Sophia 2020 – A Vision for Robots Who Can Help People

The lifelike facial expressions of Hanson robots make them excellent research platforms for studying human-robot interaction. Hanson Robotics has a long history with scientific research into artificial intelligence and robotics .

The Sophia 2020 R&D version is now available for research, academic and B2B applications. Sophia 2020 combines our award-winning Hanson patented robotics hardware and software with unmatched robotics design and artistry.

Sophia 2020 includes Hanson Robotics' renowned facial expressions, gestural arms and hands, autonomous social interactions, an integrated SDK, and a choice of mobility bases, including a self-navigating option.

Hanson Robotics now brings you a cognitive robotics platform, here to help you solve today's problems and build our future for tomorrow.

By Ms. Shirke S. S.

Upcoming Events

In this semester we are planning for our annual student event TALENT HUNT 2K21

In TALENT HUNT students are going to organize various events like Robo-racing, Paper presentation, Quiz contest and Circuit Sudoku. Winner will awarded with trophies and certificates. Last year 200 students were participated in this events. Through this we got success in front of motivating our student to participated in competitive events, not only for our institute but also national as well as international competitions.

Industrial visit for 2nd and 3rd year students

We are planning industrial visits for our students to Akashwani Satara and ApTron Tech Satara, SM technologies Pune and BSNL Pune.

Expert Lecture

We plan expert lecture over the syllabus which conducted by industry experts for students.

Student Development

Department conducted short term professional courses in that we take 10 to 15 days workshop for student. Last vacation we conducted workshop for VLSI and Arduino programming. Upcoming vacation we plan for Arduino and Raspberry Pi project development and PCB Design. Also planning for implant training for students.

"Becoming an Electronics Engineer means

Finding new era in world of technology and Communication

with out this world is nothing"

Editorial

I'm writing to thank you for the generous contribution you have made to student's educational and academic pursuit by presenting the 6 volume and first issue of our departmental newsletter "**ELECTRA**", which gives us the opportunity to focus the achievements in our department and new trends in Electronics and Telecommunication field.

I am thankful to all the students and faculties who have contributed during the preparation of this newsletter. We have tried our best and given positive efforts, expecting creative responses from everyone to continue the flow of knowledge

Student Coordinator
Ms. Gore Gayatri
(TYEJ)

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Celebrating 72th Republic Day

SVERIs College of Engineering (Polytechnic), Pandharpur.
Department of Electronics and Telecommunication Engineering

ELECTRA TIMES

Electronics Trends and Applications

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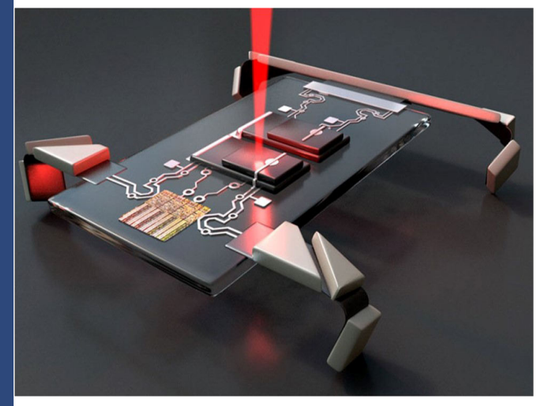
About Department

Electronics And **T**ele-**c**ommunication **E**ngineering Departments had been start in 2008, with intake of 60 . Our departments have 6 well-equipped laboratories and 09 well qualified teaching staff. We have established the association " Talent hunt " in which we conduct various activities like Quiz competition, Power point presentation, Robotics, Poster presentation, LAN gaming etc. This departments have organized various expert lectures and workshops like Embedded System, Arduino, Robotics, PLC and PCB Designing for the overall development of students. This type of activities are used to get better result in academic and overall development of students.

Laser-Controlled Microscopic Walking Robots that can operate with conventional electronics



Laser Controlled Microscopic Walking Robot

There has been ongoing research taking place over the decades to develop **an actuator at micrometer resolutions** that can work with semiconductor processing and can be triggered using conventional electronic signals. The rudimentary **microscopic robots** have been developed, but all of them have limited functionality as conventional silicon electronics have not been used efficiently. However, the researchers from Cornell University have been successful in creating **millions of sub-hundred-micrometer walking robots** that operate with the help of conventional electronics.

The robots developed are so small (about the size of paramecium) that hundreds of them can simultaneously pass through a hypodermic needle.

These robots have tiny photovoltaic panels that can be targeted by an external laser to give the robot commands. They **feature four electrochemical actuators as legs** that connect to silicon photovoltaics that serves as the processing center. Existing semiconductor technology has been used to make the robots' brain small and releasable..

Each robot has extremely thin platinum strips that have a layer of titanium on one side. Upon applying a positive electric charge to the platinum strips, negative ions from the nearby environment show up and balance out the charge. The same ions cause the platinum to expand and flex the leg. Polymer chunks on the metal strips enable the creation of bending points, emulating the knees or ankles.

According to the researchers, the team has worked on making the robots **compatible with standard microchip fabrication,** thereby opening the door to making these microscopic robots smart, fast, and mass-producible. The team also added that a single 4-inch silicon wafer can be used to manufacture about one million of the new robots using existing lithography processes. These robots have successfully paved the way for building ever more complex microscopic robots that may one day be used in the human body. Further, the team plans to do electronic integration on these tiny robots.

