

Department of Electronics and
Communication Engineering

ElectroVision

RIGGUDAN 1210U

*REDEFINING THE BOUNDARIES OF
TECHNOLOGY*

26th April 2016



DEPARTMENT VISION

To evolve into a centre of excellence in electronics and communication engineering, moulding professionals having inquisitive, innovative and creative minds with sound practical skills who can strive for the betterment of mankind.

DEPARTMENT MISSION

To impart state-of-the-art knowledge to students in electronics and communication engineering and to inculcate in them a high degree of social consciousness and a sense of human values, thereby enabling them to face challenges with courage and conviction.

On the creative desk

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Student in-charge

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IEEE News
Courtesy
Dr. Deepti Das
Krishna

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From the HOD's desk

The second half of 20th century witnessed an unprecedented growth in the field of technology and related applications. This technological progress is strongly supported by the development of electronics and it still continues in this era of Internet of Things (IOT) also.



In 1949, all vacuum tube devices were replaced with transistors and subsequently with collection of transistors as Integrated Circuits (ICs). In 1965, Gordon Moore came out with an awesome paper called “Cramming more Components onto Integrated Circuits”. In that paper he described that the number of transistors

used on a single chip of silicon will grow exponentially. It is fortunate that Moore’s prediction is followed by all electronic semi conductor industries exactly similar or in a better way. This lead to drastic miniaturization of components and devices and it could possible to integrate more sophisticated functionality in a small silicon area.

So “Change is the only constant” is true and now a “manthra” in the exciting field of electronics. This subsequently brought tremendous modernization in health care, wearable/flexible electronics, avionics, automotive electronics and such different walks of human activities.

As Electronics Engineers, It is the need of the time to follow these changes and understand the state-of-the art technology in order to be updated in the domain.

I wish that, this endeavor is a humble beginning in this direction and wish all the success.

GATE Qualifiers

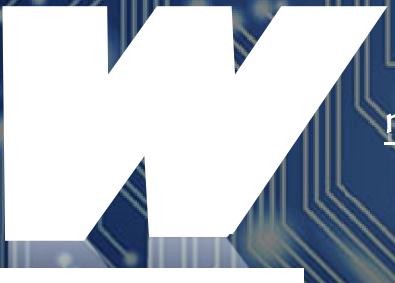
Serial	Name	GATE Score	RANK	Mark
1)	Merril Pious Jacob	535	4150	39.41
2)	Murali Gopalakrishnan	510	5206	37
3)	Gejoe M Varkey	487	6239	35.68
4)	Bincy George	479	6687	35.07
5)	Sushmitha Sajeev	466	7466	34
6)	Rosemary Varghese	444	8938	32.32
7)	Basil Paul	438	9331	31.90
8)	Sajani Shajan	432	9800	31.40
9)	Monica Thomas	421	10659	30.53
10)	Rahul Krishna	407	12008	29.43
11)	Aleena Johny	402	12484	30
12)	Arjun M	397	12943	28.69
13)	Zainab Ashraf	370	16300	26.50



PLACEMENTS

The students of Electronics and Communication have bagged maximum number of placements. Companies possessing distinguished reputation have come for the recruitments. A brief list of the companies that were part of the placement drive is listed below:-

- 1.Samsung
- 2.Bosch
- 3.Verizon
- 4.Wipro
- 5.Infosys
- 6.Cognizant
- 7.Sutherland
- 8.RUBY SEVEN
- 9.Indian Navy
- 10.HCL
- 11.MUSIGMA



Writer's Corner



A poem by Swetha Sivadas S6 EC-β

THE SIGHT

Gently as I pushed the glass,
the hinges creaked, the panes quivered.
The shimmering brightness swallowed
me up.
As I struggled to keep my eyes open,
the breeze soothed me and I felt,
like life brimming upon me again.
The colours filled my heart and soul.
From this height, I see the world around
me.
Fresh as dew.
This delicate beauty of nature..
Can not only be seen, but also felt all
over me.
Alas! How I wish this was the sight!
But no.
The slums around me never felt fra-
grant.
And had never been bright.
Patrolled by shadows, the city of slum
has grown on me
And never can I flee from this monoto-
nous sight of misery!

