

WHAT STUDENTS SAY?

It's my dream to make robots to reach common people for meeting their need. This course has helped me to achieve my dreams!! The best thing that I enjoyed here was project based learning
-Abhishek Balasubramniam., B.Tech (Mechatronics)



Students design life saving health alarm

ASHMITA GUPTA | DC
CHENNAI SEPT.20

If you are suffering from a heart attack or there is a sudden drop or increase in pulse rate, a watch like device will help you deal with the emergency by alerting your doctor or caretaker in real time. To ensure timely treatment for people facing a medical emergency, five mechanical engineering students from Hindustan University have developed a watch that alerts physicians. Dr.D.Dinakaran, Professor, Centre for Automation and Robotics, who mentored the students, said, "The students have been working on this project for the past six months and within three to four months we are planning to market our product. We have made a prototype. This device will soon be patented."

Professor Dinakaran said that other products related to pulse rating will cost around ₹1 lakh in the market. But this device costs around ₹1,000-1,500

to the wireless alarm which can be fixed anywhere inside the house or in the hospital. The unit that will be displayed will thereby enable the caretaker of the patient to reach him faster. Explaining the functioning of the device, team leader Kiran Thomas Virgese said that the heartbeat is recorded using a Pulse Oximetry Sensor. The sensor will output heart beat in the form of an analog signal, which will be converted into digital form. "This is done by taking the average highest crest and lower trough of analog waves for 200 readings, we get the accurate reading," he said.

He added that if the heart rate of the person is too low or too high the processor transmits the fact to the receiving unit by means of an RF transmitter. The receiving unit is a processor to a RF receiver or a buzzer. During the event of heart attack or any other problem the transmitting unit signals the receiving unit to generate an alarm. Santhosh Kumar E., also part of the team, said the main advantage of this device is that since different people have different body conditions, it can be customised according to the pulse rate. "A certificate of the pulse rate has to be given by the doctor," he said. Professor Dinakaran further said that other products related to pulse rating will cost around ₹1 lakh in the market. But this device costs around Rs. 1,000 – 1,500. "When it comes to mass production, the cost will be less than Rs. 1,000. We discussed with Chennai University and other experts. They feel this device will be very useful," he said.



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HINDUSTAN
 INSTITUTE OF TECHNOLOGY & SCIENCE
 (DEEMED TO BE UNIVERSITY)



**BACHELOR OF
 TECHNOLOGY
 MECHATRONICS**

More than just a Technology

FOR A CREATIVE STUDENT EAGER TO EXPLORE INTERDISCIPLINARY ARENA

The **Bachelor of Technology in Mechatronics** is designed for beginners with an interest towards robotics and automation. This course is structured to provide students with expertise not only as builders of components of engineering technologies but also system integrators. It aims to provide students with new insights into the field of automation through an integrated consideration of mechanics, electronics, and information technology.

The curriculum is designed to provide interdisciplinary knowledge with a coverage in the areas such as:

- Sensors, Instrumentation & PLC
- Robot Kinematics & Dynamics
- Industrial Robots
- Artificial Intelligence
- Industrial Automation
- Machine Vision
- CNC Technology
- Service Robots... *and many more*



LABORATORY FACILITIES

- TWO YASKAWA INDUSTRIAL ROBOTS
- INDUSTRIAL VISION SYSTEM
- DEBURRING APPLICATION SYSTEM
- ROBOT WORK CELL SIMULATION
- FLEXIBLE MANUFACTURING SYSTEM
- ELECTRO - PNEUMATIC TRAINERS
- PNEUMATIC TRAINERS
- PLC AUTOMATION WORKBENCH
- CNC VERTICAL MACHINING CENTRE
- SENSORS, NI DATA ACQUISITION SYSTEMS
- WIRELESS DATA ACQUISITION
- TWO LASER CUTTING MACHINES

Interdisciplinary study for industrial needs

CENTRE FOR AUTOMATION & ROBOTICS

Centre for Automation and Robotics (ANRO) was established on 20th October 2014 to promote educational and research activities in the field of robotics, automation and computer vision. ANRO bridges the gap between industries and University with a distinctive capability to harness the intellectual energy of academia to impact Indian industries.

INDUSTRY/INSTITUTE INTERACTION

ANRO is actively nurturing interaction between reputed academic and industry organizations. These are manifested in the form of student projects, student/faculty visits, internships, trainings and MoUs. To name a few, ANRO has strong linkages with:

- Yaskawa India
- SMC Pneumatics
- Nelcast
- Kennametals
- University of Leeds
- University of Northampton
- Warwick Manufacturing Group
- London South Bank University
- RAMBAL
- Axis Global Automation

UNIQUE HANDS-ON LEARNING EXPERIENCE

RESEARCH EXPOSURE

Course is handled by competent and committed faculty members who have extensive academic and research experience. Research areas include:

- Robotics
- Industrial automation
- Machine Vision
- Condition Monitoring
- Artificial Intelligence

In addition to the academic research, ANRO is actively engaged in various research projects funded by national and international agencies. Funded projects are:



- Low cost patient assistive robot
- Ultra response Gas Purging System
- Application of NDT for Foundry Products and Improving Skill of Indian Foundry Men
- Developing Technologies to Manufacture Specific Grades of Austempered Ductile Iron (ADI) for Automotive Components
- Trainer for Tactical Warfare
- Computerized thickness gauging of inverted housing casting using ultrasonics
- Intelligent System for Adaptive Enhancement of Underwater Images for Accurate Object Recognition

Postgraduate students get an opportunity to get exposed to work on such funded projects.



WHY ROBOTICS?

The global industrial robotics market is expected to grow at a CAGR of 11.9% from \$53 bn in 2018 to \$80 bn by 2022. The market for industrial and collaborative robots is expected to grow at the highest rate in Asia through 2022.



KEY TRENDS

Industrial Robots
Service Robots
Collaborative Robots
Intelligent Robots
Knowledge Sharing among Robots



KEY DRIVERS

- Adoption of automation to enhance quality and meet the dynamic market demand
- Growing demand from MSMEs in India
- Increasing support for smart

