ROBOTIC SCHOOLS

Where Dreams Come to Real Life

Arduino Robotics

Discover Create Robotify!

Grades 4-10

Live 1:1 or 1:2 Online | Offline classes

Personalised curriculum | Monthly Fee structure

Welcome to Roboticschools

Program Overview

Children have an innate love for all things joyful and fun. Our mission is to unleash their full potential through a wide range of interactive and multidisciplinary programs.

At Roboticschools, we've redefined learning by making it a delightful and playful experience. We encourage children to explore their passions and uncover their hidden talents. Our curriculum takes a playful approach to cover a wide spectrum of subjects, from coding and design thinking to cutting-edge technologies like AR, VR, Robotics, IoT, and the ever-evolving domains of artificial intelligence and machine learning.

A Roboticschools student embarks on a journey of self-discovery and skill development, reaching their maximum potential through our meticulously crafted programs. These skills complement their regular school curriculum, leading to improved academic performance.

Our methodology is designed to help students grasp complex concepts in science and mathematics through coding, visualizations, and animations. We offer a unique curriculum that instills new-age skills in children, preparing them for success and the ability to tackle any challenge that comes their way. As they learn with us, their relationship with technology shifts from that of a consumer to that of a creator.

Join Roboticschools and let your child's learning journey be a joyous adventure in discovery and creativity."

About Curriculum

At Roboticschools, our curriculum is meticulously crafted to unlock the genius within your child. We offer a comprehensive technology program for kids, spanning from laying a strong foundation in coding to fostering scientific exploration, nurturing design thinking skills, and delving into the world of robotics. What sets us apart is our commitment to providing specialized expertise across various technology domains, making us the premier choice for holistic tech education.

Hands-On Learning

Creativity
and Problem-Solving

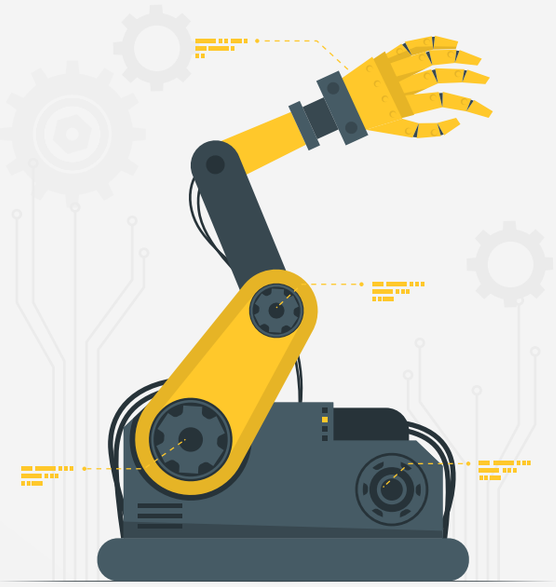
Progressive Skill Building

Fun engagement

Advanced technology

Module 1

Arduino Robotics Beginner

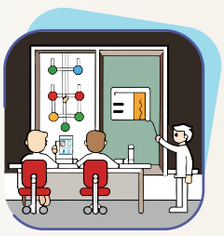


- Arduino robotics for beginners focuses on simple programming for easy understanding and control.
- Beginners learn the fundamentals of integrating motors and sensors in Arduino projects.
- Encourages hands-on building, providing a practical introduction to both hardware and software for beginners.

30 Classes

25 Projects

40 Concepts



1: Introduction To **Electronic Circuits**

Objective: Introduce beginners to electronic circuits and components.
Learning Outcomes: Understand basic electronic components, circuit design, and schematic reading.

2:**LED** Blink

Objective: Learn the basics of Arduino coding and hardware.

Learning Outcomes: Learn Arduino syntax, digital output, and basic circuit connections.

3:Traffic **Lights**

Objective: Simulate a traffic light system using LEDs and Arduino.

Learning Outcomes: Sequential control, timing in programming, and traffic light logic.

4:**RGB** Colors

Objective: Experiment with RGB LEDs to produce various colors.

Learning Outcomes: Learn RGB color theory, PWM control, and color mixing.

5:Variables, Data types & **Serial Monitor**

Objective: Introduce variables, data types, and serial communication.

Learning Outcomes: Variable declaration, data type usage, and serial data exchange.

6: Operators and **Conditional statements**

Objective: Learn operators and conditional statements for decision-making.
Learning Outcomes: Learn logical operators, comparison operators, and conditional control flow.

7: **Serial Monitor** Input

Objective: Receive input from the Serial Monitor in Arduino.

