



The SixthSenseBOTICS

A two days workshop on Sixth Sense Robotics
enriched with
Image Processing using MATLAB.

Workshop Designed & Conceptualised by



Dear Sir/Madam

Sub: To organize SixthSenseBOTICS workshop in your college.

This is to bring to your kind notice that EISystems is an Indian entity exploring itself in varied training sectors like Educational Robotics, Ethical Hacking, Industrial Automation and Automotive Mechanics etc. SixthSense**BOTICS** is a workshop based on development of robotics systems enriched with artificial intelligence capabilities using MATLAB.

The idea behind the workshop is to develop an interest among the upcoming engineers by giving them knowledge of various type of robotics systems with their basic building along with their integration with fifth generation of computers, we say as Artificial Intelligence. It also introduces them to the needs of the current mechatronix sector. In this workshop the participants will be told about all the latest technologies that are coming up in the Automation industry. Apart from all these the team will share the experiences of various projects which they had done in past and some of their current projects.

This workshop will also provide a platform where young engineers can mould their imagination into reality and feel the excitement first hand. With this end in view, we extend our support and technical expertise to the young Engineers of your College in the form of this workshop. We seek your cooperation and look forward towards a successful execution of this workshop in your College.

Thanks & Regards,

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EISystems

EISystems Services is a leading Indian technology identity with operations in 16 states and union territories of India. EISystems (We call it EISys) offers computer forensics, robotics and socialmedia related solutions for enterprises and student community. Our education domain "EISystems Education Services" have been in among top technology training provider brands in India. Our mentors had trained about 6000 students and impacted around 50000 students through our various outreach initiatives.

Our brand EISystems

EISystems was born free, a force unleashed into the market with a relentless and unwavering determination to succeed. A spirit charged with energy, creativity and a team driven "to seize the day" with an ambition to become the most admired technology service provider. Our team, in just 15 months of operations, rose to the pinnacle of achievement and continues to lead.

As one of India's leading technology training company, EISystems brand has played the role of a major catalyst in India's reforms, contributing to its economic resurgence and spreading technocracy. Today we touch people's lives with our technology & internet services.

Our logo

Our unique symbol is an interpretation of the 'EI' in EISystems. The emphasis on E & I means working Electronics & Information in a system. The highlight of the orange color makes thing to promote anything and spread awareness about our vision. It represents a dynamic force of unparalleled energy that brings us and our customers closer.

Our specially designed logo type is modern, vibrant & friendly. It signals our resolve to be accessible, while the use of all lowercase is our recognition for the need for humanity.

Orange is part of our heritage. It is the color of energy & passion that expresses the dynamism that has made EISystems the success it is today, in the domains we had forayed.



EISystems logo

for more details log on to www.eisystems.in/about

Our Clientele

EISystems Services (better known as EISys) being a knowledge platform also believes in sharing its domain expertise through its training programmes for that we founded the new venture; EISystems Education Services; the main activities of this venture is providing training, workshops, lectures, presentations and seminars in information security, robotics, 3D animation, automobiles, social media and various professional courses.

EISystems Services has been catering to a vast number of elite colleges of Engineering by the means of workshops, training programmes and other events on technology related fronts. We have successfully impacted out an excess of 50,000 students through the workshops and technoholic events organized by our team.

Below is the list of some of our esteemed clientele, whom we and our mentors served in the past up to their expectations

1. Indian Institute of Technology, Bombay
2. Indian Institute of Technology, Delhi
3. Indian Institute of Technology, Kanpur
4. Indian Institute of Technology, Roorkee
5. Indian Institute of Technology, Hyderabad
6. Indian Institute of Technology, Rajasthan
7. Indian Institute of Technology, Banaras Hindu University
8. National Institute of Technology, Jaipur
9. National Institute of Technology, Nagpur
10. National Institute of Technology, Kurukshetra
11. National Institute of Technology, Durgapur
12. Indian Institute of Information Technology, Gwalior
13. Birla Institute of Technology & Sciences – Mesra, Patna
14. Bengal Engineering & Science University, Shibpur
15. Thapar University, Patiala
16. Delhi College of Engineering (now DTU), New Delhi
17. Netaji Subhash Institute of Technology, Delhi
18. Cochin University of Science & Technology, Kochi
19. RV College of Engineering, Bangalore
20. Don Bosco Institute of Technology, Mumbai
21. Coimbatore Institute of Technology, Coimbatore
22. Nirma University, Gandhinagar
23. Harcourt Butler Technological Institute, Kanpur

and list continues...

