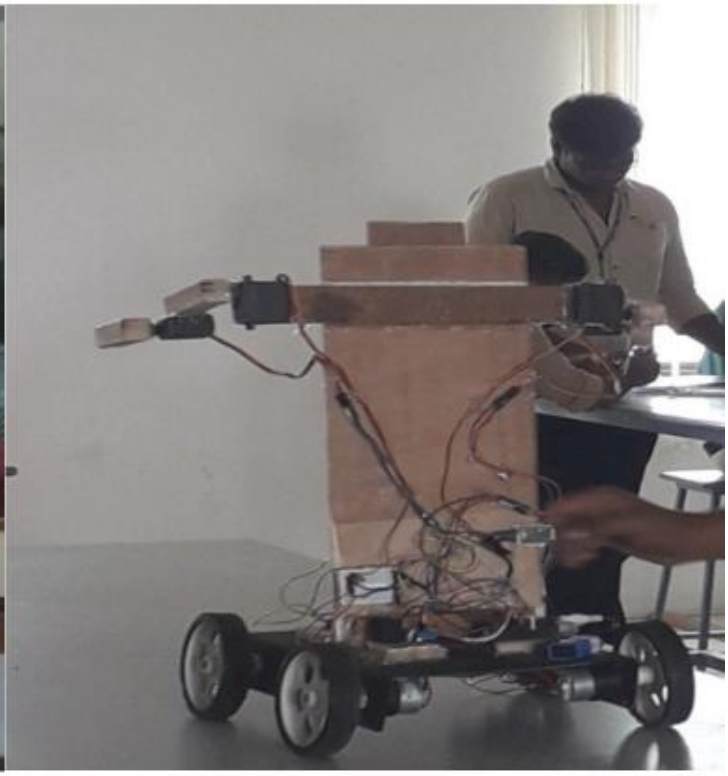
3.VARNAM-ISA:
DATE: 29.09.2018

ISA conducted a Paper Presentation during VARNAM the technical symposium conducted by our college. The topics for presentation were pure technical, related to automation and emerging technology. Students from various departments presented their paper by exploring their own ideas.

ISA -MCET SECTION

4.AUTOMATION DAY
DATE: 25.01.2019

ISA conducted Intra-college paper presentation and project expo during automation day on 25-01-2019. Both paper presentation and project expo were conducted in the forenoon session. Students presented their papers on various topics such as IOT,Embedded Systems, Wireless Communication, Image Processing, Adaptive Cruise Control, Digital Circuits, Automotive Electronics, Alternate Fuels, Recent Trends in Power Generation and Transmission , IT in Manufacturing ,Robotics and Automation and Cyber Security. And the students presented their projects both in software and hardware.



OUR TEAM

A great day to Start Something Big

ISA-MCET SECTION