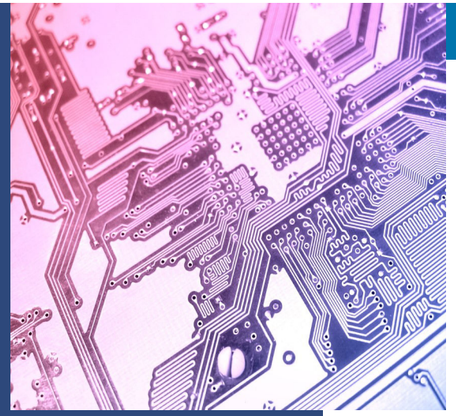
By Ms. Deshmukh R. R.

What will be the scope of ECE after 2021 in India?

Electronics and Communication Engineering graduates will have good scope even beyond 2020(personal opinion). Some of the factors favouring ECE scenario:

Growing convergence between hardware and software - this is something that electronics engineers have an edge in when compared to Computer grads.
Growing product companies in India. Once we have product companies emerging, electronic engineers are in demand - be it design or comprehensive testing.
Open source : One of the best things thats happening, undercurrent is open source community. When you have a great community to learn from and participate in, learning becomes enjoyable and fast on internet. You don't have to go to an top rated university to learn building a prototype of your product.
With increasing open sourcing and learning community online, learning costs reduce, which is an important factor for students in India. And hands on experience, on whatever little product you are developing is very important in progressing in engineering.

By Mr. Valate P. S.



JOB OPPORTUNITIES FOR ELECTRONICS ENGINEER

Engineering is a popular and specialized industry. As an electronics engineer you could be working with high-level technology in a range of sectors
Electronics engineers design, develop and test components, devices, systems or equipment that use electricity as part of their source of power. These components include capacitors, diodes, resistors and transistors.
Work can be found in a variety of areas as electronics are used in many things including:

- acoustics;
- defence;
- medical instruments;
- mobile phones;
- nanotechnology;
- radio and satellite
- communication
- robotics.

By Ms. Yadav S. S.

What makes a good electronics and communications engineer?

- First, you should understand what is Electronics. This may sound silly. But try to explain to someone who does not know anything about electronics, without using the terms "Diode", "Transistor","Circuit" ,"IC","Microprocesso r". etc.
- Second, Electronics is a branch of Electrical. So try to be strong in Electrical Fundamentals
- Third, Understand the Basic Transistor Circuit.
- Fourth, understand the Digital Circuit thoroughly from AND, OR, NOT gates to Microprocessors.
- Fifth, Understand C language thoroughly. It is a simple set of rules defined by Dennis Richie.

"Becoming an electronics engineer means you must actively take the reins in the world of communication"

You can master C language with in a shortest time.

- Sixth, Master C programming skill. This is the most essential skill for the ECE students today. Without this skill you will find it difficult to enter into electronics core companies.
- Seventh, Buy a Microcontroller kit and apply the C programming skill to do good electronic projects by yourself without copying a single line of code from net/ book/friends.
- These 7 steps will make you to eligible get a job in Electronics industry. Try to understand that in Core Industries Basics is the KING. So always master the Basics.

By Ms. Dongare M. A.

Departmental Achievements in academic Year 2020-21

Students

Sr. No.	Name of Student	Subject	Marks
1	MHAMANE VAISHNAVI RAMESH	CND	100/100
2	SALUNKHE ROHINI AMBADAS	CND	100/100
3	SALUNKHE ROHINI AMBADAS	ETE	99/100
4	MHAMANE VAISHNAVI RAMESH	ETE	98/100
5	MUJAWAR SIMRAN LATIF	ONS	100/100
6	GORE GAYATRI RAMCHANDRA	LIC	98/100
7	MULANI AYESHA NAVAJ	LIC	96/100
8	GORE GAYATRI RAMCHANDRA	CEL	98/100
9	MULANI AYESHA NAVAJ	CEL	96/100

Faculty

- Our staffs had gone through the various online trainings, FDPs and STTPs.
- Three staff of our department are pursuing ME & three staff have completed ME in various field.
- All staff are involved in R & D activities and in the verge of completion of several projects sponsored by agencies like IEI Kolkata.
- Participated in AVISHKAR 2019-20

Departmental Result for A.Y. 2019-20

Sr. No.	Name of Student	% Marks	Class
1	Ms. GORE GAYATRI SANTOSH	98.25	1st Year
2	Ms. PATHAN SURAYYA MAKBUL	96.63	1st Year
3	Ms. TONAGE VAISHNAVI ARVINDKUMAR	95.50	1st Year
1	Ms. GORE GAYATRI RAMCHANDRA	97.33	2nd Year
2	Ms. MULANI AYESHA NAVAJ	95.78	2nd Year
3	Mr. TAKBHATE VIJAY DIPAK	94.33	2nd Year
1	Ms. MUJAWAR SIMRAN LATIF	95.24	3rd Year
2	Ms. PATIL MADHURI DHANANJAY	95.12	3rd Year
3	Ms. MHAMANE VAISHNAVI RAMESH	94.94	3rd Year

EYE ON IT

Technologies developed by DRDO Electronics Dept. Govt. of India.

- Battlefield Surveillance Radar
- EOCM-Class Laser System
- 3D-CAR
- Revathi
- Weapon Locating Radar
- Sangraha
- Samyukta
- Antenna Systems
- Communication Systems
- Briefcase SATCOM Terminal
- Sectel
- Sujav
- Integrated Weapon System Simulation
- Multi-Detector Temography System
- Laser Designator PRF Code Recognition Device
- Palmtop Green Microchip Laser Module
- Passive Q-Switching
- Threshold Detector

SOFTWARE Used for Electronics.

- MATLAB
- Xilinx ISE
- Altera Quartus
- Code Composer Studio
- HFSS
- OptSim
- Commsim
- µVision IDE
- Emu8086
- Proteus Design Suite
- PSpice
- Agilent Advanced Design System

ELECTRA Dept. Of ENTC