A poem by Ravisankar Ramprasad S6 EC-β

Memories

Caught amidst a cornucopia of memories
Whilst reminiscing the euphoria of joy
Lamenting on somber moments
As time flows by unnoticed
More and more and more
Some scenes rewind before the eyes
Long way down the road
Transcending the barriers of time
Behold the strangeness of life
For once standing right where it had all begun
Forlorn and haunted by an aura profound
It all seems an apparent illusion
Another chicanery of the mind
Deep down submerged in a selfless state
Unrest settles in, no peace
Ages pass times change apparently
The identity remains engraved
In the sands of time till then
Till then its goodbye

The light that the world can't see

A short story by Shehban Ismail ,S6 EC-β

The dream was blurred cant really make out what I saw but I don't feel sad not knowing it. For me the only live thing is darkness. The moment I was born, my eye sight started to diminish. There was nothing to do to restore it. My head had a clot in one of my nerves controlling my eye sight, due to practical complication my mom had during her pregnancy. She always blamed her for my blindness but for me she is the most beautiful thing that I can still remember in my mind.

I always had a feeling that I was handicapped when I completely lost my eyesight when I was seven. But I understood that when God took one vital thing from me He gave me back three. My mom who held me close from all the obstacles in my life. I started to imagine everything in my mind mainly her food which created a breath taking aroma. She gave her life for me. She was half alive when I was born very badly in health when she knew about me, she fought hard and came back. Only for me.

Then my father, I don't know what to say about him. He always stood close to me looking after me but never said anything, just watched me. He wanted me to make my own mistakes, learn from it and build life from it. He is like a guardian angel for me who always stand close but never changed my life in his own ways.

My sister was the one who made my world bright. And for a blind one there is nothing such as brightness. But she created a feeling in my mind which makes me feel the brightness colorfulness and vibrance of the world. She always describes to me each and everything and told me to picturise it. At first it was very painful but slowly I enjoyed it. She is a friend who stands close to me and loves me more than anything else ,the three of them gave a part of their life for me. They worked on me like a delicate and molded me to live in this world like normal people.

One day my sweet family as a whole fell into a dark pit. My sister was enjoying a party at her friend's house. On the way back she met with an accident and lost her eyesight. That was the night I yelled at God. I was so furious with him for doing this to her. I didn't want to stand at the hospital wing and hear my mom cry. I just wanted to run till the end. A tear started to fall down from my eye and I rubbed my eyes and suddenly it all came to me and I was trying to make my way to the doctor's room. I asked him if my eyes can be given to her. All these years my family was against it because they thought one day I will have my eyesight .but at the moment I knew what I was destined to do. And the doctor said yes. And it was the last night that I will be blind because from tomorrow onwards I can see through my sister's eyes.

Industrial Visit (IV)-E-Scientia Visit Report

The visit to the E-scientia Laboratory , set up at CSIS campus (in Cusat), took place on 19th February , 2016.The bus was boarded at 09:30 am. It was part of an initiative taken by the Rajagiri IEEE student branch . 57 students of ECE department were part of the event.The students were accompanied by a faculty , Mr.Kiran of the ECE department.

The students were exposed to a theatrical experience , there they understood the various of Space travel , and got an insight into the Mars mission.The experience was truly overwhelming. It made them inquisitive to know more about space technology , and India's role in space research.



The students were also involved in a hands on experience , where they assembled various electronic circuits , like LDR , Amplitude modulator , Frequency detector , etc.

The various aspects of integrating different branches of engineering was explained by the Director of CSIS , Dr.K.G Nair .The session also included a brief introduction on various communication technologies .

After a photo session , the students returned to the campus at 02:00 pm .

MICROPROJECT-Student Enrichment program

Micro-project is a pre-semester activity for S4 ECE students, which provides them a platform to improve their circuit implementation skills and make use of their innovative ideas doing the same. Every product is designed and developed in order to achieve a certain objective. An engineering solution is born when specific parameters are considered and the product is implemented accordingly. Going into higher semesters this would help students get an idea of how to go about a particular project. Specifically, the method of thinking, work ethics and troubleshooting techniques are im-



parted during this session. This year the micro-project session commenced on the 27th Jan 2016 and lasted up to 1st Feb 2016. 54 students participated with 2-3 students from each group. Seven electronic cir-

cuits were identified for implementation. These were then practically implemented and under the supervision of Mr. Jaison Jacob, Ms. Subeena Subair, Ms. Santhi Jabarani, Ms. Jisa David guided to completion. A demo presentation was conducted on 4th Feb 2016 and prizes were distributed for the best products .Around 20 products were demonstrated in the final presentation.

