Robotic Arm Challenge for University Category

- The challenge for the university category is to design and develop an autonomous Robotics Arm with minimum four degrees of freedom to carry out a specific task.

Eligibility

- Participants are advised to form a team of up to 5 undergraduate students. Any number of teams from a university can enroll in the competition.
- All team members must be undergraduate students following a program in a university or an institute.
- Candidates should bring documentary evidence to prove the studentship.

Task

1. Two **Cylindrical Containers** one with an orange color table tennis ball and the other empty are placed at a distance. **The distance between two glasses is approximately 390 mm. (See Figure 1)**
2. The robot should be able to indicate the detection of the correct container with Table Tennis Ball via an audio signal or visual indication (Ex: LED Bulb)
3. The Robotic Arm should be able to pick the glass with the table tennis ball and pour the ball to the empty glass within a minimum time duration.
4. **Dimensions of the cylindrical containers are 50mm Diameter and 60mm height. (The cylindrical containers is made of Perspex)**

Games Arena

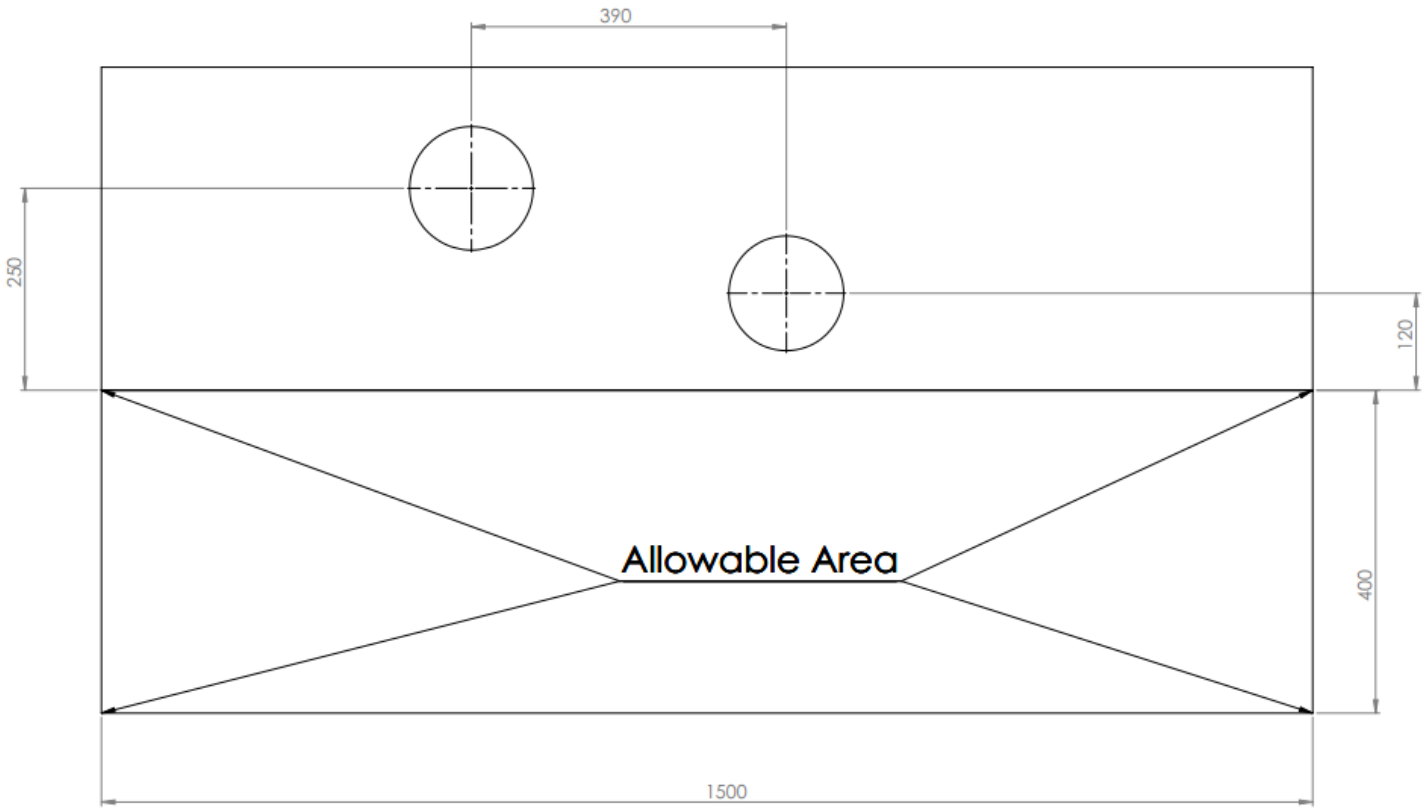

Figure 1

All dimensions are given by Millimeters (mm)

Rules and Regulation

- 3 attempts will be given for each team.
- Maximum weight of the Robotic Arm is 5Kg and maximum total stretched length of the Robotic Arm is 1000mm.
- The dimensions of the base of the Robotic Arm should be such that, it is able to place stably on the allowable area of Games Arena. (See Figure 1)
- Robot must be fully autonomous and not allowed any wired or wireless communication during the operation.
- External DC power supply is allowed.
- The Robotic Arm should not cause any physical damage to the container. (Judge panel can decide to reject the robot without giving third attempt)
- Time duration is measured from the **time of pressing start switch** to the time the ball falls to the second glass.
- The Robotics Arm should pour the glass from a close proximity so that the table tennis ball does not bounce out of the second glass.
- The competitor is disqualified If the ball bounces out of the second glass.
- The competitor may place the Base of the Robotics Arm in any place on the **allowable area of games arena (See Figure 1.0).**
- The base of the Robotics Arm has to be stationery at all the time.
- Judge panel's decision is the final decision.

End