

# **Robian19**

## **Introduction:**

Robian19 invites participants from all over Pakistan to test their skills, build robots and compete to win cash prizes. This contest provides a platform for roboticists to apply their technical knowledge and skills and learn from their peers and seniors.

There will be **two categories** in Robian19.

1. Remote controlled sumo robots
2. Autonomous line following robots

Both the categories are **open to everyone**. Whether you are an undergraduate student, a graduate student, an educator, a researcher, a professional or a hobbyist, you are welcome to participate.

The rules and regulations of the contest are presented in this document. The students will also learn to work in groups and teams and develop coordination skills.

## **Date and Venue:**

### **Date:**

**Saturday 7<sup>th</sup> December 2019 Qualifiers**

**Monday 9<sup>th</sup> December 2019 Finals (Seminar Hall)**

**Time:** 10:00 am to 2:30 pm

**Venue:** Seminar Hall, Academic Block I, EE Department

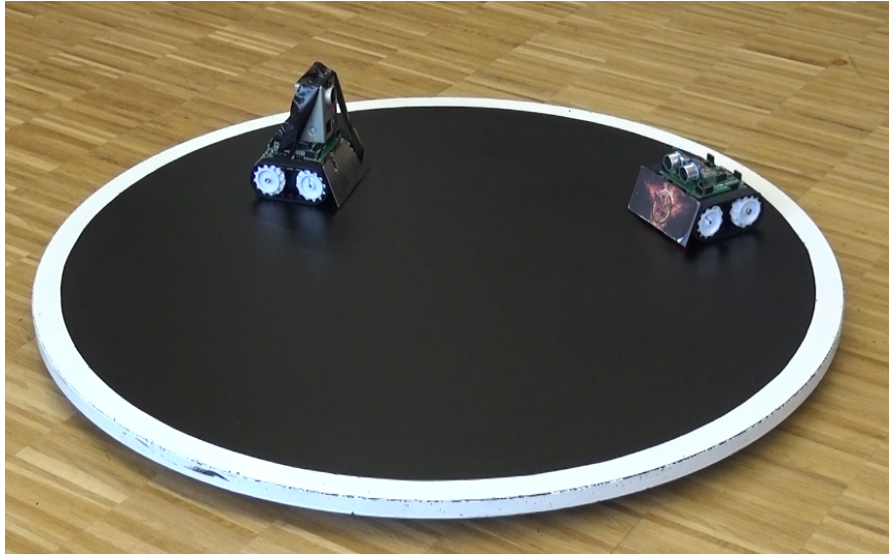
## **Rules and Regulations:**

This section describes the rules and regulations regarding groups and teams, the arena, the size and weight of the robot etc for all categories of the contest. **Note:** These rules and regulations are not finalized and may be updated in the days leading up to the contest. Kindly visit the contest website/Facebook pages regularly for updates.

## Category 2: Robot Sumo

Students will make remote controlled Sumo Robots and compete against each other to win a seeded tournament (see Figure 4) like contest. Similar to traditional Sumo wrestling the contesting robots will try to push each other off the ring (Dohyo). Teams will be randomly selected to compete against each other and winning teams from each round will qualify for the next round.

### The Arena (Dohyo):



**Figure 1: Example Sumo Ring (Dohyo)**

- The Dohyo will be circular in shape with a diameter of 1.2 meter (5% tolerance).
- The Dohyo will be made of Chip Board and will be flat.
- The Dohyo will be painted black with a white circle to mark the edge of the ring.

## **The Robots**

### **Size and Weight:**

- The robot must fit in a box of 15 cm x 15 cm at the start of a match (may open up attachments that do not increase the size of the robot beyond 20cm x 20 cm)
- There is no limit to height of the robot.
- The Robot must not weigh more than 1 Kg including the battery.
- The robot must remain a single unit during the contest.

### **Cost:**

There is no restriction on the cost of the robot.

### **Robot Restrictions**

- Parts that could break or damage the ring are not allowed. Do not use parts that are intended to damage the opponent's robot or it's operator. Normal pushes and bangs are not considered intent to damage.
- Devices that can store liquid, powder, gas or other substances for throwing at the opponent are not allowed.
- Any flaming devices are not allowed.
- Devices that throw things at your opponent are not allowed.
- Sticky substances to improve traction are not allowed.
- Devices to increase down force, such as a vacuum pumps and magnets are not allowed.
- All edges, including but not limited to the front scoop, must not be sharp enough to scratch or damage the ring, other robots, or players.