WORKSHOPS-IEEE

RSET IEEE Student Branch have kick started the 2016 SB events with its various technical workshops, one of the most successful being the RASPBERRY PI workshop which was conducted on 27th and 28th February. The two day event had around 60 participants from the college representing different branches. Workshop primarily focused on training the students with Raspberry pi which is today an inevitable component in most of the engineering projects.



Workshop was collectively handled by Mr. Ashwin from BITSFORGE. Morning session dealt with the introductory classes on Raspberry pi. The topics covered were basic hardware information and booting. The participants came up with interesting questions which thoroughly proved that the workshop was storming their brains.

The afternoon session covered the introduction and basics of Python which was followed by a coding session on the same.

The second day started off with a session on image processing. The hands-on-training with Raspberry board was highly appreciated by the participants. The coding session included chapters on capturing frames from a video sequence, reading and writing images, accessing images and elements, image conversion and scaling and shearing. A brief introduction to Histogram equalization and morphological operations made the afternoon hours more interactive.

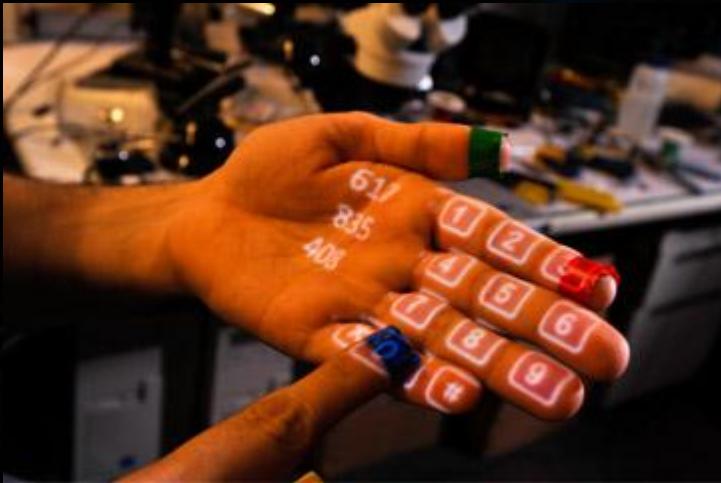
The certificates for all the participants were distributed. Soft copies of tutorials on the subject were given for further follow ups.

Augmented Reality

by RAVISANKAR RAMPRASAD ,S6 EC-B

Researchers and engineers are pulling graphics out of your television screen or computer display and integrating them into real-world environments. This new technology, called augmented reality, blurs the line between what's real and what's computer-generated by enhancing what we see, hear, feel and smell.

On the spectrum between virtual reality, which creates immersive, computer-generated environments, and the real world, augmented reality is closer to the real world. Augmented reality adds graphics, sounds, haptic feedback and smell to the natural world as it exists. Both video games and cell phones are driving the development of augmented reality. Everyone from tourists, to soldiers, to someone looking for the closest subway stop can now benefit from the ability to place computer-generated graphics in their field of vision.