Learning Outcomes: User input handling, serial data parsing, and interactive programming.

8: Button controlled **LED**

Objective: Control an LED using a push-button.

Learning Outcomes: Button interfacing, debouncing, and event-driven programming.

9: **RGB Color** Switcher

Objective: Create a system to switch between different RGB colors using buttons.

Learning Outcomes: Button interactions, state-based coding, and color transitions.

10: Buzzer **Piano**

Objective: Build a piano using a buzzer and buttons.

Learning Outcomes: Understand buzzer control, button mapping, and simple music synthesis.

11: App Controlled **LED**

Objective: Control an LED using a mobile app.
Learning Outcomes: Learn Bluetooth communication, app development, and Arduino integration.

12: **Voice** Controlled LED

Objective: Control an LED using voice commands.

Learning Outcomes: Voice recognition, microphone interfacing, and hands-free control.

13: Potentiometer **Input**

Objective: Read and interpret data from a potentiometer.

Learning Outcomes: Analog sensor interfacing, potentiometer use, and variable resistance.

14: **Intro to Actuators** & DC Motor control

Objective: Introduce actuators and control DC motors.

Learning Outcomes: DC motor control, transistor usage, and actuators.

15: Motor Speed **Regulation**

Objective: Implement speed regulation for a DC motor.

Learning Outcomes: PWM control for motor speed, feedback mechanisms, and loop control.

16: Robot car assembly & Movements

Objective: Assemble a robot car and control its movements.

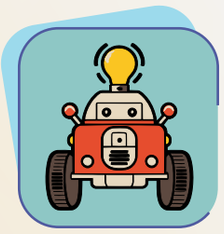
Learning Outcomes: Understand robot assembly, motor control, and basic robotics concepts.

17: Automatic Street Light

Objective: Create a system for automatic street light control using sensors.

Learning Outcomes: Understand light sensors, conditional control, and outdoor automation.

18: Light **Following Robot**



Objective: Design a robot that follows a light source.

Learning Outcomes: Light sensor integration, motor control, and reactive behavior.

19:Gesture Controlled Robot

Objective: Control a robot using gestures detected by sensors.

Learning Outcomes: Gesture recognition, sensor fusion, and gesture-based control.

20: Mobile App **controlled Robot**

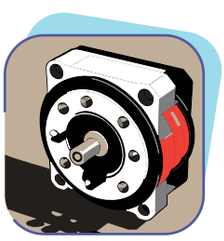
Objective: Control a robot using a dedicated app.

Learning Outcomes: Learn app development, Bluetooth communication, and mobile-robot interaction.

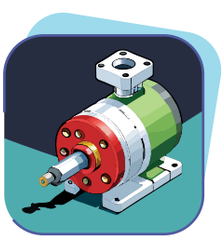
21: Loops concept & **Servo Motor**

Objective: Introduce loops and control a servo motor.

Learning Outcomes: Understand loop structures, servo motor control, and continuous movement.



22:Servo Motor Position Control



Objective: Control the precise position of a servo motor.

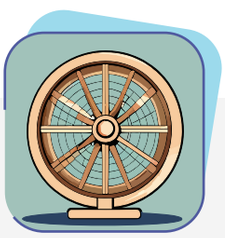
Learning Outcomes: Angular position control, servo calibration, and fine-tuning.

23: Hack **Google Dino**

Objective: Modify the Google Dino Game using external controls.

Learning Outcomes: Understand game hacking concepts, interfacing external devices, and customizing games.

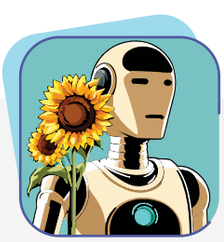
24:Mini Table Fan



Objective: Create a mini table fan using a DC motor.

Learning Outcomes: Understand motor application in fans and airflow control.

