



AISSMS

COLLEGE OF ENGINEERING

ज्ञानम् सकलजनहिताय

An Autonomous Institute Affiliated to Savitribai Phule Pune University
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DEPARTMENT OF E & TC ENGINEERING

Silicon Fusion

21ST ENGINEERING TODAY 2026-2027
29TH and 30th September 2026

EVENTS:

i) Robo Race

ii) Robo Mania

(Robo Soccer And Robo Sumo)

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Robo Mania (Robo-Sumo)

Entry Fee: -Rs: 100/- (per participant)

PRIZES

First Prize -: Rs:7000/-

Second Prize -:Rs4000/-

- **TASK**

1. Teams must build a robot which can be controlled using a remote (wired/wireless).
2. The aim of the robot is to push the robot of the opposite team out of the arena. The team doing so wins the match.

- **ARENA SPECIFICATIONS**

1. The arena will be square in shape of side 3000 mm.
2. The main arena will be a circular in shape with a maximum diameter 2400 mm.
3. It will consist of two concentric circles of diameter 2000 mm and 2400 mm.
4. The inner circular area is blue in colour and is called the “Blue Zone” while the outer circular area is red in colour and is called the “Red Zone”.
5. A centre white line of 30 mm width divides the arena into two equal halves.
6. There are white squares of 300 mm x 300 mm on the opposite sides of this line that indicate the starting zones of the two competing teams.
7. The arena will be made up of wood and the markings on it including all the zones will be drawn using paint.

- **BOT SPECIFICATIONS**

1. The machine should fit in a square of **300mm x 300mm**. There is no height limit.**(5% tolerance)**
2. The weight of **the robot must not exceed 5 kg** (this is including battery, motors etc., except spare components and the remote to control). **(5% tolerance)**
3. The robot must be stable and must stand on its own at the beginning of the run when put in the starting point. Robots not fulfilling this criterion will be disqualified.
4. Any type of weapons (fire, spindle, hammer, etc.) is not allowed.
5. Readymade (market sold) robot with or without modifications will not be allowed in the competition.

- **Points System:**

1. Each team earns 10 points for pushing the opposition in the red zone and 50 points for pushing the opponent out of the red zone.
2. If a robot goes in the red zone on its own without being pushed by the opponent robot, then 10 points will be deducted from the team's score. If a robot goes out of the red zone on its own without being pushed by the opponent robot then 20 points will be deducted from the team's score exiting the arena. No points will be given to the opponent in such case.
3. If a robot is not in working state (i.e. no movement is seen) at the start of a round for any reason, 20 points will be deducted from that team.
4. If there is still a tie on the basis of the scores then a rematch of 1 minute will be played by the involved teams until we get a winner.
5. The organizers reserve the rights to change any or all of the above rules as they deem fit.

- **POWER SUPPLY:**

1. Machine must be completely Self-contained and should receive no outside assistance. It should not use an energy source employing a combustion process.
1. Machine should have an on-board power supply. No external power supply is allowed.
2. Voltage on the machine at any point should not exceed **12.6 V DC**.

- **ROUNDS:**

Knockout Round

1. Two bots will compete against each other.
2. Each round will have duration of 2 minutes. The team which wins two rounds first (each of 2 min) will be declared the winner of the match.
3. The team that pushes the opposition robot out of the arena (i.e. out of the red zone) is declared as the winner of that round.
4. The scoring pattern will be uniform throughout and the scores will be considered only in case of a tie i.e. if no team is able to push the opponent's robot out of the arena in that round.
5. In case of a tie in a round (i.e. none of the team's robot is able to push the opposition robot out of the arena), the winner will be decided by the points earned by each team in that round.
6. In case of a tie in the match, the winner of the match will be decided by a tie breaker.
7. In case of odd number of teams qualified for next round, then team with the maximum points will get the benefit.

- **GENERAL RULES:**

1. Any team that is not ready at the time specified will be disqualified from the competition automatically.
2. The machine will be checked for its safety before each match and will be discarded if found unsafe for other participants and spectators.
3. Team members will not be allowed to step in the arena. Only organizers are allowed in any situation. The team will be disqualified if any of the team members steps on the arena without the approval of the presiding organizers.
4. Only one member of the team is allowed to operate and one member for handling the robot.
5. Participants are not allowed to keep anything inside the arena other than their robot.
6. No robot is allowed to use any flammable, combustible, explosive or potentially dangerous processes.