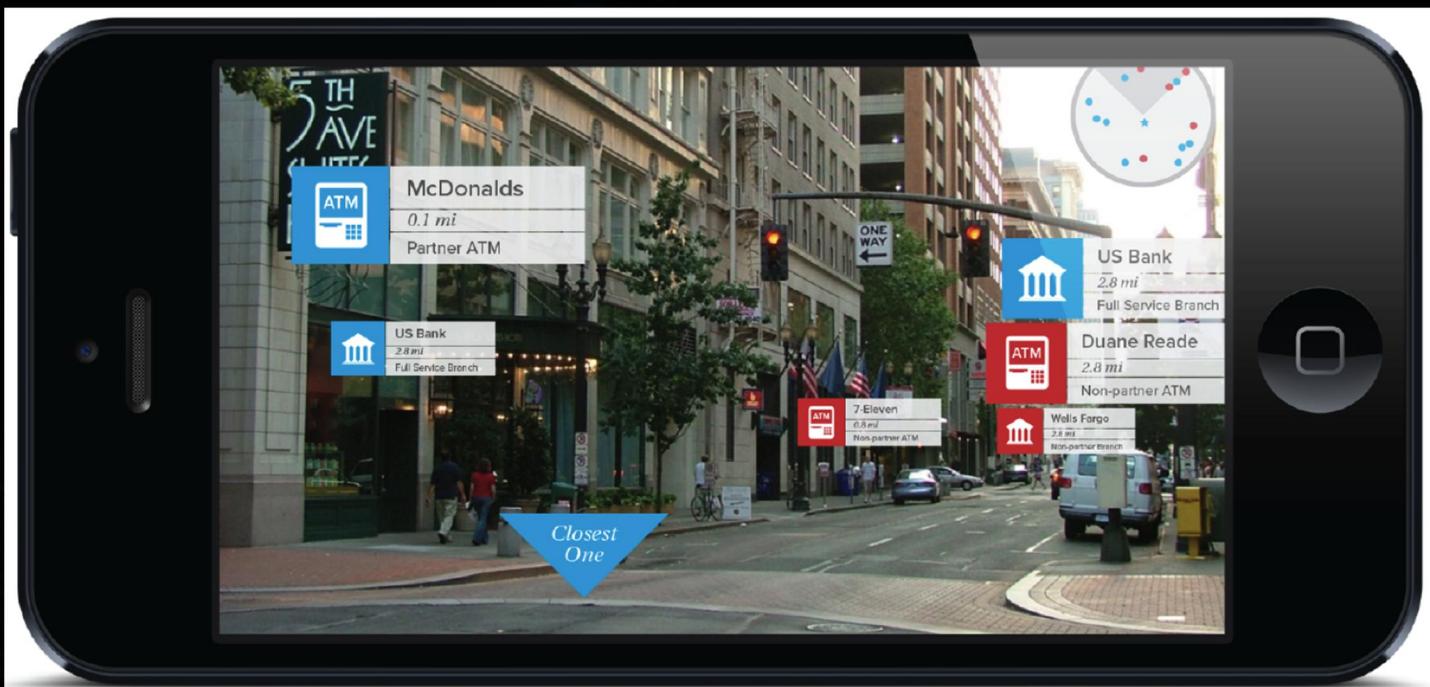
The Sixth Sense augmented reality system lets you project a phone pad onto your hand and phone a friend – without removing the phone from your pocket.

Augmented reality is changing the way we view the world -- or at least the way its users see the world. Picture yourself walking or driving down the street. With augmented-reality displays, which will eventually look much like a normal pair of glasses, informative graphics will appear in your field of view, and audio will coincide with whatever you see. These enhancements will be refreshed continually to reflect the movements of your head.

Augmented Reality Applications

Primitive versions of augmented reality are already here on some cell phones, particularly in applications for the iPhone and phones with the Android operating system. In the Netherlands, cell phone owners can download an application called Layar that uses the phone's camera and GPS capabilities to gather information about the surrounding area. Layar then shows information about restaurants or other sites in the area, overlaying this information on the phone's screen. You can even point the phone at a building, and Layar will tell you if any companies in that building are hiring, or it might be able to find photos of the building on Flickr or to locate its history on Wikipedia.

Layar isn't the only application of its type. In August 2009, some iPhone users were surprised to find an augmented-reality "easter egg" hidden within the Yelp application. Yelp is known for its user reviews of restaurants and other businesses, but its hidden augmented-reality component, called Monocle, takes things one step further. Just start up the Yelp app, shake your iPhone 3GS three times and Monocle activates. Using your phone's GPS and compass, Monocle will display information about local restaurants, including ratings and reviews, on your cell phone screen. You can touch one of the listings to find out more about a particular restaurant.