for more details log on to www.eisystems.in/workshops

24. Sreenidhi Institute of Science & Technology, Hyderabad
25. Avanthi Institute of Engineering & Technology, Visakhapatnam
26. Sri Siddharth Institute of Technology, Tumkur
27. Sardar Patel Institute of Technology, Mumbai
28. Gokaraju Rangaraju Institute of Engineering & Technology, Hyderabad
29. Raghu Engineering College, Visakhapatnam
30. Avanthi Institute of Engineering & Technology, Visakhapatnam
31. MVSR Engineering College, Hyderabad
32. Mahatma Gandhi Institute of Technology, Hyderabad
33. Institute of Technology & Management, Gorakhpur
34. Institute of Engineering & Rural Technology, Allahabad
35. SRM University, Modinagar
36. PVG College of Engineering & Technology, Pune
37. RD Engineering College, Ghaziabad
38. Engineering College, Bikaner
39. Ilahia College of Engineering & Technology, Kochi
40. Babu Banarsi Das Institute of Technology, Ghaziabad
41. IPS Engineering College, Gwalior
42. Dehradun Institute of Technology, Dehradun
43. Dibrugarh University, Dibrugarh
44. GLA University, Mathura
45. ITM University, Gurgaon
46. Vaagdevi Educational Institutions, Warangal
47. Vinayaka Missions University, Salem
48. Modi Institute of Technology, Kota
49. ITM Engineering College, Meerut
50. JNTUH College of Engineering, Karimnagar
51. SRMS College of Engineering & Technology, Bareilly
52. Gyan Ganga Institute of Technology & Sciences, Jabalpur etc..

We & Technical Festivals

EISystems Services or its promoters has been a key sponsors or organizers in numerous technical festivals organized by the colleges all over India. The primary objective of sponsoring the technical fests is to reach out to thousands of students who share similar interests in a short-span of time. The following small list exhibits our involvement and support given to the Technical Festivals to the Colleges across India.

Abhivyakti Axis Spitfest Phoenix Rubaru Corona
Infotsav Thomso Auxesis Renaissance Blitzschlag
Sreevision Cognizance Radiance Technex Pragnya
Convergence Elan Vaagtarang Versatalia Sakshama
Techibento HackNEX Tryst Neuron

Workshop **Benefits**

We will provide following benefits to the college :-

1. Conduction of two days workshop in your college.

Duration – 2 days (6-7 hours per day sessions)

2. Deliverables to our students after the conduction of workshop

1. Software toolkit to each participant.
2. Training Material (eBooks) for each participant.
3. Home take away kit for a group in case of robotics workshop*.
4. Authorised Certification from EISystems Services.

3. Deliverables to the college & organizing team

1. Momentoes to the college authorities, staff coordinator and overall student coordinator
2. Certificate of Coordination after successful conduction of workshop.

4. Internship & Funded Research

1. We always look for bright technominds. May be they are sitting in your college, students with good background will be considered for internship under our experts.
2. We work in team. We work in collaboration. Interns can also expect a funded research project from EISystems Services.

5. Publicity & Branding Benefits

1. Mailers about Workshop at college to our and our partners database of over 1,00,000 students and professionals.
2. Bulk Messaging (SMS) to our sms channels or to the numbers provided by college for messaging purpose.
3. Listing of college name with workshop on EISystems official website having an facility to register participants online.
4. Posters or Banners will be provided by EISystems Services for promotional purposes.
5. Personalised call by EISystems Media team to the aspiring participants subject to the database provided by college team.
6. College Specific page on EISystems website for better coverage of workshop online.

6. Sponsorship to the college

We will provide sponsorship for conducting the workshop as a part of acknowledgement of using college infrastructural facilities.

Workshop Requirements

We want following things to be provided to us from college :-

Technical Infrastructure Facilities

1. A Seminar hall/ Auditorium having an enough capacity to accommodate 200 participants comfortably.
2. A Projector setup with stereo jack cord and audio public address system with sufficient number of screens in order to maintain good visibility in seminar hall.
3. An internet connectivity for the speaker(Without proxy if possible)
4. A laptop or desktop in seminar hall having a configuration of 512 MB RAM, Pentium 4 or advanced processor having Windows XP installed on it.
5. Two Wireless Microphones (Collar Mic. Preferred for speaker)
6. One laptop will be required per team from participants with little knowledge on programming languages.

