

YGC INNOVATION FESTIVAL 2026

INNOVATION • TECHNOLOGY • ENTREPRENEURSHIP

FOLLOW YOUR PATH 4.0

AUTONOMOUS MAZE-SOLVING ROBOTICS COMPETITION
GUIDELINES & PROSPECTUS

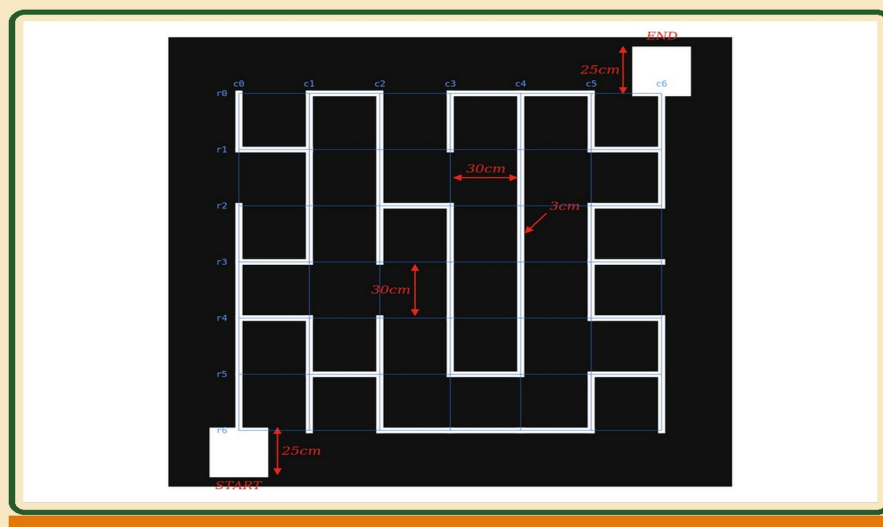
PHASE 1 PRELIMINARY ROUND

21 AUGUST 2026

PHASE 2 GRAND FINAL

22 AUGUST 2026

END



YGC INNOVATION FESTIVAL 2026 | JAFFNA

21 & 22 AUGUST 2026 • THIRUVALLUVAR CULTURAL CENTRE

Organized by Yarl IT Hub

SCHOOL CATEGORY

01

WELCOME TO THE CHALLENGE

A school-level robotics experience built around autonomy, logic and real-world engineering.

BUILD. THINK. SOLVE.

Follow Your Path 4.0

Follow Your Path 4.0 is an autonomous maze-solving robotics competition for school students. Each team must design, build and program a robot that can follow the 3 cm white route on a black arena, recognise junctions and dead ends, make decisions, and reach the finish without remote control or human assistance.

2026 COMPETITION UPDATE Phase 1 is the Preliminary Round on 21 August 2026. Qualified teams advance to Phase 2, the Grand Final, on 22 August 2026. The official arena is the new square-grid maze shown in this prospectus.

About Yarl IT Hub

Yarl IT Hub (YIT) is a not-for-profit, community-driven organisation that inspires, supports and fosters technology, innovation and entrepreneurship in Northern Sri Lanka. YIT creates opportunities for students, young people, entrepreneurs and communities to learn, build and collaborate.

About YGC Innovation Festival 2026

YGC Innovation Festival 2026 is a two-day celebration of innovation, technology and entrepreneurship in Jaffna. The festival brings together students, educators, entrepreneurs, professionals, families and the wider community through competitions, exhibitions, hands-on experiences, talks and showcases.

2 COMPETITION DAYS	2 OFFICIAL PHASES	19 & under SCHOOL CATEGORY
Up to 5 TEAM SIZE	25 × 25 cm ROBOT FOOTPRINT	Up to 3 OFFICIAL ATTEMPTS

02

LEARNING OUTCOMES & TEAM ELIGIBILITY

What students will practise, and who may take part.