There are other augmented reality apps out there for the iPhone and other similar phones – and many more in development. Urbanspoon has much of the same functionality as Yelp's Monocle. Then there's Wikitude, which finds information from Wikipedia about sites in the area. Underlying most of these applications are a phone's GPS and compass; by knowing where you are, these applications can make sure to offer information relevant to you.

ARTIFICIAL INTELLIGENCE (AI) by RAVISANKAR RAMPRASAD ,S6 EC-β

According to the father of Artificial Intelligence John McCarthy, it is "*The science and engineering of making intelligent machines, especially intelligent computer programs*".

Artificial Intelligence is a way of **making a computer, a computer-controlled robot, or a software think intelligently**, in the similar manner the intelligent humans think.

AI is accomplished by studying how human brain thinks, and how humans learn, decide, and work while trying to solve a problem, and then using the outcomes of this study as a basis of developing intelligent software and systems.



APPLICATIONS

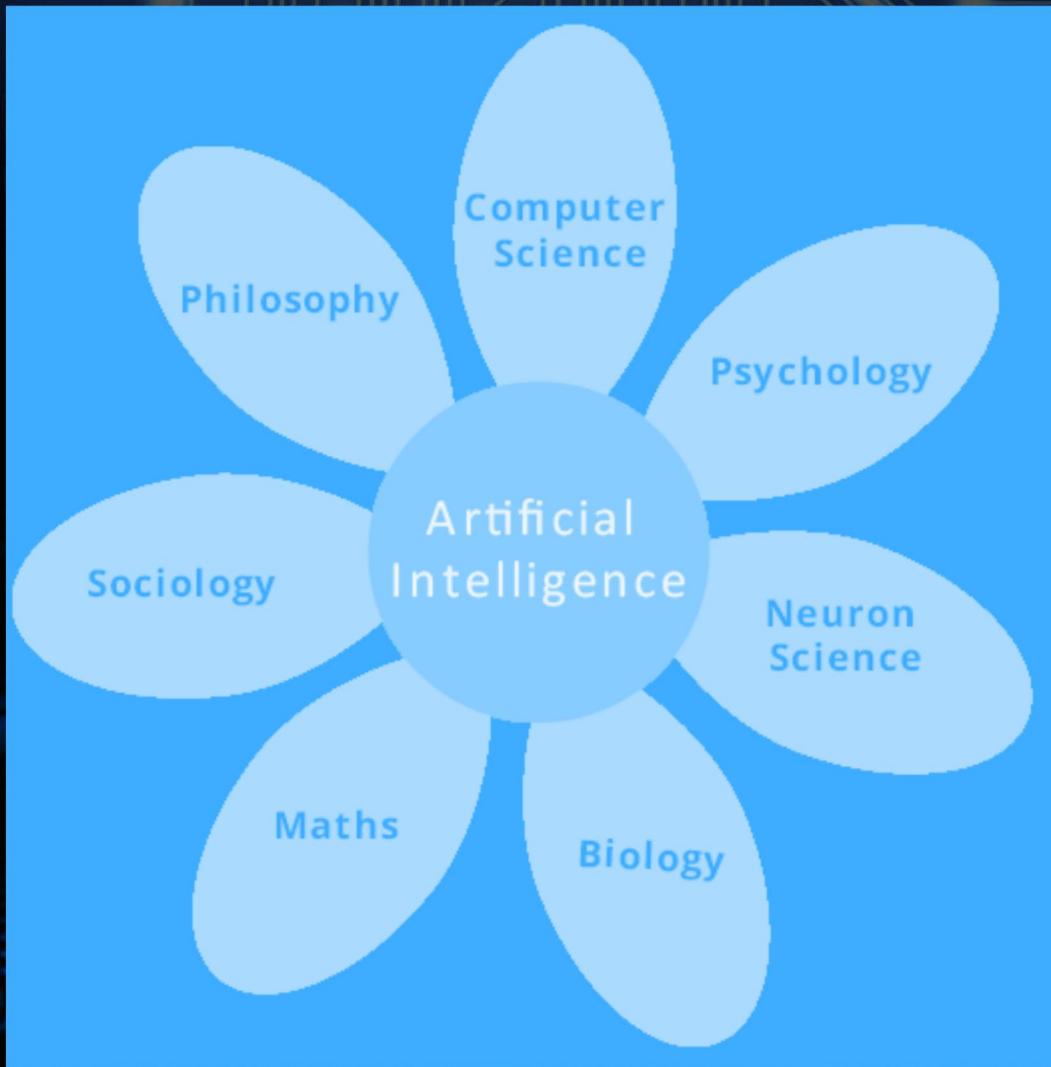
Applications of AI are diverse and have far reaching impacts on modern technology. As shown below they will play an important role in shaping the lives of our future.