Basic Requirements

1. Accomodation to our visiting team members in your college guest house or any other good place.
2. Pick and drop facility from nearest railway station/ bus-stand/ or airport.
3. This workshop will be conducted for a minimum of 100 students.

Publicity & Logistics Support

1. Specially designed workshop posters (will be provided by us) to be dispatched to engineering colleges across the state along with the festival posters and to be put up in the campus.
2. Two specially appointed coordinators(Either from 3rd year or from final year) having the knowledge of the subject, to promote, publicize, handle local student queries etc. for our workshop to be conducted at the college.
3. Support to our team to interact with college students to provide them proper awareness regarding the workshop subject and to increase the participation.
4. Publicity and Branding through College or Department website.
 1. A Page dedicated to our workshop containing sufficient information about it.
 2. Logo and link of EISystems to be there on College/Department/Festival website
 3. Registration Link of our workshop(Link to EISystems Website) to be on College/Department website for online registration of the workshop.

Workshop Content

SESSION 1 # Basic Building Session (My First Robot)

- Electronics Components related to robotics systems.
- Basic Circuit Modules like (Voltage Regulation, Motor Driver etc.)
- Choosing the electronics components & assembly for purpose
- What are Integrated Circuits? Which ICs are commonly used and How?
- What are Photo sensors?

SESSION 2 # Software & Hardware Integration Session

- What is Microcontroller?
- Difference between microcontroller and micro processor with live examples?
- Microcontroller Architecture and interfacing
- How can we use a microcontroller in our own circuits?
- Microcontroller Programming in 'C'
- Writing your First 'C' Program in AVR Studio
- Compilation and debugging
- Loading Compiled 'C' Program on a Microcontroller using AVRdude.

SESSION 3 # Creative Mind & Sensor Working Session

Development of Line Follower Robot

- What is a line follower robot
- Testing of line follower
- How to make it move faster

SESSION 4 # Introduction to Image Processing

Different types of sensors

Advantage of camera vision

Need for image processing

SESSION 5 # Enter MATLAB World

Introduction to MATLAB

Signal Representation

Matrix and Array Operations

Functions in MATLAB

SESSION 6 # Image Information

- Reading and writing an image
- Capturing an Image
- Concepts like Luminance, Hue, Intensity
- Color spaces
- Understanding Image Parameters
- Finding Pixel Value
- Operations in Pixel Value

SESSION 7 #Image Processing

- Image Processing Approaches
- Functions to Enhance Images
- Thresholding
- Edge Detection
- Motion detection

Hands On

- Counting number of objects in an image
- Controlling laptop completely using your webcam
- Debugging and enhancing program performance

1 Workshop 4 Robots >>>>

- Line Follower (Autonomous)
- Laptop Controlled Robot using Webcam.
- Ball Follower Robot using Webcam
- Line Follower Robot using Webcam

SESSION 8 # Ports & Image Processing Based Robots

Ports

- Parallel and serial ports
- Using parallel and serial ports in matlab

Image Processing Robots

- Ball follower Robot
- Algorithm Developing for BFR
- Writing code for making a ball follower
- Debugging and enhancing performance
- Development of a line follower robot using concepts of color based image processing

Robotics Kit Deliverables

1) The controller board (Brain)

