

ROBOSUMO

About Event

Design and build a robot that is optimized for weight, traction, and pushing power. The goal is to outmaneuver and overpower your opponent in a head-to-head pushing match.

Robots must use sophisticated programming to navigate the arena, anticipate opponent moves, and execute precise maneuvers. No weapons or flipping tactics are allowed. The first robot pushed out of the arena loses.

Event details

Bot Construction (BELOW 5KG):

- Teams construct their own robots within 5kg weight with 5% tolerance and should fit dimension of 40cm x 40cm x 30cm.
- Use of weapons and flipping mechanism is strictly prohibited.
- The maximum allowed voltage is 12V.
- The arena has a diameter of 2 meters.
- Participants using wired bots must ensure that the wire is sufficiently long to cover the entire arena.

Bot Construction (ABOVE 5KG):

- Teams construct their own robots within 15kg weight with 5% tolerance.
- Use of weapons and flipping mechanism is strictly prohibited.
- The maximum allowed voltage is 24V.
- The arena has a diameter of 2 meters.
- Participants using wired bots must ensure that the wire is sufficiently long to cover the entire arena.

Match Details:

- Every match will be knockouts.
- A match will comprise of 2 rounds within a total of 3 minutes, i.e. 1 minute 30 seconds for each round.
- A technical time of 1 minute will be granted to each team.
- The referee holds the right to extend the time for each match if required.
- During a match, only 1 team member is allowed inside the ring, while others observe from the audience.
- If the robot is wired then 2 team members are allowed inside the ring.
- A point is awarded when a team legally forces the opposing bot outside the border of the ring or when the opposing bot touches the border of the ring on its own.
- A team secures 1 point when they win a round, the teams that wins 2 rounds or secures 2 points within the time limit will be announced as winners.
- The match goes into overtime if it ends in a tie.
- The first team to score in the extended match wins.
- Alternatively, judges may decide the winner by drawing lots or holding a rematch.
- If an extended match is called by the referee, it will only last for a maximum of 3 minutes.
- Time elapsed after the judge announces point and before the match resumes again will not be included in the match time.
- The standard delay before the match resumes is 30 seconds.
- The match will be restarted if conditions such as bots being entangled or orbiting each other with no perceivable progress for five seconds happens.
- The match will restart if both the bots touch the border of the ring at the same time.

Rules & Regulations:

- The team must consist of 4 members.
- All the participants must be from the same college.
- Participants must present a physical college ID card and PID to participate in the event.
- The decisions of the judges and organisers will be final.

Judging Criteria:

- The team with maximum points wins the match.

ROBOSOCCER

About Event

Step aside from the usual roar of football fans! While legends like Messi, Ronaldo, and Chhetri have given us iconic moments on the pitch, it's time for you to kick-start a new era of sporting brilliance. Welcome to Robo Football—a thrilling blend of tech and tactics, where robots are the stars and your control is the game-changer. Join us at SCEM as we launch a new chapter in sports, where circuits and code create the goals of tomorrow!

Event Details:

After the closure of on-spot registrations, team captains will have the opportunity to pick slots. The fixture details will be promptly displayed thereafter. Once the fixtures are established based on the chosen slots, no changes will be permitted.

Match Details:

- In the beginning, the ball will be kept in the middle of the arena.
- The match will consist of two halves.
- The side will be decided by the toss.
- The duration of each half will depend on the type of match as follows:
 - a. Initial knockout match: 3 minutes.
 - I. Each half will be of 1.5 minutes
 - II. Court change after that first half.
 - b. Quarter final: 3 minutes.
 - I. Each half will be of 1.5 minutes
 - II. Court change after that first half.
 - c. Semi-finals and Final: 5 minutes.
 - I. Each half will be 2.5 minutes
 - II. Court change after that first half
- 1 minute break will be given during the court change in semi-finals and finals only.
- Based on the number of teams, the time constraints may be changed.
- Golden Goal: In case of a draw, both the teams will play for a golden goal, the team to score the first goal in the additional time provided wins the match.
- The soccer bot can only transform to its size at the beginning, it cannot be divided into multiple parts later.
- The weight of the bot will be checked before starting each match. Once the weight of the bot is finalised, no modifications to the weight will be allowed.
- Technical time out: If the bot is immobilised during the match, the team will first be given 60 seconds to fix it without any loss of points.
- If the team fails to fix it in 60 seconds, another 60 seconds can be given. at the expense of 1 point.
- If the team does not repair the bot within this time, then it will be disqualified.
- Stalling tactics of any kind will not be tolerated.
- All the bots must have their own power supply.
- The referee will analyse bots before each match and only after their approval bot can enter the match. They have the right to reject the bots, taking into consideration the rules and dimension limits.