- 1)Gaming
 - 2)Natural language processing
 - 3)Expert Systems
 - 4)Intelligent Robots
 - 5)Vision System
 - 6)Speech Recognition
 - 7)Handwriting Recognition
- And the list goes on....

What Contributors to AI?

Artificial intelligence is a science and technology based on disciplines such as Computer Science, Biology, Psychology, Linguistics, Mathematics, and Engineering. A major thrust of AI is in the development of computer functions associated with human intelligence, such as reasoning, learning, and problem solving.

Out of the following areas, one or multiple areas can contribute to build an intelligent system .



DRIVERLESS CARS— By Ravisankar Ramprasad S6 EC β

Combining artificial intelligence and the existing technology to make another gigantic leap into the future



Google's ambitious project

—THE SELFDRIVING CAR

It incorporates several aspects of artificial intelligence in carrying out navigation with human input by sensing its environment.

Autonomous vehicles detect surroundings using radar, lidar, GPS, Odometry, and computer vision. Advanced control systems interpret sensory information to identify appropriate navigation paths, as well as obstacles and relevant signage

Autonomous cars have control systems that are capable of analyzing sensory data to distinguish between different cars on the road, which is very useful in planning a path to the desired destination

CURRENT WORKS IN VANETS

- **The Google Driverless Car** is a project by Google that involves developing technology for driverless cars. The system combines information gathered from Google Street View with artificial intelligence software that combines input from video cameras inside the car, a LIDAR sensor on top of the vehicle, radar sensors on the front of the vehicle and a GPS position sensor attached to one of the rear wheels that helps locate the car's position on the map. Google anticipates that the increased accuracy of its automated driving system could help reduce the number of traffic-related injuries and deaths, while using energy and space on roadways more efficiently.

Other Aspects

The range finder mounted on the top is a Velodyne 64-beam laser. This laser allows the vehicle to generate a detailed 3D map of its environment. The car then takes these generated maps and combines them with high-resolution maps of the world, producing different types of data models that allow it to drive itself.

The system works with a very high definition inch-precision map of the area the vehicle is expected to use, including how high the traffic lights are; in addition to on-board systems, some computation is performed on remote computer farms

The system drives at the speed limit it has stored on its maps and maintains its distance from other vehicles using its system of sensors. The system provides an override that allows a human driver to take control of the car by stepping on the brake or turning the wheel, similar to cruise control systems already found in many cars today.

