Competition Details:

The competition will consist of three levels, and each team will have the opportunity to participate in two rounds within each level.

Level 1-Obstacle Avoidance:

In this level, the robot must navigate between two walls without making contact with them. The goal is to complete the track in the shortest time possible.

Level 1 Rules:

1. If the robot collides with a wall, a 1-second penalty will be added to its finish time. Moreover, if the robot remains in contact with the wall, a timer will start to measure the duration of contact. For every 5 seconds of continuous contact, an additional 1-second penalty will be added to the overall time, in addition to the penalty for the initial collision.
2. If the robot stops functioning, or changes direction during the run, the team will be disqualified from the round.
3. The track will be divided into three sectors. If a team is unable to complete the entire track, the finished sectors will be taken into account. The time taken for each sector will be measured and added together. The team that completes more sectors with the least total time will achieve a higher rank. It's important to note that a team that successfully finishes the entire track will receive a higher rank compared to teams that were unable to finish.

Level 2-Black Line Following:

In this level the robot must follow a black line drawn on the floor in a random pattern. The objective is to complete the track in the shortest time possible.

Level 2 Rules:

1. If the robot stops working, changes direction during the run, or leaves the track, the team will be disqualified from the round.
2. The track will be divided into three sectors. If a team is unable to complete the entire track, the finished sectors will be taken into consideration. The time taken for each sector will be measured, and and the times will be added together. The team that completes more sectors with the least total time will achieve a higher rank. It's important to note that if your robot successfully finishes the entire track, your team will receive a higher rank compared to teams that were unable to finish.

The time of levels 1 and 2 will be added, the top 3 groups with the best time will be qualified to level 3.

Level 3-The Path Runner Challenge

The robot must finish a track of a combination between levels 1 and 2 tracks (Walls and line following). The group with the fastest time is the winner.

Level 3 rules are the same as levels 1 and 2.

In the case of a draw, the volume and weight will be taken into consideration. The team with the best ratio between the 2 factors (V*m) will advance to the final level (in case of a tie in the cumulative time of Levels 1 and 2) or get a higher rank in level 3.

Students willing to participate in the competition are expected to secure their own kits. A kit would include:

- Arduino Uno (or Nano) + Cable
- Wires (Female-male, male-male)
- ON – OFF Switch
- 2-wheel car chassis (or 4-wheel car chases) with DC motors
- Up to 4 InfraRed digital sensors
- Up to 4 Black and white Sensors
- Motor Drive (L298N)
- Up to 4 lithium batteries
- 4 lithium batteries holder pack
- lithium battery charger (optional).
- Bread board

The Robotics and Technology Club will provide assistance from 8:00 a.m. until 11:30 a.m. during the event day to ensure a successful experience. You can seek guidance and support during this time from our dedicated staff to address any technical challenges you may encounter.

Rules and Regulations:
- Each team should consist of a leader and up to three participants. However, if the team leader is a teacher, an additional participant can join, making it a team of four.
- All participating teams are required to arrive at the RHU campus no later than 12:00 p.m.
- To advance to Level 3, the team is required to participate in both Level 1 and Level 2 of the competition.
- In this competition, you will have to bring your own kits to compete. No kits are allowed in the tournament other than Arduino kits.
- Any violation of conduct towards participants, organizers, or judges will lead to disqualification of the entire team.