### **Penalties:**

- 1 Yuhkoh point will be deducted if the robot exceeds the dimensions by more than 5% but is within 10% of the maximum limit in any dimension.
- Team will be disqualified if the robot exceed by more than 10% of the maximum limit in any dimension.
- 1 Yuhkoh point will be deducted if the robot exceeds the weight limit by more than 5% but is within 10%.
- Team will be disqualified if the robot exceeds the weight limit by more than 10%.

## **The Teams:**

The contestants will register as teams. Each team will consist of a maximum of **3 members**. Each team will choose a name for registration and will designate one member as the team lead. All the official communication with the team will be through the team lead.

## **How to Carry Sumo Matches**

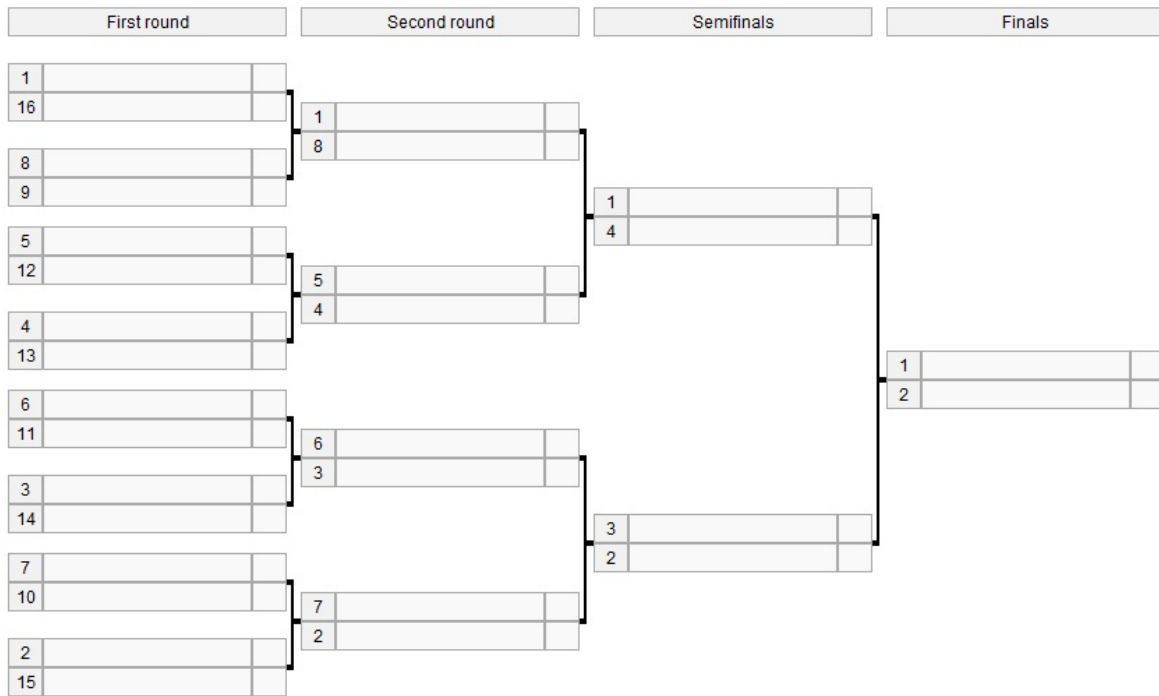
- One match shall consist of 3 rounds, within a total time of 3 minutes, unless extended by the judges.
- The team who wins two rounds, within the time limit, shall win the match. A team receives a "Yuhkoh" point when they win a round.
- When the match is not won by either team within the time limit, an extended match may be fought, during which the team who receives the first Yuhkoh point shall win. Alternatively, the winner/loser of the match may be decided by judges, by means of lots, or by a rematch.
- One Yuhkoh point shall be given to the winner when the judges' decision was called for or lots were employed.

## **Scoring:**

One Yuhkoh point shall be given when:

- A team legally forces the body of the opposing robot to touch the space outside the ring, which includes the side of the ring itself.
- The opposing robot has touched the space outside the ring on its own.

When a wheeled robot has fallen over on the ring or in similar conditions, Yuhkoh will not be counted and the match continues.



**Figure 4:** Seeded Competition Structure for Sumo Finals

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