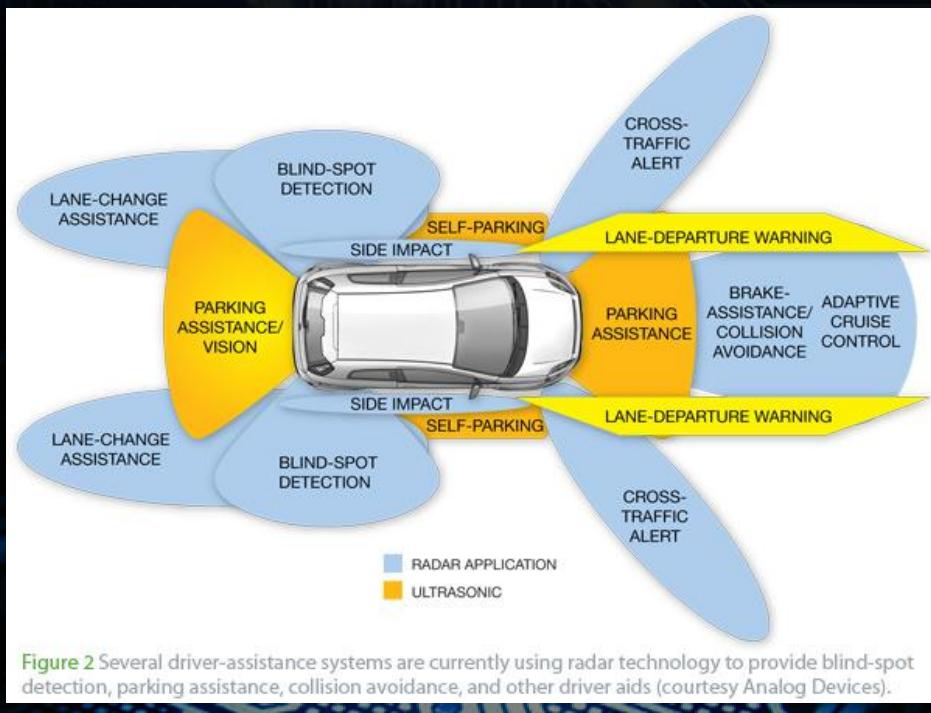


Figure 2 Several driver-assistance systems are currently using radar technology to provide blind-spot detection, parking assistance, collision avoidance, and other driver aids (courtesy Analog Devices).

Limitations

As of August 28, 2014 the latest prototype has not been tested in heavy rain or snow due to safety concerns. Because the cars rely primarily on pre-programmed route data, they do not obey temporary traffic lights and, in some situations, revert to a slower "extra cautious" mode in complex unmapped intersections. The vehicle has difficulty identifying when objects, such as trash and light debris, are harmless, causing the vehicle to veer unnecessarily. Additionally, the LIDAR technology cannot spot some potholes or discern when humans, such as a police officer, are signaling the car to stop. Google projects having these issues fixed by 2020.



Workshop on Xamarin

A workshop on Xamarin was conducted on 20th Jan ,Saturday, 2016. It was a hands on session on Android app development. The workshop was taken by Xhackers, Kochi.The resource team included Mr.Sreeraj P.R, developer at Fingent Technological Solutions, Ms.Jisha Rajan,Mr Abdul Mu-hayim, a third year b.tech student at MES College of Engineering,Mr shamnad and Mr vaikesh.

A total of 62 students attended the workshop. The workshop was from 9:30 to 4:30.The class was in two sessions. The first session was an introduction to Xamarin and the installation and familiarization of software. In the second session, the students developed 2 simple applications. The first app is to recognise number of mouse clicks and the second one was an application that used a login page.

The response of the students was so overwhelming that we were called upon by them to create a group where students could share their new found interest in this field of development and feed their existing knowledge, thus the Rajagiri Xhackers group was formed in association with IEEE. The class instilled in the entire congregation of students who attended the workshop a whole new point of view on app development and how it can be implemented in our everyday life as well. The group is currently active and the participants can ask the help of teachers directly for their app development. This ensures that the students are encouraged to continue and research on what they have learned in the workshop. There is also a proposal to conduct a hackathon soon.

EVENTS @ RSET

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PAPER PRESENTATION-IEEE

The event Paper Presentation was conducted as a part of IEEE SB linked with TECHKSHETRA 2016, the national technical fest of RSET.



Mr Shekar Rajendran and Ms Rinju Jolly from DEC, REST coordinated the program along with student volunteers of S6 ECE. There were 8 groups that participated in the competition which included the colleges

CET ,Muthoot institute ,SCMS ,Holy Kings(Muvattupuzha) ,FISAT ,ILM(Perumbavoor) and our own college RSET. Each and every one presented for about 20 minutes i.e., 15 minutes presentation along with an extra 5 minutes which was a question answer session. Contestants presented it with eager and enthusiasm. Students from mechanical and civil branches presented in the morning. The mechanical branch students were judged by Mr. Udayashanker and Mr. James Mathew from our mechanical department. There was only 1 contestant present from the civil branch who was judged by Mr. Ouseph and Mrs. Anitha from our civil department. In the afternoon session we had the presentation from the Electronics and Communication and the Applied Electronics and Instrumentation branches. These contestants were judged by Mr. Shekhar and Ms.Rinju.