- **GAMEPLAY RULES:**

1. Knockout Matches: Each match consists best of 3 rounds.
2. Before the match 1 minute setting time will be given. The run time clock will commence after that 1 minute time-limit even if the handler is still making adjustments to the robots.
3. 60 seconds setting time will be given in between the rounds.
4. The robot must start from the starting point. The operator may abort run at any time. In such a case, the opposite team will be declared as the winner.
5. No hand touches are allowed in between the matches unless both the operators of the respective robots want a restart.
6. Use of jammers is not allowed. Participants found violating this rule will be disqualified.
7. There can be interference problems related to RF modules in case you are using them. It is the responsibility of the participants to overcome it. Organizers are not responsible for it.
8. In every match each team will be given 2 time-outs of 60 seconds (each).
9. Judges' decision shall be treated as final and binding on all.

Robo-Race

Entry Fee: -Rs: 100/- (per participant)

PRIZES

First Prize -: Rs:8000/-

Second Prize -:Rs4000/

1. GAME AND RULES:

Starting with designing and building a bot that moves through the curves of the track might be easy, but making it run on terrains, hurdles, and being an early bird is a tough task. So are you up for the challenge?

1.1. PROBLEM STATEMENT

1. Design a manually controlled bot to crack the arena in the least amount of time, avoiding penalties. The arena consists of hurdles that downturn the robot's speed.
2. Robots must complete the track in minimum possible time. Arena and obstacle details will be disclosed on the event day.

2. TEAMS:

1. **Maximum 3 members** are allowed in one Team.
2. Only 2 members of a team are allowed to stay around the arena (one for controlling and one for assisting) and a team is allowed to play with one robot only.
3. Members of different institutions can form a team.
4. Students who are pursuing any course upto post graduation can participate.

3.ROBOT SPECIFICATIONS

1. Robots can be wired or wireless.
2. Robots should not damage any part of the arena. If the robot damages any part of the arena, it will be disqualified.
3. The robot should not expand or compress during the run. A technical timeout can be taken in case of any part detachment of the robot.
4. Use of IC engines is not allowed.

4. ROBOT DIMENSIONS

1. Dimensions of the robot should not exceed **30cm x 30cm x 25cm (l*b*h). (Tolerance of 5% is allowed in this regard).**

5. POWER SUPPLY FOR ROBOTS

1. The potential difference between any two **points should not exceed a limit of 12V** and the robot should be powered only using batteries.(A tolerance of 5% is allowed).
2. If the robot suddenly stops in the arena due to any technical problem, you will be allowed to take a technical timeout. After taking one technical timeout, the timer will not be stopped if the robot suddenly stops in the arena due to any technical problem.
3. The power supply may be ON or OFF the board (i.e., one of the team members can hold the power supply). An external power supply will not be provided.

4. Changing the battery or battery polarity is not allowed during the race.

6. WEIGHT

1. The maximum weight of the **robot should not exceed 5kgs.**

7. SAFETY

1. All the required accessories should be brought by the participants.
2. Event Team is not responsible for any damage to the robot.
3. Technical assistance will not be provided by coordinators or technical deputies.

8. COMPETITION RULES:

- **TECHNICAL TIMEOUTS**

1. A technical timeout of 2 minute can be taken by a team.
2. After the finishing of the technical timeout, the timer will start again and will not be stopped under any circumstances.
3. No technical assistance will be provided by the event coordinators or heads during the event.

- **SCORING & PENALTIES**

1. The score will be calculated based on the time taken to complete the track.
2. Based on the violations and penalties the changes in the score are made.
3. The maximum time for each participant is 8 minutes for track completion.
4. Scoring schema (including penalties) will be disclosed on event day by heads and coordinators.

- **OTHERS**

1. Human interference can be only done during skip, technical timeout, and checkpoints.
2. If the robot engages in a place without any further movement, then it would be repositioned at the nearest checkpoint traversed.
3. Participants with wired robots are strictly advised to get wires of length 3m or more.
4. In the case of wired robots, the wired should be slacked throughout the game.
5. Robot unable to complete the track traversal within time (8 minutes) is considered disqualified.
6. Using any of the checkpoints more than 3 times (total) is considered disqualified.