What students will learn

ROBOTICS & PROGRAMMING

- Sensor calibration and line detection
- Motor control and movement correction
- Junction and dead-end decision logic
- Autonomous navigation algorithms

ENGINEERING & TEAMWORK

- Planning, prototyping and iteration
- Testing under changing conditions
- Troubleshooting and performance improvement
- Technical communication and teamwork

Team requirements

TEAM SIZE	Up to 5 students per team.
SCHOOL RULE	All team members must be enrolled in the same school.
MULTIPLE ENTRIES	A school may register more than one team.
AGE LIMIT	Participants must be 19 years old or younger on the competition date.
STUDENT OPERATION	Only student team members may operate or start the robot during official runs.
TEACHER / MENTOR	A teacher or mentor may support preparation but may not control, touch or guide the robot during an official run.

TEAM RESPONSIBILITY Teams are responsible for ensuring that all registration information is correct and that their robot, batteries, tools and software are ready for both competition days.

03

COMPETITION JOURNEY

The route from registration to the Grand Final.

OFFICIAL EVENT DATES

PHASE 1 PRELIMINARY ROUND 21 AUGUST 2026 All registered teams complete inspection, calibration and official preliminary attempts. The highest-performing eligible teams qualify for the final.	PHASE 2 GRAND FINAL 22 AUGUST 2026 Qualified teams compete in the final rounds. Final judging, ranking, certificates and awards are completed on this day.
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Registration and confirmation

- Teams must register through the official Yarl IT Hub / YGC registration channel before the published deadline.
- A team is considered registered only after receiving confirmation or an official team number.
- The reporting time, running order, briefing time and finalist announcement procedure will be shared through official communication channels.

Competition-day sequence

01	CHECK-IN	Confirm team details and submit the robot to officials.
02	INSPECTION	Robot size, safety, autonomy and rule compliance are checked.
03	CALIBRATION	Teams receive the allocated setup and sensor-calibration period.
04	OFFICIAL RUNS	The judge starts timing and records performance and penalties.
05	QUALIFICATION / FINAL	Preliminary results determine finalists; final results determine awards.
VENUE YGC Innovation Festival 2026, Thiruvalluvar Cultural Centre, Jaffna. Follow the reporting instructions sent by the organisers.		

04 ROBOT DESIGN RULES

Dimensions, autonomy, construction and safety requirements.

Core design requirement

Each team must design and build a robot car that operates autonomously after it is started. The robot may be built from scratch or assembled from a DIY robot-car kit, provided that the students assemble, wire, program, test and understand the system.

25 cm

MAXIMUM LENGTH

25 cm

MAXIMUM WIDTH

20 cm

MAXIMUM HEIGHT

SIZE CHECK At its widest points, the complete robot must fit within a 25 cm × 25 cm starting box. The maximum height is 20 cm. There is no weight limit.

Construction rules

- The robot must remain within the size limit at the start of every official attempt.
- The robot must be powered by its own onboard battery; no external power connection is permitted during a run.
- A clearly accessible power switch or start button must be provided.
- Wires, sensors, batteries and mechanical parts must be securely fixed.
- The robot must not have sharp edges, exposed conductors, loose batteries or dangerous moving parts.
- The robot must not intentionally damage, mark, lift or alter the arena.
- The robot may not use a tether, guide wire, external marker or physical support during a run.

Autonomous operation

After the team operator places the robot in the start area and presses the start control on the judge's signal, the robot must navigate without human guidance. Remote control, steering commands or live adjustments through Bluetooth, Wi-Fi, radio, infrared remote or cable are not permitted during an official attempt.

IMPORTANT Any wireless feature used for programming or setup must be disabled or disconnected before an official run, unless the judges specifically authorise it.

05

CONTROLLERS, SENSORS & POWER

The intended technical scope for a fair school-level challenge.

Allowed microcontrollers

Teams may use low-powered microcontrollers such as Arduino, ESP32 or equivalent boards that can read sensors and control motors. The challenge is designed to reward sound sensing, control logic and programming rather than expensive computing hardware.

