



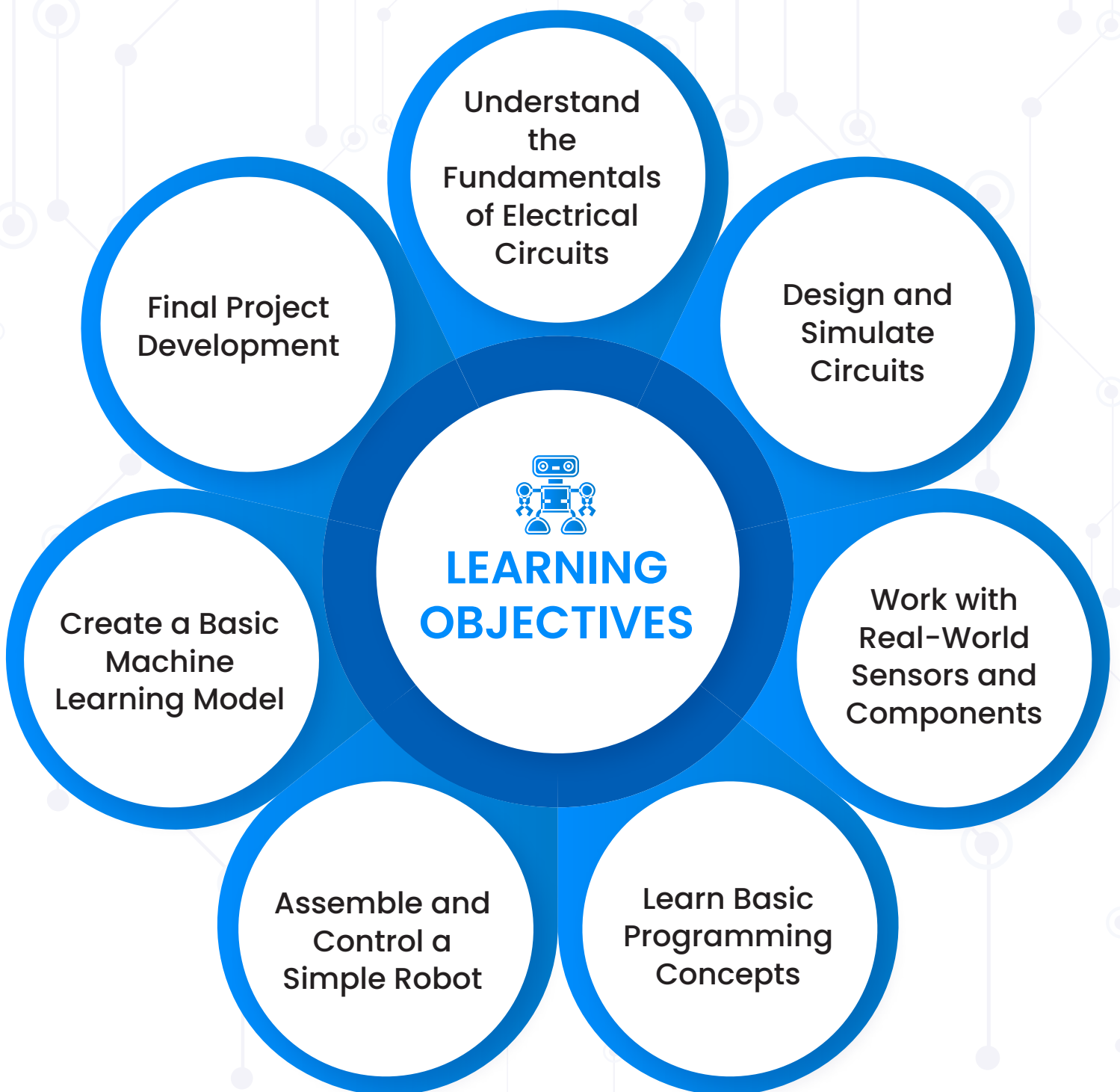
AI & ROBOTICS BOOTCAMP 2026

Build Code Create
A Summer of Innovation!



Hands-On Tech Adventure for Young Innovators

AI & ROBOTICS SUMMER BOOTCAMP



WEEK 1

GETTING STARTED WITH ELECTRONICS & CODING

Theme: From Lights to Logic: How Smart Things Work



Orientation & AI in the Real World

- Opening Ceremony & Welcome Session
- Keynote Lecture: "AI on the Leading Edge"
- Icebreaker + Discussion: "Where is AI in our lives?"



Designing and Simulating Electrical Circuits

- Introduction to circuit design principles and safety practices
- Simulate basic LED circuits to understand current flow and resistor values
- Design and simulate complex circuits using ICs and other components
- Collaborate with peers to troubleshoot and optimize simulated circuits



Learning about Microcontrollers

- Introduction to microcontrollers and their role in electronic systems
- Learn how to connect hardware components to Arduino.
- Understand the basics of Arduino programming to control hardware functions
- Recap and Q&A to clarify key concepts of microcontroller programming



Introduction to Visual Programming

- Introduction to visual programming concepts and the drag-and-drop coding interface
- Build your first program: Implement basic logic to control an LED using visual programming tools
- Challenge: Develop a sequence of commands to manage multiple outputs, like controlling a series of LEDs



Building Smart Systems with Sensors

- Introduction to smart circuits: Understanding inputs, outputs, and the role of pseudocode in system design
- Experiment with sensors, microcontrollers, and coding to create interactive systems
- Build a smart system: Use sensors to trigger motors or lights in a reactive setup



WEEK 2

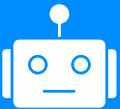
LET'S BUILD: ROBOTS AND SMART SYSTEMS

Theme: Let's Build: Sensors, Movement & Machine Learning



Introduction to AI and Machine Learning

- What is Artificial Intelligence? Basics of Machine Learning
- Learn to Train a Model: Recognize Simple Patterns (e.g., Smile)
- Test Your Machine Learning Model and See How AI Makes Decisions



Build Your Robot

- Assemble Your Robot's Chassis and Attach Motors
- Learn Motor Drivers (H-Bridge) and Wiring Logic
- Program Robot Movement: Forward, Reverse, Turn



Final Robot Assembly and Testing

- Review Robot Setup – Ensure Sensors, Motors, and Microcontrollers Are Correct
- Program the Robot to Use AI (e.g., Smile to Move)
- Final Testing & Performance Adjustments



Final Integration: Programming + AI

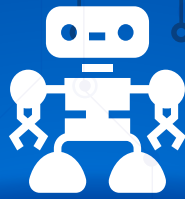
- Integrate AI into Arduino (e.g., Smile triggers Robot Movement)
- Fine-tune Robot Movement + AI Response
- Test & Troubleshoot to Ensure Smooth Operation



Demo Day and Certificate Distribution

- Final Showcase: Present Your Robot to the Class
- Teacher and Peer Feedback on Projects
- Certificate Distribution + Group Photos + Celebration





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