



The UGV Workshop

A two days workshop on designing & realization of
Unmanned Ground Vehicle

Workshop Designed & Conceptualised by



Dear Sir/Madam

Sub: To organize UGV 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. **UGV Workshop** is a workshop based on synchronization of Advance involvement of communication technologies & Applied Robotics Systems.

The idea behind the workshop is to develop an interest among the upcoming engineers by giving them knowledge of various type of embedded systems with their basic building.

Our scientist have proven that next millennium belongs to embedded systems & robotics that will exhibit the power of an individual . Our young generation aspire to be smarter in their lifestyle so they want to create such systems that can be controlled by them. We help those young aspirants who are always fascinated by systems with intelligence and automation and always want to convert their holistic ideas into reality. We provide all these young students the power to create their own destiny by learning new technology and applying the fundamentals of engineering in a smarter way.

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,

Mayur Dev Sewak
Workshop Manager, EISystems Services
+91-97-6111-8111 | +91-96-7555-9555
mayursewak@eisystems.in

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

and list continues...

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

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

- What is Unmanned Ground Vehicle?
- Terrorist Attacks & Security Considerations.
- Applications of UGVs.
- Concept of UGVs and related machines.

SESSION 2 # Design of Unmanned Ground Vehicles

- Armament Capabilities
- Countermeasures in various fields
 - Mining Industry
 - Bomb Disposal Squad
 - Emergency Services & Safety Measures
- Guidance
 - Teleoperated Capabilities
 - Autonomous Capabilities

SESSION 3 # Basic Building Session of UGVs

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

SESSION 4 # 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 5 # Autonomous Unmanned Vehicles (Part 1)

Development of Line Centered Guided Vehicle

- What is a LCG Vehicle
- Testing of LCG Vehicle on ground
- Optimisation of Algorithm

Development of a Infrared Sensored Device in edge detection

- Concept Development & Algorithm materialisation
- Development of program with code optimisation

SESSION 6 # Autonomous Unmanned Vehicles (Part 2)

Development of Anti Edge Detection through Infrared Sensing.

- Object/Stone Detector Techniques
- Testing of LCG Vehicle on ground
- Optimisation of Algorithm

SESSION 7 # Teleoperated Capabilities

- Vision Devices Implanting (Camera)
- Terrain Sensing Devices
- Wired Transmission & Reception of Imagery/Data/Signals
- Wireless Transmission & Reception of Imagery/Data/Signals
- Hybrid Transmission & Reception of Imagery/Data/Signals

SESSION 8 # Operating of UGVs using Cellular Phones from Master Control Center.

- DTMF Technology
- DTMF Encoders & Decoders
- Interfacing of DTMF ICs
- Concept and Algorithms
- Controlling of vehicle using cellular phone

SESSION 9 # VoIP Technology Implementation with controlling of vehicle using HTTP based mechanism.

- VoIP Technology
- VoIP integration with DTMF technologies.
- VoIP initiated circuit switched controlled vehicle.
- VoIP controlled UGV.

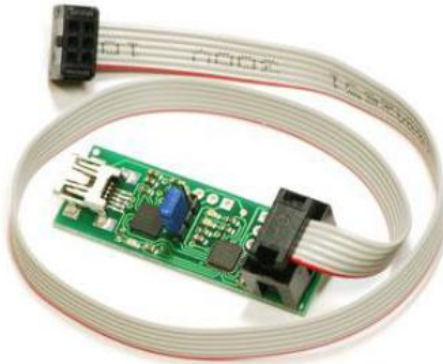
#The photographs or images shown above may not be a part of standard accessories or deliverables in the robotics take away kit. Variations are subject to requirement.