Note :- The arena layout and zone details will be disclosed on the day of the event.

Robo Mania (Robo-Soccer)

Entry Fee: -Rs: 100/- (per participant)

PRIZES

First Prize -: Rs:7000/-

Second Prize -:Rs4000/-

- **TASK:**

Build a bot according to the specification, so that bot can kick a table tennis ball into the opponent's goal post by following the rules.

- **ARENA SPECIFICATION:**

1. The soccer field is 4 feet x 8 feet.
2. Blue field is 40 cm x 40 cm.
3. Goal post is 40 cm in length and 20 cm in height.
4. Boundary of the field will be covered by 15 cm's high wall.
5. There are two regions in the field, green field and blue field.
6. Plastic or Tennis ball will be used.

- **BOT SPECIFICATIONS:**

1. Each team is allowed to have only one bot.
2. Bot must fit into a cube of 30cm x 30cm x 30cm at all times. It may not expand beyond these dimensions during any point of the match. Violating this will cause immediate disqualification.(5% tolerance)
3. A battery with the voltage rating not exceeding 12 volts is allowed. This is an on- board power supply.
4. The weight of the bot should not exceed 5 kg's (this is including battery, motors etc., except spare components and the remote to control)
5. The remote control for the bot could be a wired or a wireless one. Grabbing the ball is not allowed. So, any such mechanisms are not allowed.

- **RULES FOR GAME PLAY:**

1. In first round, every match will be of 3 minutes. The duration for the matches in the next rounds will be decided by the organizers.
2. 10 point will be awarded per goal.
3. Team with maximum point will be declared winner for the match.
4. In case of a tie, an extra time will be given; the winner will be the one who first scores a goal. No time-outs will be given during extra time.
5. Match will start with the ball kept in the Red circle at center.
6. A goal will be considered only if the ball crosses the goal line completely.
7. Bot of each team can enter into the green field at any time, once the match is started.
8. At the starting of the match, bot should be in the blue field.
9. If the ball goes outside the field, then ball will be reset at initial position.
10. Grabbing the ball for more than 10sec is not allowed.
11. Any type of weapon is not allowed.

12. Standing inside the goal post is not allowed
13. The match will be 1 on 1(bot).
14. If the ball is stuck for more than 10 sec the match will be restart
15. Judges' decision shall be treated as final and binding on all.

• Common for all events

DISQUALIFICATION:

1. If a participant does not comply with the rules of the event, the robot will be disqualified from the event.
2. Robots should not damage any part of the arena. If the robot damages any part of the arena, it will be disqualified.
3. Human interference (e.g. touching the robot) during the game will be disqualified.
4. Misbehavior of any kind will not be tolerated and the team will be subjected to disqualification.
5. At any point of time during the match voltage should not be varied and should be constant, variation in voltage leads to disqualification.
6. A robot with the base of a toy car and its gearbox as a machine part will be disqualified. Also, Lego kits are strictly prohibited and will lead to disqualification.
7. Robot unable to complete the track traversal within time (8 minutes) is considered disqualified. (Robo Race)
8. Using any of the checkpoints more than 3 times (total) is considered disqualified. (Robo Race)

• COMPETITORS AND BEHAVIORAL RULES:

1. All participants will be given a Certificate of Participation.
2. Winners and runners will be given a Certificate of Merit.
3. All participants must bring a college ID card.
4. Participants are not allowed to use their own Stop watches.
5. **Maximum 3 members** are allowed in one Team.
6. Only 2 members of a team are allowed to stay around the arena (one for controlling and one for assisting) and a team is allowed to play with one robot only.
7. Members of different institutions can form a team.
9. The dimensions, weights, etc., of the field, facilities and equipment described in this document have a margin of error of plus or minus 5% unless otherwise stated.
10. Event Team is not responsible for any kind of damage to your robot.
11. We request the participants not to assume anything that is not mentioned in the document without contacting the Coordinators or Technical team.
12. It's our sincere request to all the participants to go through this rule book thoroughly and not a single point mentioned in the rule book will be compromised under any circumstances.
13. We also request you have a copy of this rule book handy during the event.
14. In case of any discrepancies, **the decision of co-ordinators and heads shall be final** and no further argument will be entertained.
15. Any kind of misbehavior will not be tolerated and will lead to disqualification of the team.

Event Co-ordinators

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