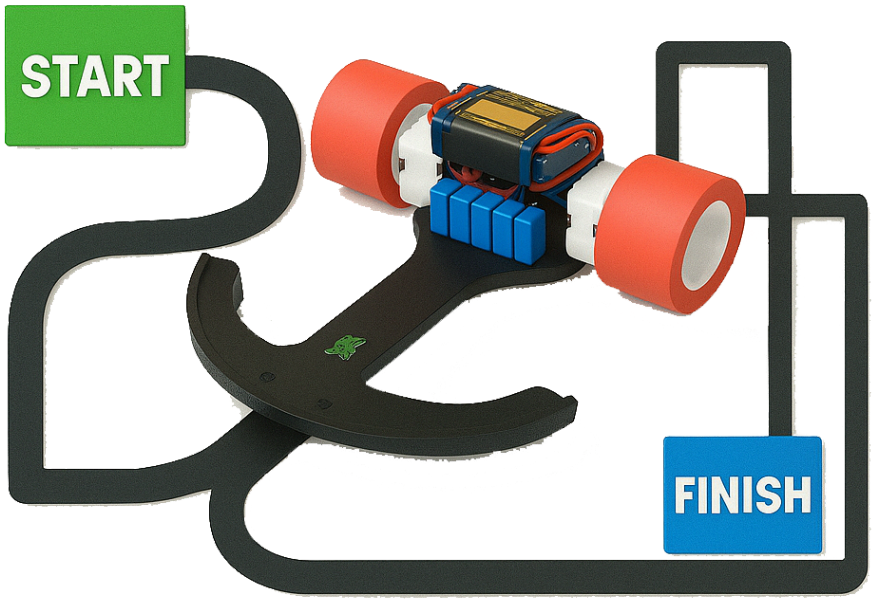
SCHOOL CATEGORY

FOLLOW YOUR PATH 3.0

Guidelines and Rulebook



Organized By: YarlITHub

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1. Introduction

1.1 About YarlITHUB

Yarl IT Hub (YIT) is a not-for-profit social enterprise which strives towards inspiring, supporting and fostering Technology, Innovation and Entrepreneurship in the community.

It's an organization by the community for the community. The Yarl IT Hub community consists of all those who share the dream of making Northern Province into an innovation hub and abide by the core values of the organization.

1.2 YGC Innovation Festival 2025

YGC Innovation Festival is a captivating celebration that unites the spirit of innovation, imagination and entrepreneurship under one event. It brings together entrepreneurs, seasoned professionals, and enthusiasts.

It includes groundbreaking pitch competitions and ingenious student expos to engage in hands-on workshops and insightful masterclasses; the festival offers an enriching experience that transcends boundaries and sparks new possibilities.

This year it is happening on the 29th and 30th of August at Jaffna, Thiruvalluvar Cultural Center.

2. Competition Goals and Team Requirements

2.1 About the Competition - Follow your Path

Follow Your Path is a line following robotic competition where the robot goes through a complex path. YGC Innovation festival is to be held on the 29th and 30th of August, where the robotic challenge will be conducted for the third time this year.

2.2 What You Will Learn

By taking part in this challenge, you will learn how to build a small robot that can think for itself and follow a path. You will understand how to use simple sensors to help your robot see the lines in the maze. You will also learn how to write basic

code to give your robot instructions, so it knows where to go and how to solve problems when it reaches a dead end or a junction.

Most importantly, you will get to work like a young engineer — planning, testing, and improving your robot until it reaches its goal.

2.3 Team Requirements

Students will work in teams to build their robot car. This is a team event where you can collaborate, share ideas, and solve problems together. The table below shows the team rules clearly:

Requirement	**Details**
Team Size	Up to 5 students per team
School Rule	All team members must be from the same school
Number of Teams	Each school can send multiple teams
Age Limit	Participants must be 19 years old or younger

3. Competition Structure

This competition has three main phases. Each phase is important and helps guide your team from planning to building and finally competing with your robot car.

3.1 Registration Phase

All teams must register to take part in the challenge. Registration opens on **18th July 2025**. Schools must complete the registration for their teams by **20th August 2025**.

You can register your team using this link:
https://www.yarlithub.org/festival/robotic-challenge/

Each school can enter more than one team if they wish.

3.2 Phase 1 — Preliminary Design Review (PDR)

In this phase, your team will need to submit a short document that explains your plan for the robot car. This is called the Preliminary Design Review or PDR. The deadline to send your PDR is **12th August 2025**, but teams can submit earlier if they are ready.

Once your PDR is reviewed, you will receive feedback. If there are any changes or improvements suggested, you can update your plan before you start building. Remember, we recommend you to only begin building your robot after your PDR is reviewed and approved.