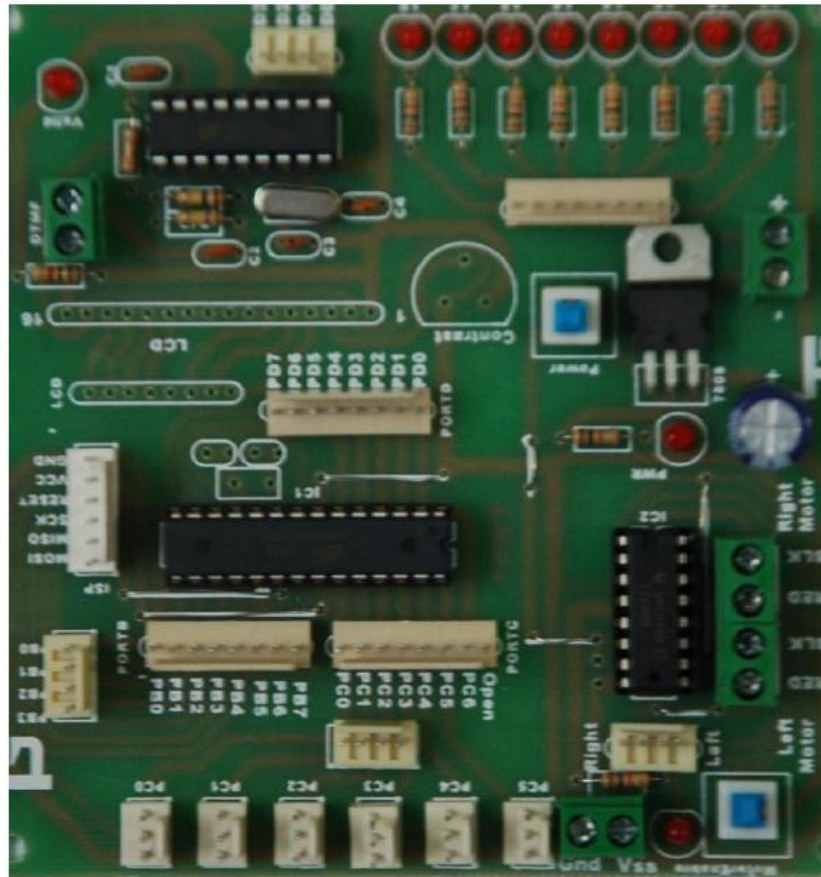
- a. Built around the popular Atmel AVR microcontroller Atmega 8
- b. 4 channels of motor controller Board, capable of driving 2 dc motors
- c. on board power regulator IC
- d. On board power supply socket
- e. LEDs(Light Emitting Diodes) for display
- f. Atmega 8 Microcontroller

2) Programmer



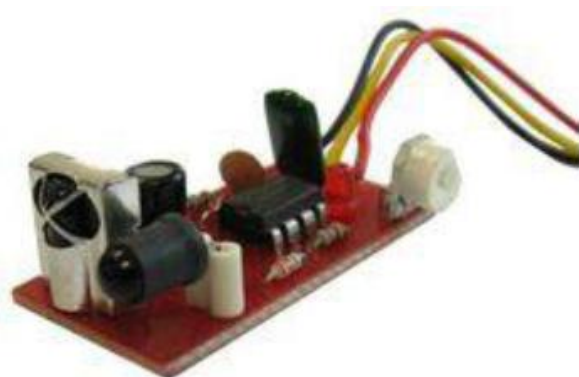
- a. USB Powered
- b. Supports almost all At mega series microcontroller
- c. USB cable
- d. ISP Connector

#The photographs or images shown above may not be a part of standard accessories or deliverables in the robotics take away kit. Variations are subject to requirement. Webcam will not be provided, we will come with a webcam for our trainer only.



A microcontroller board

3)Motors & Sensors



- 2 dc geared motors with metal gears
- 1 castor wheel
- 2 Wheels with rubber grip

4)Power Supply

- 9V 1A power supply
- OR
- 4 AA size battery

Workshop Fees & Student takeaways

Rs. 5900 per team of 4 participants.

(inclusive of all taxes)

Rs. 7000 per team of 5 participants.

(inclusive of all taxes)

1. One Robotics take away kit will be delivered for a group of 4 or 5 participants.
2. Certificate of Participation will be provided to every participant.
3. Certificate of Merit for competition winner.
4. One unit Software Package will be provided to every group.
5. EISyslife! Card for every participant in a group

Workshop Payment

The amount shall be paid as under :-

Appropriate Amount to be handed over to EISystems team on the first day of the workshop

- a. Mode of Payment can be Cheques/Demand Draft/Cash
- b. Proper Invoice will be provided for EISystems Services.

Appropriate Sponsorship Amount to be handed over to the College on the first day of the workshop

- a. Mode of Payment can be Cheques/Demand Draft/Cash
- b. Proper Receipt will be provided by College

Contact Us

We ensure that you will find our training programs extremely beneficial for your students. If you have any queries kindly get back to us. We are looking forward to a quick and positive response from you and a long term association with your esteemed organization.

Thanks & Regards,

Mayur Dev Sewak

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