



Communicate. Collaborate. Create.

Electronic Robotics Workshop details

Trainer	Trainer has 7+ years of experience in building Lego Robots from scratch.	Team
		Department: ELECTRONIC ROBOTICS
		Point Person: Anvesh Reddy
Bootcamp	<ul style="list-style-type: none"> • Workshop for 2 days • Workshop for 3 days • Workshop for 5 days 	Contact Details
		+91-9052454439 hello@arclabs.in techarclab@gmail.com

Curriculum for 2 days workshop

Topic	Sub-Topics
Day 1	
1. Introduction to Electronic Robotics and Arduino Uno	<ul style="list-style-type: none"> • Overview of electronic robotics and its Applications • Introduction to the Arduino Uno board and its features
2. Arduino Basics	<ul style="list-style-type: none"> • Understanding the Arduino development environment • Introduction to Arduino programming using the Arduino IDE
3. Basic Electronics and Circuit Building	<ul style="list-style-type: none"> • Understanding electronic components (LEDs, resistors, capacitors, etc.) • Building and testing basic circuits using the Arduino Uno board
4. Interfacing Sensors and Actuators	<ul style="list-style-type: none"> • Introduction to various sensors (e.g., temperature, light, motion) and actuators (e.g., motors, servos) • Connecting and programming sensors and actuators with the Arduino board
Day 2	
1. Intermediate Arduino Programming	<ul style="list-style-type: none"> • Working with conditional statements and loops for more complex programs • Utilizing variables, functions, and libraries in Arduino programming
2. Advanced Sensor Integration	<ul style="list-style-type: none"> • Exploring advanced sensor integration techniques with Arduino • Using sensor data for decision-making and control

3. Building Interactive Projects	<ul style="list-style-type: none"> • Designing and building interactive projects using Arduino and sensors/actuators • Encouraging creativity and problem-solving skills in project development
4. Project Showcase and Evaluation	<ul style="list-style-type: none"> • Students present their completed projects to the group • Evaluating projects based on functionality, creativity, and technical proficiency
Certification	
Arc Lab certification	Certification will be provided by the company to individual students and also Merti certificate will be provided to those who performed well in the workshop
Ministry of education	Certification from the central govt will also be provided to add more value to the certificate

Curriculum for 3 days workshop

Topic	Sub-Topics
Day 1	
1. Introduction to Electronic Robotics and Arduino Uno	<ul style="list-style-type: none"> • Overview of electronic robotics and its Applications • Introduction to the Arduino Uno board and its features
2. Arduino Basics	<ul style="list-style-type: none"> • Understanding the Arduino development environment • Introduction to Arduino programming using the Arduino IDE
3. Basic Electronics and Circuit Building	<ul style="list-style-type: none"> • Understanding electronic components (LEDs, resistors, capacitors, etc.) • Building and testing basic circuits using the Arduino Uno board
4. Interfacing Sensors and Actuators	<ul style="list-style-type: none"> • Introduction to various sensors (e.g., temperature, light, motion) and actuators (e.g., motors, servos) • Connecting and programming sensors and actuators with the Arduino board
Day 2	
1. Intermediate Arduino Programming	<ul style="list-style-type: none"> • Working with conditional statements and loops for more complex programs • Utilizing variables, functions, and libraries in Arduino programming
2. Advanced Sensor Integration	<ul style="list-style-type: none"> • Exploring advanced sensor integration techniques with Arduino • Using sensor data for decision-making and control
3. Communication and Networking with Arduino	<ul style="list-style-type: none"> • Introduction to serial communication and using Arduino with external devices • Implementing wireless communication using modules like Bluetooth or Wi-Fi
4. Project Development - Part 1	<ul style="list-style-type: none"> • Students work on individual or group projects • Applying learned concepts to design and build custom electronic robotics projects
Day 3	