- The match will be paused in case of any entanglement of wires of both bots. If the ball is immobile for 10 seconds, then the game will be reset, and the ball will be declared as a common ball.
- The ball should not be lifted in the air by the bot.
- In case a team is disqualified, the opponent team wins the match by default.
- The dimensions provided in the rules must be followed for the bots to participate.
- Ready-made kits/Lego models are not allowed.
- Only 3 members of each team are allowed to be present at a time in the arena.
- If the bot is wired, one member will be the controller of the bot, and the other will hold the wire.
- The structure of the robot should not change during the competition (e.g., if you have a wedge at the front, you can't convert it into a claw or vice versa).
- The organisers will not be responsible for any kind of electromagnetic interference in the wireless communication.
- One member of the team must be present near the arena, or the room provided at any given time.
- Teams must be ready before the time mentioned in fixtures.
- A warning call will be given for every 2 minutes from the time given for the team, after the third call, the team will be disqualified.
- The bot should not be disassembled until the results are declared.
- If a foul is committed, and a goal occurs before the play is restarted due the foul, the goal will not be counted.
- Pulling the bot with connected wires on the arena will lead to disqualification.

Bot Specifications:

- Bots can be wired or wireless. Wireless bots should have a minimum range of 12 feet.
- Wires must be sufficient to reach all corners of the arena.
- The potential difference between any two electrical points on the robot must not exceed more than 12 volts throughout the run.
- Gripping mechanism is not allowed.

Bot Dimensions:

- Length \leq 30 cm.
- Breadth \leq 30 cm.
- Height \leq 30 cm.
- A total of 5% tolerance is allowed on length, breadth, and height.
- Weight: 5 kg (tolerance of 10%).

Rules and Regulations:

- A team must consist of 4 members
- All the participants must be from the same college.
- Participants must present a physical college ID card and PID to participate in the event.
- Teams must arrive on time; any anticipated delays must be conveyed to the organisers in advance.
- Fixture assignments will be determined through the slot selection process. The need for a loser's bracket will be decided by the organisers based on the total number of participants.
- Organisers have the right to change any of the rules as per the circumstances.
- The decisions of organisers and referees will be final.
- Bots cannot be changed with other teams from the same college or other under any circumstances, that is if bot A from team A is in the finals/initial/semi-finals with a damaged

bot and bot C from team C has a similar bot from the same college or other, they should continue playing with bot A.

- The controller of the bot cannot be changed within the same team; the same controller controls the bot during the entire tournament.
- One person can be a part of only one team.
- No tools will be provided by the organizers or the college, the participants should bring their own tools.

Judging Criteria:

- Each goal scored by a team will result in 4 points being awarded.
- A warning will be given for not following the rules and 2 points will be deducted for each subsequent warning.
- The winner of the competition will be declared based on the points scored.

LINE FOLLOWER

About event

Get ready to trace the future of robotics with our Line Follower Challenge! Precision, speed, and smart coding will be your keys to victory as your bot navigates twists, turns, and obstacles on the path to success. Will your creation stay on track and lead the pack? Join us at SCEM and find out if your bot has what it takes to follow the line to glory!

Event Details:

GENERAL RULES

- A team must consist of 4 members
- All the participants must be from the same college.
- Participants must present a physical college ID card and PID to participate in the event.
- Teams must arrive on time; any anticipated delays must be conveyed to the organisers in advance.
- Organisers have the right to change any of the rules as per the circumstances.
- The decisions of organisers and referees will be final.
- One person can be a part of only one team.
- No tools will be provided by the organizers or the college, the participants should bring their own tools.
- The bot should not damage or leave any marks on the track. Such activities will lead to immediate disqualification.
- The exchange of bots among teams is not allowed.

Bot Specifications:

The participating bots must be wireless and autonomus. It can be circular / Rectangular in style. Bot must fit inside a box of 20 centimeters length, 20 centimeters wide and 20 centimeters height at any point in time. Maximum weight should not be more than 5Kgs including battery, however, a tolerance of 5% in weight is acceptable. Participants need to ensure:

- Batteries must be sealed, immobilized electrolyte type (gel cell, lithium, NiCad, or dry cells).
- The electric voltage anywhere in the machine should not be more than 12V DC at any point in time for each robot.
- Infrared light-reflecting materials must not be used on the outside. If robots are painted, they must be painted matte. Minor parts that reflect infrared light could be used only if other robots are not affected. Robots must not produce magnetic interference for other robots on the field.
- If a team claims that their robot is affected by the other team's robot in any way they must show proof/evidence of the interference. Any interference must be confirmed by a Referee if a claim is placed by the other team.
- The robot must be autonomous.
- Robots must be constructed and programmed in a way that their movement is not limited to only one direction and must move in all directions.
- No wireless communication between bot and operator will be allowed. Bluetooth, RF Module, etc not allowed on bot.
- Any robotic parts/building material can be used until the robot meets the above specifications and if the design and construction are primarily the original work of the team as ready-made robots are not allowed to compete in the competition.

Arena Specification:

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(An Autonomous Institution)
MANGALURU



- Every team will be given 1 minute time to calibrate the bot and maximum 3 minutes for game play. 1 minute of calibration time will not be included in game play time.
- If Bot loses the track, bot operator must restart the run from the starting position
- Within 3 minutes of gameplay duration, team can take as many runs as possible. The run with least time will be considered.
- The final round will feature the top 5 teams, selected based on their ability to complete the entire course in the shortest time possible.