25: Arduino **Sunflower**

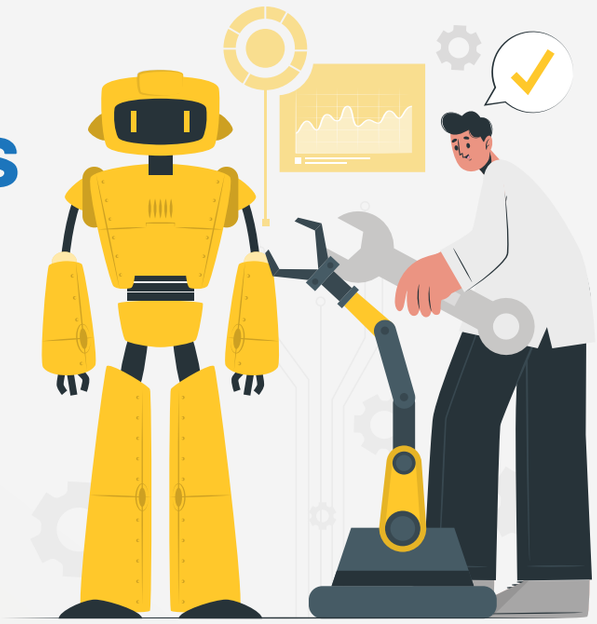


Objective: Build a sunflower that follows light using a servo motor.

Learning Outcomes: Understand light tracking, servo-based movement, and creative design.

Module 2

Arduino Robotics Tinkerer



- Kids explore sensor integration in Arduino robotics, data collection and interaction.
- Arduino for kids involves mastering motor control for sophisticated robot movements.
- Kids apply their skills to develop unique and complex robotic systems, creativity and problem-solving.

38 Classes

25 Projects

45 Concepts

1: Display Names **on LCD**

Objective: Display user names on an LCD screen using Arduino.

Learning Outcomes: Understand LCD interfacing, text display, and user interaction.

2: **App Controlled** LCD Display

Objective: Control an LCD display using a mobile app.

Learning Outcomes: Learn mobile app development and real-time data display.

3: Distance **Range Finder**

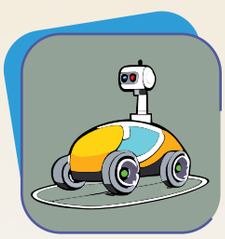
Objective: Develop a distance range finder using ultrasonic sensors.

Learning Outcomes: Understand ultrasonic sensor integration, distance measurement.

4: **Smart** Dustbin

Objective: Create a smart dustbin that opens when approached.

Learning Outcomes: Understand IRsensor usage, smart home concepts, and automation.



5: Obstacle **Avoidance Robot**

Objective: Build a robot capable of avoiding obstacles in its path.

Learning Outcomes: Understand obstacle detection, and reactive robot behavior.

6: Autopilot Robot - **Tesla Model**:

Objective: Simulate autopilot behavior inspired by Tesla vehicles.
Learning Outcomes: Understand autonomous robot concepts, sensor fusion, and path planning.

7: **Automatic Door** Opening System

Objective: Design an automatic door opening system using sensors.

Learning Outcomes: Door control mechanisms, sensor integration, and smart home applications.

8: Line Following **Robot**

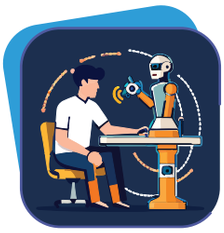
Objective: Create a robot that follows a predefined line.

Learning Outcomes: Understand line sensor integration, path tracking, and PID control.

9: **Joystick** Controls

Objective: Interface a joystick with Arduino for user control.

Learning Outcomes: Joystick interfacing, analog input handling, and user-driven control.



10: Joystick Controlled **Robot**

Objective: Control a robot using a joystick.

Learning Outcomes: Learn real-time control, joystick mapping, and user-directed robotics.

11: App controlled **Watering Plants**

Objective: Automate plant watering using a mobile app.
Learning Outcomes: Understand IoT applications, app integration, and plant care automation.

12: **Automatic** Plant Watering System

Objective: Design a system that waters plants based on soil moisture.

Learning Outcomes: Understand soil moisture sensing, irrigation control, and smart gardening.

13: Museum Artifact **Theft Alarm**

Objective: Create a security system for museum artifacts using sensors.

Learning Outcomes: Understand security system design, sensor integration.

14: **Motion** Sensor Light

Objective: Build a light that activates based on motion detection.

Learning Outcomes: Motion sensor integration, lighting control, and energy-efficient systems.

15: App & Voice **Controlled Study Lamp**

Objective: Develop a study lamp controlled via app and voice commands.

Learning Outcomes: Voice recognition, IoT concepts, and multifunctional device control.

16: Mini Weather **Station**

Objective: Create a compact weather station with sensors.
Learning Outcomes: Weather data collection, sensor fusion, and environmental monitoring.

17: **Arduino Weather** Station App

Objective: Display weather data on a mobile app.

Learning Outcomes: App design, real-time data streaming, and user-friendly interfaces.

18: IR Remote **controls**

Objective: Interface with Infrared (IR) remote controls.

Learning Outcomes: IR sensor integration, decoding remote signals, and remote-controlled systems.