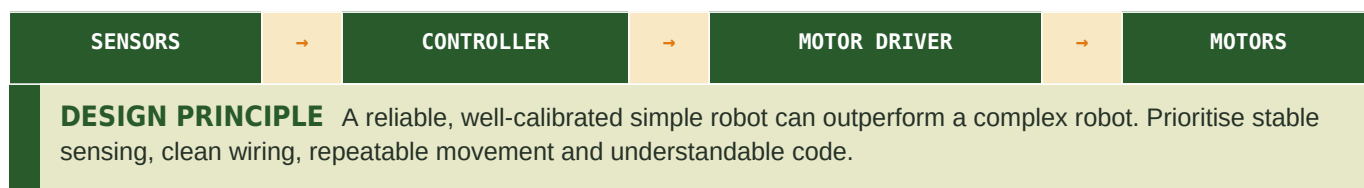
Suitable sensors

IR / reflectance LINE DETECTION	Ultrasonic WALL / DISTANCE	Light sensor LIGHT RESPONSE
Basic encoders MOTION FEEDBACK	Sensor array JUNCTION LOGIC	With approval OTHER SIMPLE SENSORS

The standard challenge is intended for basic sensing systems. Cameras, GPS, LIDAR, high-powered processors or other non-standard systems are outside the intended scope and must receive written approval from the organisers before the event.

Power-source rules

- Use safe, self-contained batteries suitable for a small educational robot.
- AA battery packs, 9 V batteries or protected low-capacity Li-ion / Li-Po systems may be used when installed safely.
- Batteries must be secured so they cannot fall out or short-circuit during movement.
- Damaged, swollen, leaking or overheated batteries are prohibited.
- Teams should bring fully charged spare batteries and the correct charger.

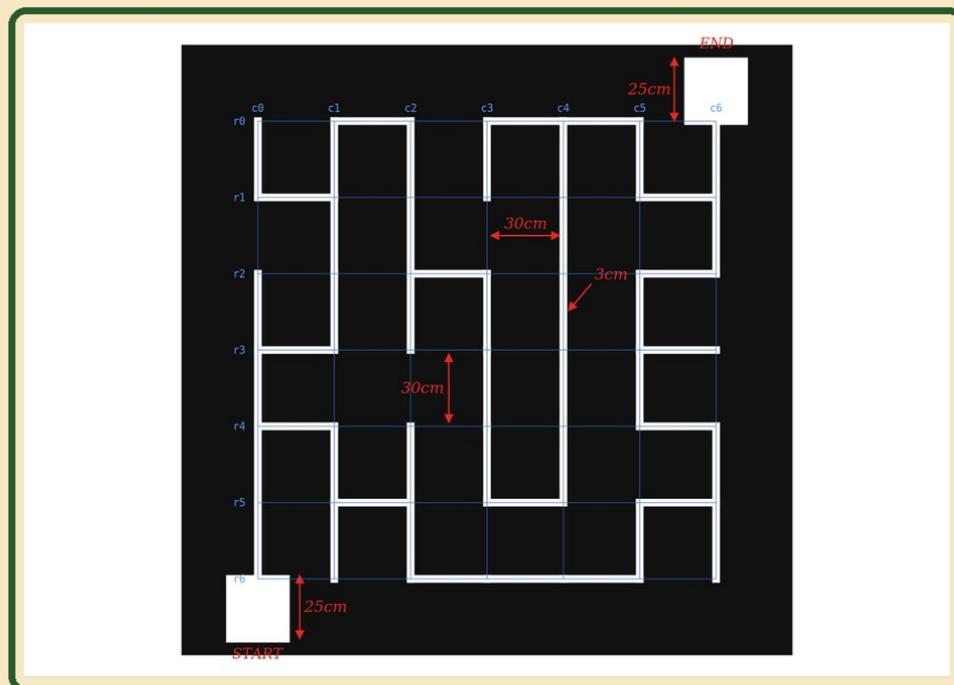
Recommended system architecture

06

OFFICIAL ARENA REFERENCE

New square-grid maze for Follow Your Path 4.0.

