# **Yantra 10: Micromouse Competition – Game Plan**

## **Objective**

Design an autonomous robot (Micromouse) capable of navigating a maze from a fixed **starting point** to the **center goal** in the shortest possible time without human intervention.

## **Maze Specifications**

* **Size**: 16 × 16 grid
* **Cell Size**: 18 cm × 18 cm
* **Wall Height**: 5 cm
* **Wall Thickness**: 1.2 cm
* **Floor**: Non-reflective white matte surface
* **Walls**: Non-glossy black
* **Start Point**: Fixed (bottom-left corner)
* **Goal Area**: 2 × 2 cells in the center of the maze

## **Robot Specifications**

* **Max Dimensions**: 25 cm × 25 cm
* **Autonomy**: Fully autonomous (no remote control, Bluetooth, or Wi-Fi during the run)
* **No GPS or external mapping allowed**
* **No parts of the robot may damage or alter the maze**
* **Power**: Onboard battery only

## **🕹️ Competition Format**

### **1. Trial Round (Optional / Practice)**

* Teams get a limited time (e.g., 10 minutes) on the maze before official rounds.
* Use this for testing sensors and mapping strategies.

### **2. Qualifying Round**

* Each team gets **2 runs**, each with a **max time of 10 minutes**.
* During a run:  
  + The robot may **explore** the maze to build a map.
  + Once the bot reaches the center, it can attempt **fast runs** to minimize time.
* **Best time from a successful run** (reaching the center) is recorded.

### **3. Final Round (Top 6-10 teams)**

* Same format as qualifiers, but with **new maze**.
* Each team gets **2 runs**, best time counts.
* **Top 3 robots** with the fastest center-reaching time win.

## **⏱️ Scoring System**

* Only time is considered (shortest time to reach center).
* Time measured from start to reaching the center.
* If robot doesn’t reach the center, **no time is recorded**.
* **Penalties**:  
  + Touching the robot mid-run = disqualification of that run.
  + Damaging the maze = disqualification from the event.

## **🏆 Judging Criteria**

| **Criteria** | **Basis** |
| --- | --- |
| Fastest Run | Shortest time from start to center |
| Reliability | Consistency in both attempts |
| Innovation (tie-breaker) | Uniqueness of design or algorithm |

## **General Rules**

* Teams: 1–4 members
* Only team members allowed in setup area
* Judges' decisions are final
* Any misconduct leads to disqualification