



## The Connect

DEPARTMENT OF ELECTRONICS AND COMMUNICATION

Issue 08, Jan 2019

### Humanoid Robots

Humanoid may be defined as something that resembles or looks like a human being and has certain human characteristics. In the present era of Technological development and advancements, Humanoid is being implemented in Robotics and these robots are called as

humanoids. The purpose of such robots may vary depending upon its biomechanics, functional capacity, production cost and complexity involved.

#### What are Humanoid Robots made of?

Though an extensive research is necessary before building a personal robot with anthropomorphic features that is accessible and appealing to the general user. To make the robot behave like a human being, sensors

play a big role. The use of sensors in robotics has taken them to the new heights of creativity. Most importantly, the sensors have increased the performance of robots to a large extent. These sensors allow robots to perform various intellectual functions like a human being does making it unique. The present technology is able to offer many solutions to the different issues that generate regularly in the development of actuators and sensors,

which are key factors in the achievement of the final goal in Robotics. Different types of sensors used in the present day robots are

Proprioceptive sensors: for sensing position, speed, and orientation

Proximity sensor: to detect the presence of nearby objects

Range sensor: to measure distances

Tilt sensors: to measure inclination

Accelerometers: to measure the acceleration

An advanced humanoid robot categorized as Android has human like-behavior. It can talk like a human being in a computerized voice, run, jump or even climb stairs in a very similar way as a human being does. These humanoids perform a variety of jobs ranging from complex factory jobs to household solutions.

A few years ago there was only experimental research in humanoid robotics mainly in the field of the automobile industry, whereas now with a faster rate of development humanoid robots are used in many fields varying from medical to transport.

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SUBRAMANY A G



Human robot

"HUMANOID ROBOTS "A humanoid robot is a robot which has a similar shape as that of a human body. In general, a humanoid robot has a torso, a head, two arms, and two legs. These robots vary depending upon the material they are made of and the design. Generally, humanoid robots come in three variations small sized humanoids, medium sized humanoids, and large sized Humanoids. Some humanoids may also have a face, eyes, mouth and are categorized as male humanoids and female

## INDUSTRIAL VISIT

(Coordinators : Prof. Jayanthi, Prof. Rajiv K V, Prof. Sujitha )

Place of Visit	Date	Semester
ISRO, Bangalore	26-09-2018	III
TDPS, Bangalore	05-10-2018	V
NAL, Bangalore	22-10-2018	III, VII

### Industrial Visit to National Aerospace Laboratories, Bangalore

The ECE department organized an industrial visit to one of India's biggest aerospace firms, The National aerospace laborites, headquartered in Bangalore. Upon arrival at the sprawling campus of The National aerospace laborites, the students were first given a tour of the AVIONICS TESTING LAB, which is instrumental in the design and development of the LCA TEJAS aircraft and many such 2 and 4 seater aircrafts , also it is the place where overhauling of many old aircrafts takes place. The avionics testing lab also specializes in the study of Computational fluid dynamics (CFD). The design of the



project of NAL, the SARAS aircraft was also done here. Then the students were taken to the INTEGRATION LAB where various key functions such as simulation of pressure testing, testing the software

obtained by the various instruments were installed.

This is the lab where the tests and checks for the aircrafts take place; the lab also housed the HARDWARE SOFTWARE INTEGRATED TEST CENTRE (HSI), which checks the black box of an aircraft, a device that records the conversations between the pilot and the ATC.

Before the tour concluded, the last point on the tour was the SEMINAR HALL, where the tour guide gave insights about NAL and its 15000 workforce which includes 4500 scientists and has 37 research labs and field station. The tour was a great success and the students also had an informative and intuitive session and were inspired by the work ongoing at the National Aerospace Laborites.

### Industrial Visit to TDPS, Bangalore

TDPS is one of the leading manufacturers of AC Generators in the world with products in the output range of 1 MW to 200 MW for prime movers, such as steam turbines, gas turbines, hydro turbines, diesel engines, gas and wind turbines They also manufacture special application generators for Geo Thermal and Solar thermal applications.

An industrial visit to TDPS was organized on 5th Oct 2018. TD Power Systems Private Limited offers AC Generators for various applications which are specially designed and tailor made to

suit the needs of the customers based on their requirements and specifications. Students were introduced to

1. Generators up to 55 MW and are a licensee of Siemens AG for 2 Pole generators from 55 MW up to 200 MW.
2. Construction of the different parts of the generator like rotor.
3. Overall construction of the generator.