Maze layout



3 cm

LINE WIDTH

30 cm

GRID SPACING

25 cm

START / END ZONE

Arena specification

- The arena surface is black and the robot follows white maze lines.
- The nominal white line width is 3 cm.
- The maze is based on a 30 cm square grid as shown in the reference drawing.
- The start and finish zones are 25 cm zones as indicated in the drawing.
- The robot must recognise turns, junctions, loops and dead-end routes and navigate toward the correct finish.

CONSTRUCTION TOLERANCE Minor differences caused by tape placement, surface texture, lighting and arena construction may occur. The physical competition arena and instructions from the chief judge take priority over the reference image.

07

OFFICIAL RUN PROCEDURE

How each team's attempt will be prepared, started and judged.

ROBOT SUBMISSION	Submit the robot to officials at least 10 minutes before the competition begins or at the reporting time given to your team.
SETUP TIME	Each team receives 5 minutes to set up and calibrate the robot in the allocated area.
SIZE INSPECTION	The complete robot must fit inside the 25 cm × 25 cm starting box and meet the 20 cm height limit.
TEAM OPERATOR	Only the nominated student operator may place the robot in the start zone and press the start control.
JUDGE SIGNAL	The robot may be started only after the judge gives permission. Early starts may require a restart or penalty.
OFFICIAL TIMING	The judge records elapsed time, path performance, stops, manual assistance and other penalties.
TRIALS	Each robot may receive up to 3 official attempts to complete the maze.
FIRST-ATTEMPT BONUS	A robot that completes the maze in its first official trial may be eligible for a time bonus.

During an attempt

- Team members and mentors must remain outside the arena boundary.
- The operator may not touch, lift, reposition or restart the robot unless instructed by the judge.
- No code upload, remote command, wireless control or external signal may be used after the run has begun.
- If the robot stops for more than 10 seconds in one position, a time penalty may be applied.
- If the robot leaves the route or requires manual assistance, the judge will record the applicable penalty.

TESTING ACCESS The official arena may only be used during the time allocated by organisers. Teams should bring a small test strip or calibration board for preparation outside the official arena.

08

SCORING, BONUSES & PENALTIES

Performance is assessed through completion, speed, accuracy and engineering quality.

Assessment areas

Completion COURSE RESULT	Elapsed time PERFORMANCE	Accuracy CONTROL QUALITY
Correct route NAVIGATION	Innovation ENGINEERING	Explanation TEAMWORK

Judges will combine the robot's official run performance with rule compliance, design quality, creativity and the team's ability to explain how the robot works. Exact point values, maximum run time and any event-specific scoring clarification will be announced during the official briefing.

Performance indicators

- Speed - how efficiently the robot reaches the finish.
- Accuracy - how consistently the robot remains on and follows the route.
- Successful navigation - reaching the correct destination without becoming trapped or choosing an invalid path.
- Route efficiency - using an effective route through the maze.
- Innovation - thoughtful sensor placement, mechanical design or programming logic.
- Team understanding - a clear explanation of design choices, testing and improvement.

Penalties may apply when

LEAVES THE ROUTE	The robot moves away from the required white path or follows an invalid route.
STOPS TOO LONG	The robot remains stopped for more than 10 seconds at one position.
MANUAL ASSISTANCE	A person touches, repositions, lifts or restarts the robot.
RULE VIOLATION	The team uses remote control, external power or another prohibited method.
JUDGES' DECISION	The judges' decision is final. Teams must respect timing, scoring and safety decisions throughout the competition.

09

SAFETY, FAIR PLAY & DISQUALIFICATION

Every participant is responsible for protecting people, robots and the arena.

Safety requirements

- Robots must have no sharp edges, exposed wires, loose components or unsafe batteries.
- The robot must be safe to handle, inspect, carry and operate near students and visitors.
- Any robot considered unsafe by the officials will not be permitted to compete until the issue is corrected.
- Teams must immediately stop using a battery or component that becomes hot, damaged, swollen, smoky or unstable.
- Tools and soldering equipment may only be used in approved preparation areas under suitable supervision.