1. Advanced Arduino Programming	<ul style="list-style-type: none"> • Implementing advanced programming concepts like interrupts and timers • Exploring advanced control techniques for robotics projects
2. Project Development - Part 2	<ul style="list-style-type: none"> • Students continue working on their projects • Fine-tuning designs, programming, and performance
3. Project Presentation and Evaluation	<ul style="list-style-type: none"> • Students showcase their completed projects to the group • Presentations, demonstrations, and feedback sessions
4. Wrap-up and Reflection	<ul style="list-style-type: none"> • Recap of key concepts and skills learned during the workshop • Reflection on the overall learning experience

Certification

Arc Lab certification	Certification will be provided by the company to individual students and also Merti certificate will be provided to those who performed well in the workshop
Ministry of education	Certification from the central govt will also be provided to add more value to the certificate

Curriculum for 5 days workshop

Topic	Sub-Topics
Day 1	
1. Introduction to Electronic Robotics and Arduino Uno	<ul style="list-style-type: none"> • Overview of electronic robotics and its Applications • Introduction to the Arduino Uno board and its features
2. Arduino Basics	<ul style="list-style-type: none"> • Understanding the Arduino development environment • Introduction to Arduino programming using the Arduino IDE
3. Basic Electronics and Circuit Building	<ul style="list-style-type: none"> • Understanding electronic components (LEDs, resistors, capacitors, etc.) • Building and testing basic circuits using the Arduino Uno board
4. Interfacing Sensors and Actuators	<ul style="list-style-type: none"> • Introduction to various sensors (e.g., temperature, light, motion) and actuators (e.g., motors, servos) • Connecting and programming sensors and actuators with the Arduino board
Day 2	
1. Intermediate Arduino Programming	<ul style="list-style-type: none"> • Working with conditional statements and loops for more complex programs • Utilizing variables, functions, and libraries in Arduino programming
2. Advanced Sensor Integration	<ul style="list-style-type: none"> • Exploring advanced sensor integration techniques with Arduino • Using sensor data for decision-making and control
3. Communication and Networking with Arduino	<ul style="list-style-type: none"> • Introduction to serial communication and using Arduino with external devices • Implementing wireless communication using modules like Bluetooth or Wi-Fi
4. Project Development - Part 1	<ul style="list-style-type: none"> • Students work on individual or group projects • Applying learned concepts to design and build custom electronic robotics projects

Day 3	
1. Advanced Arduino Programming	<ul style="list-style-type: none"> • Implementing advanced programming concepts like interrupts and timers • Exploring advanced control techniques for robotics projects
2. Robotics Control and Navigation	<ul style="list-style-type: none"> • Introduction to robotics control methods (e.g., PID control) • Implementing navigation algorithms for autonomous robot movement
3. Advanced Sensor Integration - Part 2	<ul style="list-style-type: none"> • Exploring advanced sensor integration techniques for complex robotics tasks • Using multiple sensors for advanced decision-making
4. Project Development - Part 2	<ul style="list-style-type: none"> • Students continue working on their projects • Fine-tuning designs, programming, and performance
Day 4	
1. Robotics Vision and Image Processing	<ul style="list-style-type: none"> • Introduction to computer vision techniques for robotics applications • Using cameras and image processing algorithms with Arduino
2. Advanced Robotics Control	<ul style="list-style-type: none"> • Implementing advanced control techniques for precise robot movements • Exploring concepts like kinematics and dynamics
3. Project Refinement and Testing	<ul style="list-style-type: none"> • Students focus on refining their projects • Testing, debugging, and improving project functionality
Day 5	
1. Project Presentation and Evaluation	<ul style="list-style-type: none"> • Students showcase their completed projects to the group • Presentations, demonstrations, and feedback sessions
2. Wrap-up and Reflection	<ul style="list-style-type: none"> • Recap of key concepts and skills learned during the workshop • Reflection on the overall learning experience
Certification	
Arc Lab certification	Certification will be provided by the company to individual students and also Merti certificate will be provided to those who performed well in the workshop
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NOTE: Throughout the workshop, emphasis should be placed on hands-on activities, teamwork, problem-solving, and critical thinking. The syllabus can be adjusted based on the age and skill level of the students and the available time for each session. Additional topics or challenges can be included to further enhance the learning experience.