## GUEST LECTURES

(Coordinators : Prof. Dharmambal ,Prof. Sushmitha A, Prof.Divya Sharma,

Date	Resource person	Title	Semester
11-08-2018	Mr Shriram Hardware Design Engineer, Intel Technologies	Art of Electronics	III
11-08-2018	Mr Shriram Hardware Design Engineer, Intel Technologies	Hardware design flow for chip Design	V
18-08-2018	Ms Neha Bharti ASIC design Engineer Altran India Technologies Pvt.	Pathway to Semiconductor Industry	VII
22-09-2018	MsAkshathaPai Project Manager, Sirena Technologies	Robotics: History, Current Trends, Future	III
22-09-2018	Ms AkshathaPai Project Manager, Sirena Technologies	Robotics: History, Current Trends, Future	V
24-10-2018	Mr Bipin Malhan Managing director Invecas Technologies	Career growth in Electronics Industry	VII

### GUEST LECTURES ON:

#### CHIP DESIGN:

Highlights of the Lecture are:

1. Moore's Law.
2. Introduction to current technologies used in Intel.
3. Difference between ASIC and FPGA.
4. Fundamentals and problems faced in chip design.



#### Pathways to Semiconductor industry

Highlights of the Lecture are:

1. Protocols involved in different processors such as SPI, I2C
2. Flow of VLSI technology
3. Importance of timing and delay.



#### ROBOTICS: History, current Trends, Future

Highlights of the Lecture are:

1. History of Robotics.
2. Humanoid Robots.
3. Demo of NINO
4. Cutting-edge technologies like AI, IoT, etc..



## EXPERT LECTURES

Semester	Subject	Resource person	Title	Date
	Network Analysis	Mr.Arun Krishnan	Waveform Synthesis	30-10-2018
3	Digital Electronics	Mr. GalphadePrafulla	Finite State Machines	31-10-2018
	Analog Electronic circuits	Ms.PoornimaMohana chandran	Analog electronics Product development	09-11-2018
	Signals and Systems	Mr.Arun Krishnan	Application of Signal Processing in Industry	15-11-2018
5	CMOS VLSI Design	Mr.Harish Kumar Vil-luri	Timing Analysis in VLSI Design	20-09-2018
	Analog Communication	Mr.AAthif Shah	Multicore Architectures and communication	13-10-2018
	Microcontroller	Mr. L Sunder Murthy	Microcontroller 8051 Interfacing	10-11-2018
7	Wireless and Mobile Communication	Mr.DSuresh	Advanced wireless and mobile communication	03-11-2018
	Antenna Propagation	Mr. M S JayachandraAradhya	Antenna Design.	15-11-2018

## WORKSHOPS:

(Coordinators: Prof. Shreesha, Prof. Priyamvada Singh, Prof. DivyaRajan, Prof. Naveen)

Topic	Conducted by	Highlights	Date
IoT and Embedded systems	Mr Kishore M Co- Founder, Digital Shark technology Mr Basavanagowda Patil Sr. Application engineer Digital Shark Technology	Introduction to TIVA series TM4C123GXL launch pad board as well as on the Energia software/code composer studio 6.1. CC130 wifi booster pack was also introduced to the students which allows TM4C123GXL to be used for IOT applications. Discussion on services that can be utilised for IoT and Embedded systems applications.	2 <sup>nd</sup> & 3 <sup>rd</sup> November 2018



# TECHNOLOGY SHARING CLUB

(COORDINATORS : Prof. Divya Sharma , Prof. Karthik C.V )

## What we're about:

We as a club will provide the right platform to develop your thoughts to innovations which will suffice the need of the hour. Also gives you sort of insight on technology be it former or newfound. An open forum will also be provided for discussions. Lack of Knowledge often leads to mishaps, here at our club we aim to prevent any such mishaps by enhancing your knowledge through fun-learning. We will also provide adequate opportunities for you to share technical thoughts and technical symposiums.



## Objective:

To provide insight into existing and evolving technology and product

ROLE	NAME
President	Prajwal
Vice-president	Parithosh Verma
Secretary	Mohammad Ghassan
Treasurer	Harsh Srivastav
Committee Member	Karthik V
Committee Member	Mohammad Musaveer
Committee Member	Nagrajun K S
Committee Member	Anju Gopinath
Committee Member	Preshika
Committee Member	Shiva
Committee Member	Kiran



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## TECHNOLOGY SHARING CLUB

EVENT	DATE	DESCRIPTION
TEST 360	22-09-2018	General Aptitude Test Technical Aptitude Test Treasure Hunt
TECH TALK	27-10-2018	Technical Talk on Introduction to Python and Machine Learning



TECH TALK ON PYTHON & MACHINE LEARNING

# ELECTRONICS HOBBY CLUB

(COORDINATORS : Prof. Dharmambal ,Prof.Aruna )

## What we're about:

The goal of this club is to implement and demonstrate electronics-based hobby projects and products. By motivating the enthusiasts in trying out the avenues of hardware and software domains of the electronics and communication, this club is aimed at enriching the intelligence as well as wisdom of the technical community.