Robotics Kit Deliverables

1) The controller board (Brain)

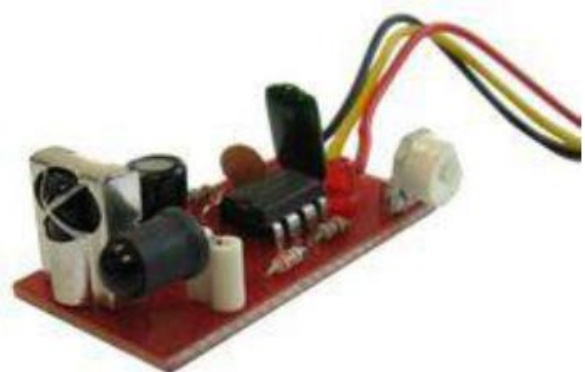
- a. Built around the popular Atmel AVR microcontroller Atmega 8
- b. 4 channels of motor controller Board, capable of driving 2 dc motors
- c. on board power regulator IC
- d. On board power supply socket
- e. LEDs(Light Emitting Diodes) for display
- f. Atmega 8 Microcontroller

2) Programmer



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

3) Motors & Sensors

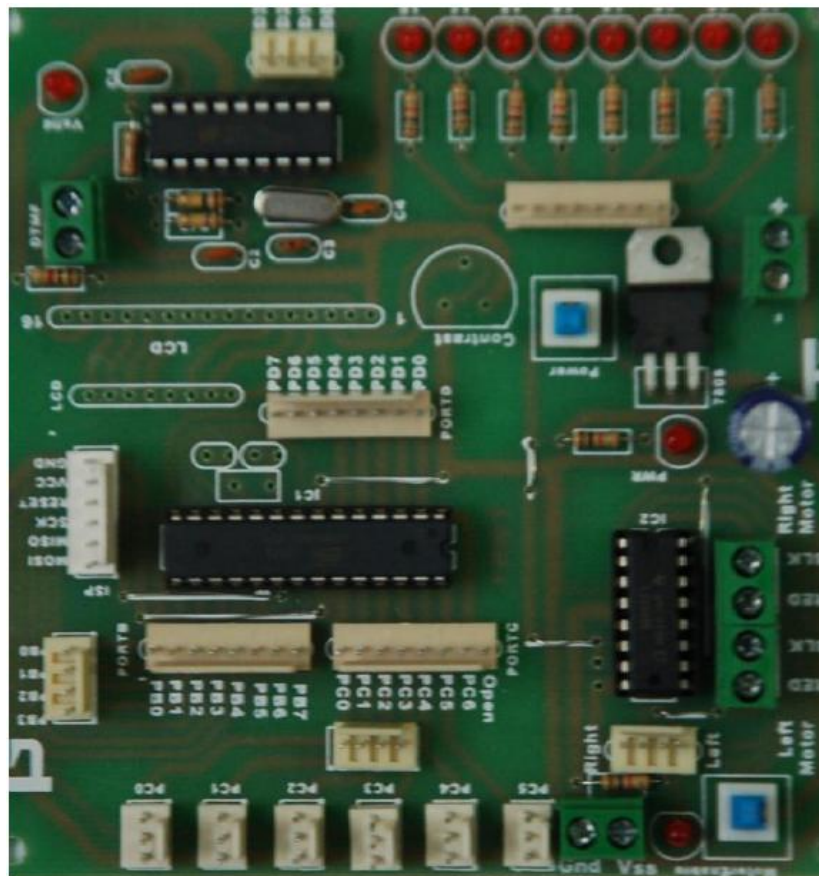


- 2 dc geared motors with metal gears
- 1 castor wheel
- 2 Wheels with rubber grip

4) 4)Power Supply

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

Please note that 16X2 LCD & One 3 axis accelerometer is not included in home takeaway kit deliverables, it will be taken back after workshop.



A microcontroller board

Workshop Fees & Student takeaways

Rs. 6000 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. Documentation & Codes related to workshop.
4. 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

Business Manager, EISystems Services
+91-97-6111-8111 | +91-96-7555-9555
mayursewak@[eisystems.in](mailto:mayursewak@eisystems.in)
www.eisystems.in