

# 📄 **Robotics Challenge**

AI-Powered Robot Control — 3 Categories + Live Finals at UNSW Sydney

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Build and control robots using AI Pose Recognition — not remote controls, but trained AI models that read body movements via webcam and Bluetooth. Navigate rescue missions on the official course and compete at the live UNSW Finals.

## **How It Works**

Students control the robot using their body movements captured by a webcam. The AI model translates body poses into robot commands sent via Bluetooth.

- Start at the Start Base
- Control robot using AI pose recognition via webcam
- Navigate through obstacles on the mission course
- Reach the rescue object (push, pull, guide, carry, or walk it)
- Move the object to the Destination Zone
- Complete within 3 minutes

## **Robot Control Modes**

### **Starter Mode**

Use the official sample Pose Classification model provided through the eLearning platform. Good for beginners — standard scoring.

### 📄 **Challenge Mode**

Train your own Pose Classification model using Google Teachable Machine. Higher technical recognition quality = better AI Control Quality score from judges.

## **3 Categories**

### **Category A — Individual (1 student)**

One student operates the AI Mission Robot Kit alone. Starter or Challenge mode. Uses the official MRT AI Mission Robot Kit only.

### **Category B — Team (2-4 students)**

A team of 2-4 students works together to complete the mission. Must train their own AI model (Challenge Mode). Uses the official MRT AI Mission Robot Kit only.

### **Category C — Open Division (Any robot platform)**

Use ANY robot platform: LEGO, Arduino, VEX, micro:bit, Raspberry Pi, or any other. Students must program their own robot to complete the same mission course. AI Pose Recognition integration is optional but earns bonus points.

## **Official Robot Kit**

The MRT AI Mission Robot Kit is the official robot for Categories A and B. It connects via Bluetooth and is controlled through MRT AI Studio block coding. Details: [roboticscodingchallenge.org/robot-kit](https://roboticscodingchallenge.org/robot-kit)

*Category C participants may use any robot platform.*

## **Hardware Restrictions** 📄

- **Remote controls:** Not allowed for Categories A and B
- **Custom/modified kits:** Not allowed for Categories A and B
- **Third-party robots:** Any platform allowed for Category C

## Evaluation Criteria (100 points)

- Mission Completion — reaching rescue object, destination zone (40 pts)
- AI Control Quality — precision of pose recognition control (25 pts)
- Time Performance — completion within 3 minutes (15 pts)
- Technical Understanding — can the student explain how it works (10 pts)
- AI Model Quality — own model vs. starter model (10 pts)

## Submission Requirements ☐

- A video link (YouTube Unlisted) — max 3 minutes
- Uncut footage of the mission run (no editing during the run)
- Show AI pose control visibly in the video (webcam + robot)
- A short description (300+ characters)

### Submission deadline:

**25 September 2026**

## Live Finals at UNSW Sydney

Top-performing teams and individuals are invited to the live AI Robot Competition Finals held at UNSW Sydney on 20–21 October 2026. Students compete on the official mission course in front of judges and an audience.

## How to Get Started ☐

All robot assembly guides, AI pose training tutorials, Bluetooth connection instructions, mission rules, and submission guidelines are provided through the MRT eLearning courses ([elearning.mrtrobotics.com](http://elearning.mrtrobotics.com)) after registration.

**Official competition prep course:** ☐ **451 AI Motion Rescue**

## Australian Curriculum Connections ☐☐

- **Digital Technologies:** Algorithms, programming, data representation, systems thinking
- **Mathematics:** Measurement, geometry, spatial reasoning
- **Science:** Physical science, engineering principles, inquiry skills

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**Register: [roboticscodingchallenge.org/register-hub](http://roboticscodingchallenge.org/register-hub)**

Challenge Details: [roboticscodingchallenge.org/current](http://roboticscodingchallenge.org/current)

eLearning: [elearning.mrtrobotics.com](http://elearning.mrtrobotics.com) · [info@roboticscodingchallenge.org](mailto:info@roboticscodingchallenge.org)

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