Code of conduct

RESPECT	Treat judges, volunteers, other teams and visitors respectfully.
INTEGRITY	Submit and operate the team's own work. Do not copy another team's code or interfere with its robot.
SPORTSMANSHIP	Accept results professionally and support a positive learning environment.
ARENA CARE	Do not damage, move, mark or alter the arena or its line.

A team or robot may be disqualified for

- Using remote control or external guidance during an official run.
- Failing the robot-size or safety inspection.
- Using dangerous parts, exposed wiring or unsafe batteries.
- Intentionally damaging or changing the arena.
- Interfering with another team, robot, official or competition process.
- Cheating, misrepresentation, repeated unsportsmanlike behaviour or deliberate violation of the rules.

AUTHORITY The organising committee and judges may pause a run, remove an unsafe robot or issue a final ruling when required to protect fairness and safety.

10

PREPARATION CHECKLIST

Arrive ready to compete, troubleshoot and learn.

What to bring

☐ Completed robot	☐ Charged spare batteries
☐ Laptop and programming cable	☐ Tools and spare components
☐ Small test / calibration strip	☐ Team confirmation details
☐ Battery charger and safe container	☐ Printed or digital technical notes
☐ School ID / participant identification	☐ Water and personal essentials

Recommended tests before the event

- Confirm the robot starts reliably using one clear button or switch.
- Calibrate sensors on a black surface with a 3 cm white line.
- Test under bright, dim and uneven lighting conditions.
- Test left turns, right turns, T-junctions, cross junctions, loops and dead ends.
- Repeat complete runs using a fully charged battery and a partially discharged battery.
- Check wheel alignment, tyre grip, motor consistency and sensor height.
- Secure every connector and label important wires for quick troubleshooting.
- Keep a clean backup copy of the final code and record the correct calibration values.

ENGINEERING HABIT Change only one variable at a time during testing. Record the result, compare it with the previous run and keep the version that improves reliability.

11

FREQUENTLY ASKED QUESTIONS & AWARDS

Quick answers for teams, teachers and mentors.

Can we use a robot kit? Yes. DIY kits are allowed as long as students assemble, program and understand the robot.

Can our school send several teams? Yes. Each school may register multiple teams, with up to 5 students in each team.

Can the robot be controlled by phone or Bluetooth? No. The robot must operate autonomously during official runs.

What is the robot size limit? The robot must fit inside 25 cm × 25 cm and must not exceed 20 cm in height.

How many official attempts are allowed? Each robot may receive up to 3 official attempts, subject to the competition schedule and judges' instructions.

Can we repair the robot between attempts? Repairs or adjustments may be made only in the permitted area and within the time allowed by officials.

Will the arena be exactly identical to the drawing? The layout and key dimensions follow the reference drawing; small construction and lighting differences may occur.

What happens after Phase 1? The highest-performing eligible teams are invited to the Grand Final on 22 August 2026.

Awards and recognition

Winner
LKR 30,000

1st Runner-up
LKR 20,000

2nd Runner-up
LKR 10,000

Cash prizes will be awarded according to the official final results: LKR 30,000 to the Winner, LKR 20,000 to the 1st Runner-up and LKR 10,000 to the 2nd Runner-up. Participation certificates will be provided to eligible participants according to the organisers' event process.

OFFICIAL UPDATES The organising committee may issue clarifications, schedule updates or operational instructions. The latest written official notice and the chief judge's competition-day instructions supersede earlier versions.

BUILD. THINK. SOLVE.

YOUR PATH STARTS HERE.

Design with purpose. Program with logic. Test with courage. Compete with integrity.

EVENT

YGC Innovation Festival 2026

DATES

21 & 22 August 2026

LOCATION

Thiruvalluvar Cultural Centre, Jaffna

CATEGORY

School Students

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