The Club aims to cater to the various needs to keep in pace with the ever evolving field of electronics Innovation, Imagination and Application is the motto of the club. We aim to provide a platform for the students to showcase their innovative ideas. The Club deals from basics of electronics till the latest developments The Ideas learnt in theory classes can be applied in the real world.

## Objective:

To implement and demonstrate electronics-based hobby projects and products to enable students to have hands on experience on current technologies.

Role	Name
President	Nikhil Riyaz
Vice-president	Hariraj R
Secretary	Athira Ajaya Kumar
Treasurer	Akshay Rao
Committee Member	Shyam S
Committee Member	Janardhan S P
Committee Member	Praveen S
Committee Member	Kushi Ponnamma
Committee Member	Naveen K R
Committee Member	Sushma
Committee Member	Yasir





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## ELECTRONICS HOBBY CLUB

EVENT	DATE	DESCRIPTION
Arduino Workshop	26/09/ 2018	Basics of Arduino Types of Sensors & I/O Basic usage of discrete components
PCB DESIGN AND FABRICATION WORKSHOP USING EAGLE CAD	24/10/ 2018	Introduction to PCB Fabrication process Hands on Experience on Eagle CAD Software Design of 555 time Astable multivibrator



**PCB DESIGN AND FABRICATION WORKSHOP USING EAGLE CAD**



# PROFESSIONAL CONNECT CLUB

(COORDINATORS : Prof. Naveen H , Prof. Priyamvada Singh )

## What we're about:

We help you connect with professionals, professional bodies, re- search organizations and companies.

We organize guest lectures, seminars, workshops, conferences and competition on technologies, projects and products.

We organize field trips to companies, research institutions and industry exhibitions. We help to facilitate active participation in external technical events.



Professional Connect  
Club

## Objective:

To connect with engineering professionals and conduct tech-

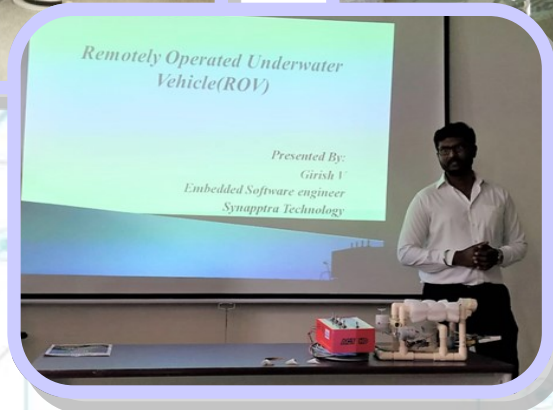
ROLE	NAME
President	Denzel George
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Committee Member	KushiPonnamma
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Committee Member	Saleh Junaid Ahmed
Committee Member	UditBahuguna
Committee Member	VidhyaJhadav
Committee Member	Rishita S



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## PROFESSIONAL CONNECT CLUB

EVENT	DATE	DESCRIPTION
Idea Hunt	05-10-2018	The club aimed at bringing out ideas from students to solve the persisting problems in the society. Even if the problem was a drop in the bucket, students were encouraged to generate ideas, that could effectively and feasibly solve the problem.
Workshop on Underwater Vehicle	17-11-2018	The workshop gave us an insight to what an ROV is, the various fields in which ROVs are used, a briefing on other types of underwater robots, and the Ten main guidelines for designing and ROV.



**IDEA HUNT  
WORKSHOP ON UNDERWATER VEHICLE**



# IEEE ACTIVITIES

(COORDINATORS : Prof. Nisha KCR )



## Student Satellite Seminar 2018

The Student Satellite seminar was organised by IEEE New Horizon College of Engineering with the support of Dr. K. Gopalakrishnan Dean R&D. Dr. Meir Ariel was visiting India to present at the ITCA Student Satellite Conference held on 5<sup>th</sup> and 6<sup>th</sup> of September 2018 and hence was available to present at New Horizon College on the previous day.

Students and Faculty from various related departments like the Electronics & Communication Engineering, Electrical and Electronics Engineering, Information Science Engineering and Computer Science Engineering, Mechanical and Biotech were present at the seminar.