3.3 Phase 2 — Final Competition

The final competition will be held on **30th August 2025**. On this day, your team must bring the robot car you built according to your approved PDR plan.

All the competition rounds, judging, scoring, and prize-giving will take place on this day. Make sure your robot matches what you submitted in your PDR and is ready to navigate the maze!

Event	Date	Notes
Registration Opens	17th July 2025	Teams can begin registering online.
Registration Deadline	20th August 2025	Last date to register teams.
PDR Submission Deadline	12th August 2025	Submit your PDR document for review and approval.
Final Competition Day	30th August 2025	Bring your robot for the competition rounds and judging.
Prize Giving Ceremony	31st August 2025	Prizes for top 3 teams will be awarded.

4. Robot Design Rules

Your team must design and build a robot car that can follow the path on its own without any help once it starts (Autonomous Operation). You can build the robot from scratch or use a DIY robot car kit, as long as your team puts it together and programs it. Make sure your robot is safe, fits within the size limits, and follows the rules below.

4.1 Size and Dimensions

- The robot must fit within a box of **25 cm × 25 cm** at its widest points.
- The height of the robot should not be more than **20 cm** (recommended for maze clearance).

4.2 Allowed Microcontrollers

- You can use low-powered microcontrollers like **Arduino**, **ESP32**, or similar boards.
- The microcontroller should be able to handle basic tasks like reading sensor data and controlling the motors.
- High-powered processors, cameras, or GPS systems are not required.

4.3 Allowed Sensors

- You may use basic sensors such as:
    - IR sensors for line following
    - Ultrasonic sensors for detecting walls or obstacles
    - Light sensors or other simple sensors suitable for maze solving
- Advanced vision systems or LIDARs are not required.

4.4 Power Source Rules

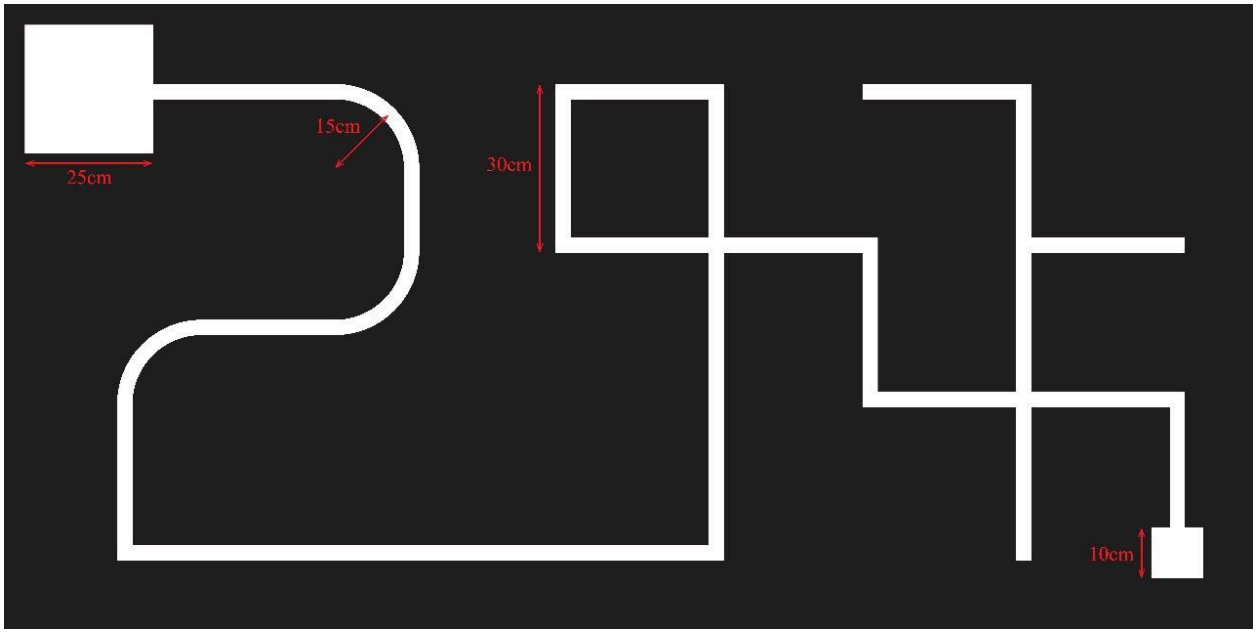
- The robot must be powered by its own batteries — no external power during the run.
- Make sure the battery you choose is safe (for example, AA batteries, 9V batteries, or low-capacity Li-ion cells).
- Bring extra charged batteries on competition day in case replacements are needed.

4.5 Safety Requirements

- The robot must not have any sharp edges, dangerous parts, or loosely-open wires that could cause harm.
- Your design must be safe to operate around people and other robots.
- Any robot found unsafe by the judges will not be allowed to compete.

