

Applied Robotics · Bridge Course

Robotics & AI Innovator

Applied Robotics · Ages 11+

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AI-Powered Robotics Track

The next step after block-based coding, moving into real Python, Arduino C++, sensor fusion and guided AI vision.



11+

AGE GROUP

12

MONTHS

2 / week

SESSIONS

60 min

PER SESSION

4

MODULES

EN/AR

BILINGUAL

Certificate

ON COMPLETION

Programme Overview

Ascend's bridge robotics course for Champs who've outgrown block-based coding, moving into real Python, Arduino C++, sensor fusion and guided AI vision.

Companion robot can:

- Combine Arduino + Raspberry Pi
- Detect and track objects by camera
- React using multi-sensor fusion
- Hold a scripted voice interaction
- Be presented at a live Showcase Day

Twelve-Month Roadmap

Through four hands-on modules, students wire and fuse multiple sensors, run a guided computer-vision pipeline, design and 3D-print their own parts, and bring it all together in an AI-powered Companion Robot.

- 1 Circuits to Code**
Months 1-3: Moving from block code into Python & Arduino C++; build an Obstacle-Avoiding Buggy.
- 2 Sensors That Think**
Months 3-6: Layering multiple sensors into smart behaviours; build a Smart Line-Following Robot.
- 3 Eyes for Robots**
Months 6-9: Guided OpenCV pipeline and 3D-printed parts; build an AI Vision Turret.
- 4 Robot with a Voice**
Months 9-12: First Raspberry Pi setup and voice interaction; build the AI Companion Robot.

Skills Students Gain

Python & Arduino C++

Breadboard Circuits & Multimeter

Multi-Sensor Fusion

Guided OpenCV Object Detection

CAD Design (Tinkercad/Fusion 360)

3D Printing

Raspberry Pi Setup

Voice Interaction Basics

Build Logs & Documentation

Engineering Presentations

Programme Details

Level

Intermediate (Ages 11+)

Duration

12 Months · 4 Modules

Schedule

2 sessions/week · 60 min · Teacher-led

Format

Small-Group · Bilingual (EN/AR)

Includes

Lifetime material access + certificate

Assessment

Phase demos + build logs + final showcase

Build Real Projects · Learn by Doing · Think Like an Engineer

Explore. Code. Create. Succeed.

Enroll Now

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