Certificates of the contestants were given by the end of the program which was followed by announcing the winners and declaration of winners. Professor Dominic arrived as the guest of the day who started off with a 5 minute motivational talk to the contestants. The first prize was bagged by Jerin Koduvath from the civil engineering branch of CET who presented on the topic “Carbon Capture and Storage”. Amogh Jayraj Rau and Jairam Shankar of ECE, RSET bagged the second place who presented on the topic “smart irrigation system”. The event as a whole provided us with a lot of information and helped us to see everything in a positive manner. The various other presentation topics were “Water level automation using fuzzy logic” , “Bionic arm” , “kinetic energy recovery system in bicycle” , “Adaptive cruise control” , “I-Rapid” and “Recuperative heat exchanges” . The students from SCMS, who presented the topic “Bionic Arm” were specially mentioned by the jury.

EVENTS@RSET

IEEE RSET SB Women in Engineering Affinity Group Activity

Indo-German Student Discussion

As a part of IEEE RSET SB Women in Engineering Affinity group activity, we had an interactive session scheduled at 3.00pm at the Gallery hall with Ms. Melanie Hofstetter, student of Reutlingen University, Germany with the PG students of RSET. Ms. Melanie Hofstetter, who is here as a part of an association between RSET, Reutlingen University & NeST SFO, has completed her one semester term of her International Project Engineering course as an intern at SFO Technologies. Two of our PG students are also in turn spending their time in Germany in the same exchange program. She shared her experience as an intern in India and shared her observations on German system of engineering studies. The audience had a vibrant discussion with the speaker on similarities and differences in German and Indian work culture and education system.



EVENTS @RSET

SHE UNLEASHED

Women in engineering (WIE) affinity group of RSET IEEE SB celebrated the Women's day on March 8th, Tuesday as an ode to all the women members of our society. The day's program, named, "SHE UNLEASHED", was focused on two talks and dance drama performance. The organizers were glad to have an audience of over 200 female students of Rajagiri from all years.

The program started with a prayer song. The Branch Councilor Dr. Deepti Das; Principal Dr. A Unnikrishnan and Ms. Anitha Vargeese of DCE along with the guest speakers for the day inaugurated the event.

The first session was on "Women and Law" by Adv. Parvathy Menon, High Court of Kerala. Being a guest lecturer as well as a standing committee member at Kerala Women's commission, Adv. Parvathy Menon was able to grab the undeterred attention of the students by vividly talking about the societal threats faced by women, especially the youth as well as the legal refuge which they can avail. She also shed light on increasing cyber-crimes and the legal provisions which we can avail if we faced any such problems.

The second session was handled by Ms Sita Mary Thomas, Head of HR Department of Ruby Seven Studios. She stole us a peep a few years into our future. We could see ourselves as working women. We visualized the challenges faced by married moms as well as problems faced at the workplace, as she talked. She gave us many examples of abuses at workplace and advised us on how to tackle them.



The audience were all ears before ending her session for she did not forget to inspire us to follow our dreams.

"She Unleashed" approached the final showdown by a jaw dropping Dance Drama, "INDEPENDENCE PENDING", by 18 students, on the plight of victims of acid attack as well as female foeticide. It was performed as a tribute to the social figure Laskhmi Saa.

The curtains fell with a vote of thanks by the Asst Professor Anitha Varghese and hardwork of all the WIE volunteers were rewarded by the applause of students and staff. The winners of the collage competition "Elle Déchaîne" were awarded with cash prizes on the same day.



Students Achievements

Basil Paul (S8 EC- α) secured third position in NOTION'16 IDEA PRESENTATION competition for the idea IVM(Intelligent Vehicle Monitoring) organized by the Department of Applied Electronics & Instrumentation ,RSET , in association with Instrument Society of India (ISI), Kochi Chapter.

Vishnu Mohan(S6 EC- β) was member of the team that secured first position in the intercollege chess tournament conducted by the MGU university.

He was also a member of the team that secured runners-up position in the intercollege chess tourney hosted by Neumann College and runner-up at the Rajagiri Chess Championships hosted by RSET.

Swetha Sivadas (S6 EC- β) and Shreya Unnikrishnan (S6 EC- β) secured the first position at the IDEA presentation contest conducted by the RSET IEEE branch held on the 20th February 2016.