19: **IR Remote** Controlled Robot

Objective: Control a robot using an IR remote control.

Learning Outcomes: Understand IR remote communication, robot control, and infrared technology.

20: Keypad **controlled Light**

Objective: Control a light using a keypad.

Learning Outcomes: Understand keypad interfacing, secure code entry, and user-controlled lighting.

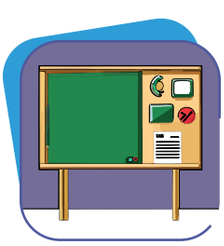
21: Password Door **Locking System**

Objective: Design a door locking system using a password.
Learning Outcomes: Understand password security, access control, and electronic door locking mechanisms.

22: **Keypad** Calculator

Objective: Create a calculator using a keypad for numerical input.

Learning Outcomes: Understand calculator logic, keypad mapping, and interfaces.



23: Digital Notice **Board**

Objective: Create an integrated home automation system using Arduino.

Learning Outcomes: Digital signage, advertising systems, and dynamic content display.

24: **App Controlled** Notice board

Objective: Control a billboard using an app.

Learning Outcomes: Learn app development, IoT integration, and Program dot matrix.

25: Home **Automation**

Objective: Create an integrated home automation system using Arduino.

Learning Outcomes: Smart home concepts, sensor networks, and automation control.

Module 3

Arduino + Python Computer Vision

- Merging Python's image processing with Arduino's physical computing for CV.
- Kids use Python and Arduino to recognize and respond to objects in interactive projects.
- Computer vision with Python and Arduino applies image processing beyond screens, bridging software and hardware for hands-on learning.

23 Classes

15 Projects

30 Concepts

1: **LED control** with Graphics

Objective: Control an LED using Python with a graphical interface.

Learning Outcomes: Arduino-Python communication, GUI development, and basic hardware interaction.

2: **Potentiometer** with Graphics

Objective: Interface a potentiometer, displaying real-time data graphically.

Learning Outcomes: Analog sensor interfacing, data visualization, and serial communication.

3: Face detection **LED**

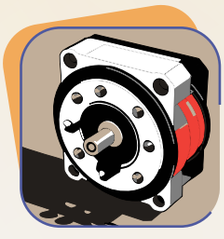
Objective: Illuminate an LED when a face is detected using computer vision.

Learning Outcomes: Face detection algorithms, Arduino integration, and hardware signaling.

4: **Face detection** RGB LED

Objective: Use RGB LEDs to display different colors based on detected faces.

Learning Outcomes: RGB LED control, color mapping, and extended face detection.



5: Servo Motor Control **with Graphics**

Objective: Control a servo motor using Python with a graphical interface.

Learning Outcomes: Servo motor control, GUI interaction, and data visualization.

6: Output - LCD Display **control**

Objective: Display dynamic information on an LCD screen controlled by Python.
Learning Outcomes: LCD interfacing, dynamic data update, and Python-Arduino communication.

7: Output - DC Motor with Graphics

Objective: Control a DC motor speed graphically using Python.

Learning Outcomes: DC motor control, PWM usage, and real-time graphical updates.

8: Input - Button **with Graphics**

Objective: Respond to button presses with Python, displaying the state graphically.

Learning Outcomes: Button interfacing, event handling, and graphical feedback.

9: Input - Joystick with Graphics

Objective: Control graphical elements using a joystick connected to Arduino.

Learning Outcomes: Joystick interfacing, real-time control, and GUI interaction.

10: Ultrasonic sensor **with Graphics**

Objective: Display distance information from an ultra sonic sensor graphically.

Learning Outcomes: Distance calculation, graphical representation and 2D array matrix.

11: Elbow **angle Finder**

Objective: Calculate and display the angle of the elbow joint using CV.
Learning Outcomes: Image processing for joint angle estimation, Arduino integration.

12: Lamp Gesture control

Objective: Control a lamp with hand gestures detected through CV.

Learning Outcomes: Gesture recognition, Arduino integration, and hardware control.

13: Color **sorting**

Objective: Sort objects based on color using CV and control mechanisms.

Learning Outcomes: Color recognition, object sorting algorithms, and hardware integration.

14: Custom object counter

Objective: Count and display the number of custom objects using CV.

Learning Outcomes: Object detection, counting algorithms, and real-time updates.

15: Face **Tracking**

Objective: Implement real-time face tracking using CV and Arduino.

Learning Outcomes: Face tracking algorithms, continuous monitoring, and hardware control.

Register Now

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