5. Arena Details

5.1 Arena Layout



5.2 Path Width

The lines are 3 cm wide white lines on black arena.

5.3 Surface Type

The arena is 4 x 4 foot and black in colour.

6. Scoring System

6.1 How Your Robot Will Be Scored

- Robots will be scored based on how well they follow the line and complete the maze.
- Points will be given for:

- **Speed** — How fast your robot finishes the course.
- **Accuracy** — How well your robot stays on the path without errors.
- **Successful navigation** — Reaching the correct destination without getting stuck or going off track.

- The final score will combine performance, creativity, and how closely you followed your approved PDR design.
- **Judges' decisions will be final and must be respected.**

6.2 Time Penalties

- If your robot leaves the line or path, points will be deducted.
- If your robot stops for too long (for example, longer than 10 seconds at one spot), time penalties will be added.
- If your robot needs manual assistance (e.g. being repositioned or restarted), further penalties will apply.

6.3 Bonus Points

Extra points may be awarded if:

- Your robot takes the shortest and most efficient route.
- Your robot completes the maze within a set time target.
- Your robot shows an innovative feature (for example, clever sensor placement or unique programming).
- Your team demonstrates good teamwork and a clear explanation of your robot during judging.

7. PDR (Phase 1) Submission Guidelines

PDR stands for **Preliminary Design Review**. This is a short and simple document where your team explains how you plan to build your robot. It helps the judges understand your ideas before you start making the robot. The PDR lets you share your design, plan, and budget so that you can get feedback and improve your robot before building.

7.1 What to Include in Your Report

Your PDR must be a well-organized document that covers the following points:

- **Team Details**:
  - Team name
  - Team number (as given during registration)
  - Names of all team members
  - School name
- **Components List**:
  - A table or list of the main parts you plan to use (microcontroller, sensors, motors, chassis, battery, etc.)
- **Design Sketch**:
  - A simple drawing of your robot's design (can be hand-drawn or made on a computer).
- **Autonomous Operation Plan**:
  - A short explanation of how your robot will work on its own to follow the line and solve the maze.
  - A simple description or diagram of your algorithm (for example: "follow black line → detect junction → decide direction → continue on path").
- **Budget Plan**:
  - A list of parts with estimated cost (a rough total budget is enough).
- **Originality Statement (recommended):**
  - A line stating that your design is your team's own work.

👉 *A sample PDR document is provided in the website — you can use it as a guide to create your own.*

7.2 Submission Deadline

Your PDR must be submitted **on or before 12th August 2025**.

- You may submit earlier if your team is ready.
- Feedback will be given so that you can make any changes before you start building your robot.
- Only after your PDR is approved can you begin making your robot car.

8. Final Competition Day Instructions (Phase 2)

8.1 What to Bring

- Your completed robot that follows the approved PDR design.
- All tools, spare parts, and batteries you may need.
- Your team members (at least one team member must be present to operate the robot).
- A copy of your PDR (printed or digital) for reference if needed.

8.2 Competition Flow

- Setup time: Each team will get 5 minutes to set up and calibrate their robot on the arena.
- Robot size check: Your robot must fit inside a 25 cm × 25 cm starting box (no weight limit).
- Starting the robot: Only the team operator is allowed to place the robot at the start square and press the start button — but only when told by the judge.
- Judging: The judge will time your robot and monitor its performance.
- Trials: Each robot can have up to 3 official attempts to complete the path.
    - If your robot completes the maze in the first trial, you will be eligible for a time bonus.
    - If not, your team can request the other trials.
- Robot submission: Robots must be submitted to the officials at least 10 minutes before the competition begins.

8.3 Awards

- Prizes will be awarded to the top 3 teams based on their final scores from the competition.

- The Prize Giving Ceremony will be held on the next day of the competition.
- All participants will receive Participation Certificates on the day of the competition itself.

9. General Rules & Fair Play

9.1 Code of Conduct

Participants are expected to demonstrate good sportsmanship and fair play throughout the competition. Any unethical behavior or cheating will result in disqualification.

9.2 Disqualification Criteria

A team's robot may be disqualified if it is found to be unsafe, such as having sharp parts, exposed wires, or dangerous components. Disqualification can also happen if the team uses remote controls during the run, if the robot does not meet the size limits, or if it does not follow the approved PDR design. Teams that show unsportsmanlike behavior, break the competition rules on purpose, or interfere with other robots or the arena may also be disqualified. **The decision of the judges will be final in all cases.**

10. Contact & Support

10.1 How to Reach Us

- event@yarlithub.org
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- Mullaitivu- 077 354 2397
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- Mannar-077 354 3089
- Vavuniya-077 074 0199