Dr. Meir Ariel an expert in the field of Cube satellites delivered a seminar on the different developments in the field and Israel's contributions towards the same. He elaborated on the Differences between regular satellites and Nano satellites,



He also discussed the different ways by which a satellite could be sent into space and the latest developments in the same.

He explained the process of construction, the phases in building a CubeSat, the different kinds of off shelf components available, the different applications of small satellites, and elaborated the advantages and disadvantages of the same.

He also explained how Israel planned to launch 70 student satellites by the 70<sup>th</sup> birth day of Israel and offered to support India's 75 student satellite

program. It was a learning experience for everyone present at the seminar. And everyone took away useful information that could help spark a new small satellite revolution in India. It was a learning experience for everyone present at the seminar. And everyone took away useful information that could help spark a new small satellite revolution in India.

## Orientation Program on "Benefits of IEEE & OPPORTUNITIES"

With the idea set in mind to create a technical mainstream, R&D ecosystem in the campus and to make the students aware about the benefits and opportunities they can avail by being a student member of IEEE, the largest technical community, IEEE NHCE Student Branch has organized IEEE Orientation Program in New Horizon College of Engineering.

The Program was chaired by Dr. Manjunatha, Principal, NHCE. He inspired the audience by his talk on the importance of being a member of professional network .

The guest speaker of the program was Dr. Navin Kumar, Chair, IEEE ComSoc Bangalore section. Dr. Navin briefed the gathering about the various aspects of IEEE. He started by introducing IEEE, so as to why a student should become a member of IEEE student branch, the various platforms it provides to get in touch and interact with the community of similar minded people and growing network, the career opportunities and various other things.

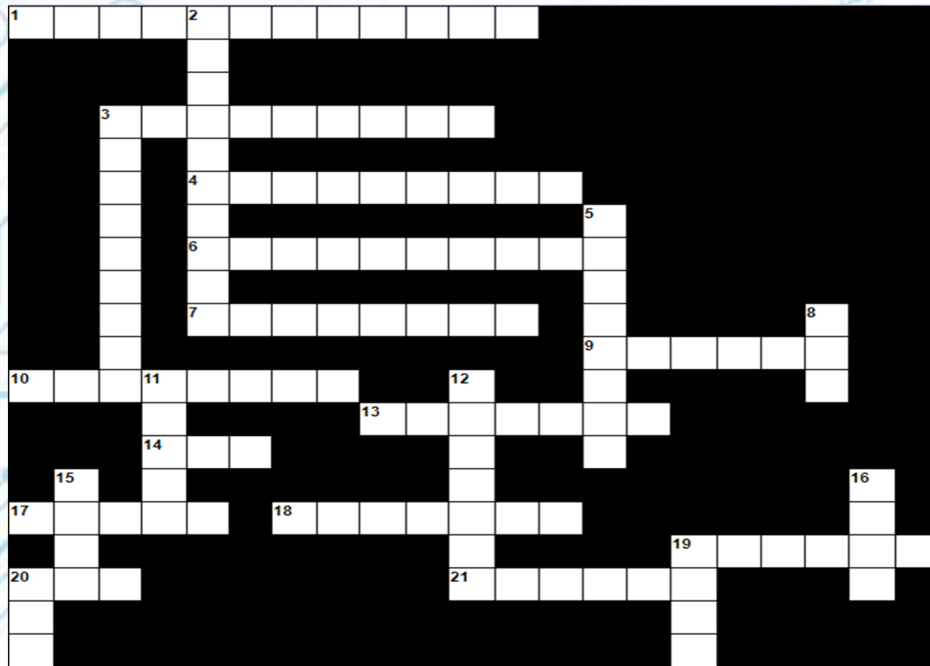


Following the official website of IEEE Student Branch, NHCE was launched which provides details of the student branch set up and provides a portal to register for becoming an active member of the student branch making it easier for the interested students to get a step closer to their goals.

The official website link <http://sites.ieee.org/sb-nhce/>

The event saw the presence of Heads and faculty members of various departments particularly ECE, EEE,ISE, Biotechnology. Total of 210 students from departments of ECE(120), EEE (20), CSE (5),ISE (40),Biotechnology (20), and PG (5) attended the program.

# CROSSWORD



## Across:

1. A connection that should not be there
3. Electricity can flow through
4. Does not conduct electricity -
6. Temperature changes its resistance
7. This component reduces the flow of electricity
9. This means three in the colour code
10. An adjustable resistor
13. Measured in amps!
14. Short for a type of circuit board
17. The unit of potential difference and emf
18. A source of power!
19. Buzzers and leds are examples of an -
20. A light sensitive resistor
21. Turn a circuit on or off with this

## Down:

2. This component is able to switch or amplify
3. This component stores electric charge.
5. A solder joint that does not conduct electricity -
8. 2% tolerance
11. Sensors are -
12. What comes between input and output?
15. 5 per cent tolerance
16. Helps the solder flow
19. Resistors are measured in -
20. Usually produces a red light!



