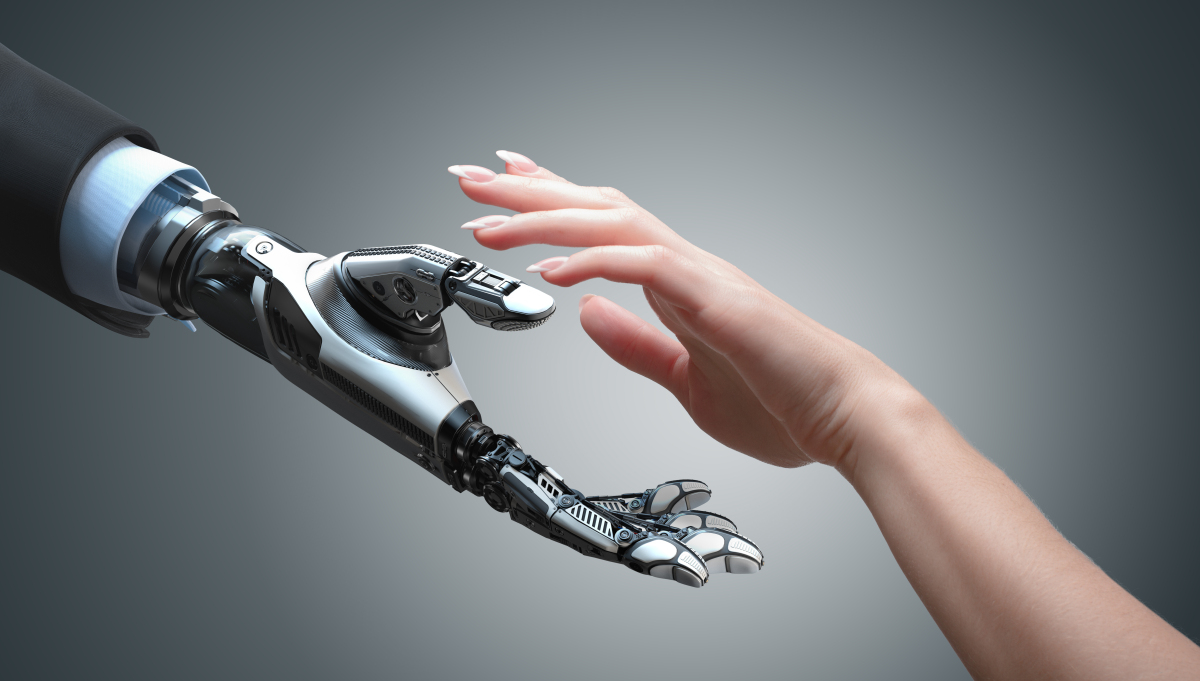
 COURSE INFORMATION



ROBOTICS - A SYSTEMATIC LEARNING APPROACH

Manoj Surya K

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| Week 1: |  |
| Basic overview of a robotic system |  |
| Sensors | What are sensors.How and why do we use them.  Examples |
| Actuators | What are actuators.How and why do we use them.  Examples |
| Microcontrollers | Why microcontrollers?  Arduino Mega/Uno.Programming basic input/output functions. |
| Drivers | The need for drivers.  The H-bridge. |
| TASK : | Make a closed loop system using sensor/sensors , actuator/actuators and microcontroller.  (details will be shared) |
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| Week 2 : |  |
| Communication between various modules | The need to set up communication between various robotic modules. |
| Serial communication | UART.  Python Serial library.Serial object in Arduino.  Baud rates. |
| TASK : | To make a interactive robot , that responds to commands sent from the laptop. |
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| Week 3 : |  |
| Wireless connection/communication | Need for wireless connection/communication.  Introduction to Zigbee , wifi , bluetooth protocols. |
| Bluetooth | HC-05 module.  SoftwareSerial object in arduino.  Setting up HC-05 module. |
| TASK : | To make a bluetooth connected wireless robot ,controlled by an android  Smartphone. |
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| Week 4 : |  |
| ROBOT OPERATING SYSTEMS  And  GAZEBO | Introduction.  Basic Overview.  Why to use ROS.  When to use ROS.  ROS nodes,messages,publishers,subscribers.  Need for simulation.  Gazebo |
| TASK : | To arrive at a ROS implementation model to a problem assigned. |