# The Connect

## DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

### Vision

To create high quality engineering professionals who can serve the society and earn global recognition.

### Mission

- ✦ To build strong foundation in Electronics and Communication Engineering aspects by exposing students to state of the art technology and research.
- ✦ To strengthen the curriculum through interaction with industry experts to equip the students with the required competency.
- ✦ To mould students to share technical knowledge and to practice professional and moral values.

### Program Educational Objectives

- PEO 1: To produce graduates with understanding of fundamentals and applications of Electronics and Communication Engineering.
- PEO 2: To hone graduates with ability to apply, analyze, design and develop electronic systems.
- PEO 3: To enhance graduates with latest technologies to enable them to engineer products for real world problems.

## PROGRAM OUTCOMES

### **B. E graduate should possess the following Program Outcomes-**

**Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems in Electronics and Communication Engineering.

**Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems in Electronics and Communication Engineering reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

**Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes of Electronics and Communication Engineering that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

**Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments in Electronics and Communication Engineering, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

**Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities in Electronics and Communication Engineering with an understanding of the limitations.

**The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice in Electronics and Communication Engineering.

**Environment and sustainability:** Understand the impact of the professional engineering solutions of Electronics and Communication Engineering in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

**Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

**Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

**Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

**Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

**Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.



# The Connect

## DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

### *PROGRAM SPECIFIC OUTCOMES*

<b>Program Specific Outcomes</b>	
<b>PSO1</b>	To demonstrate the ability to design and develop complex systems in the areas of next generation Communication Systems, IoT based Embedded Systems, Advanced Signal and Image Processing, latest Semiconductor technologies, RF and Power Systems
<b>PSO2</b>	To demonstrate the ability to solve complex Electronics and Communication Engineering problems using latest hardware and software tools along with analytical skills to contribute to useful, frugal and eco-friendly solutions.

## DEPARTMENT OF ELECTRONICS AND COMMUNICATION

New Horizon College of Engineering  
New Horizon Knowledge park,  
Ring Road Marathalli

<http://newhorizonindia.edu/nhengineering/department-of-electronics-and-communication-engineering/>



**Dr. Sanjeev Sharma**

Professor & Head

and social activities. The students of ECE department have obtained gold medals and many ranks in the university. They have also won several trophies in sports and cultural events.

The students also undergo special placement training through value added programs. They get placed in reputed organizations such as Intel, Texas Instruments, AMD, Qualcomm, ARM, Schneider Electric, Bosch, Cisco Systems, Juniper Networks, Vmware, Sony, Nokia, Accenture, Cap Gemini, IBM, HP, TCS, Infosys, Wipro, Mindtree and others. Many students pursue higher studies in Indian and foreign universities, while some of them have setup their own ventures.

Overall, the department provides a very positive and nurturing environment, for students to develop and grow into knowledgeable, skilled and productive Electronics and Communication Engineers.

The department of Electronics and Communication is accredited by the National Board of Accreditation (NBA). The field of electronics and communication engineering is one that offers a whole new world of exciting challenges and opportunities. To automate or to interact with any device or a system, electronics plays the key role. Whether it is planetary mission or remote sensing, smart-city or self-driving cars, robots or smart mobiles or internet of things, electronics and communication is at the core.

The electronics and communication engineering department at New Horizon College of Engineering has a vision to create high quality engineering professionals who can transform society and earn global reputation. The department consists of highly qualified faculty members with rich experience both in academics, research, and industry. Apart from regular faculty, technology experts from reputed organization like IBM, HP, Texas Instruments, Sankalp Semiconductors, Audience Communication, Intel, ISRO, IISc. and other institutes visit the ECE department to interact with students and run industry-relevant technology courses.

The department has interactive classrooms and laboratories with latest equipment for students to experiment. The department also offers the VTU research center for Ph.D. and M.Sc. (Engg.), for research. Various workshops, seminars, competitive events, conferences and industrial visits for our students are also organized on a regular basis.

The Electronics and Communication Engineering Program with its autonomous status is re-designed to meet the needs of industry. The courses focus on Embedded Systems, Communication, VLSI, Signal Processing, and Information technologies. The students of ECE department execute various projects throughout their studies, publish research papers, and participate in national and international conferences. They also plan and execute various activities through Electronics Hobby Club, Technology Sharing Club, and Professional Connect club, as well as participate in cultural, sports