MAHARISHI UNIVERSITY

Maharishi botFiesta 2024

12th - 13th November

Prize Upto
₹3,50000/-
*T&C Apply

Registration Starts
5th October 2024

Registration Closes
31st October 2024

Events-

- Robo War
- Robo Race
- Robo Soccer
- Drone Race
- Robo Talk
- Pick and Place and More...

Eligibility
Junior Category : **Upto 12th / ITI /Diploma**
Senior Category : **UG /PG**

*Certificate to all participants

Scan Now to Apply

Venue : Maharishi University of Information Technology
Sitapur Road, P.O-Maharishi Vidya Mandir, Lucknow-226013 (UP)

Training Partner
Infofaith india pvt ltd

Managing Partner
Monteage IT Solutions Private Limited

Organized by: Maharishi School of Engineering & Technology in Association with IQAC, MUIT Lucknow Campus
Contact : Chetan Chaudhary – +91-99587 81826 | E-mail : help@muitonline.com

MAHARISHI **botFiesta** 2024 RULES BOOK

Registration start Date- 5th October
Registration closed Date- 31st October
Prize Upto ₹350000/-

Registration Fees

Events Name	Senior Level	Junior Level
Robo War Challenge	₹2100/-	₹1100/-
Robo Race competition	₹1100/-	₹800/-
Robo Soccer competition	₹1100/-	₹800/-
Robo Talk	₹500/-	₹400/-
Pick and Place Challenge	₹1100/-	₹800/-
Drone Racing	₹1100/-	₹800/-

Arena and Bot Criteria

Events Name	Arena Dimension	Bot Dimension	Team Member	Remark
Robo War Challenge	15ft x 15ft x 1ft (l x b x h)*.	Weight- 15Kg Battery- 24volt (max)	Max-4	Wireless (for Senior) Wired and wireless (for Junior)
Robo Race competition	Minimum 90ft	30cm X 25cm X 15cm (l x b x h) Weight- 3Kg, Battery- 12volt	Max-4	Wireless(for Senior) Wired and wireless (for Junior)
Robo Soccer competition	30ft x 20ft	Dimension-30cm X 30cm X 15cm (l x b x h) Weight- 5Kg, Battery- 24volt (max), Max-2 (Both bot together under 5kg) or 1 bot, Ball size: diameter as 6.54–6.86 cm*	Max-4	Wireless(for Senior) Wired and wireless (for Junior)
Robo Talk	-	-	Max-2	PPT required
Pick and Place Challenge	30ft x 20ft	Dimension-30cm X 25cm X 25cm (l x b x h), Weight- 4Kg(including battery), Battery- 24volt (max)	Max-4	Wired and wireless Both are allowed in all Category
Drone Racing	100M2	Min 40cm*40cm (L*B) and maximum 75cm*75cm (LxB) (Measured diagonally – motor shaft to shaft), Weight- 2Kg (Max)	Max-4	Wireless for all

1- ROBO **WAR** CHALLENGE

Design and construct a remote-controlled robot capable of fighting a tournament against another robot(s).

Design Specifications

Specifications:

- There will be no restrictions on the dimensions of the bot(s).
- The weight of the machine should not exceed 15 Kgs (33.07 Lbs.), which includes the weight of any pneumatic source/tank. All pneumatic tanks/source and batteries should be on board. Only the weight of the remote controller will not be counted.
- A bot can be in a "Cluster Bot" formation. Each bot must meet the requirements described in this problem statement. The total weight of all the bots and the dimensions of the combination of bots must satisfy the above two points.
- Robots with pneumatic or hydraulic mechanisms or electric lifters are allowed.
- Offensive and defensive both bots are allowed
- Manually operated jumping and hopping are allowed. However, the maximum height of any part of the machine should not exceed 6ft during any stage of its jumping/hopping and any damage caused due to this mechanism is solely the responsibility of the team.

Battery and Power :

- The machine must be powered electrically. Use of an IC engine in any form is not allowed. On board batteries must be sealed, immobilized-electrolyte types (such as gel cells, lithium, NiCad, NiMH, or dry cells).
- The electric voltage between any 2 points on the machine should not exceed 24V DC at any point in time. Participants will have to bring their own converters for standard power supply Participants must protect the battery terminals from a direct short and causing a battery fire, failure to do so will cause direct disqualification.
- Use of damaged, non-leak proof batteries may lead to disqualification.
- Special care should be taken to protect the on board batteries. If the judges find that the battery is insufficiently protected, the team will be disqualified immediately.
- Change of battery will not be allowed during the match.
- Only bots with on-board batteries will be allowed.

Weapon Systems:

Robots can have any kind of magnetic weapons, cutters, flippers, saws, lifting devices, spinning hammers etc. (if they qualify the criteria mentioned below) as weapons.

Following weapons cannot be used:

a. Liquid projectiles (Foam, liquefied gases)

b. Any kinds of inflammable liquids

Match Duration:

Matches will consist of 3 minutes of active fight time exclusive of any time-outs. Hence, it is not binding but advisable to keep battery capacity, power usage and machine defences such that they can sustain a 3- minute fight.

Arena Specification

The out-to-out dimension of the arena will be 15ft x 15ft x 1ft (l x b x h)*. As well as arena will be function able.*these figures/parameters are subject to change.

Judging Criteria:

Each competitor will be assessed on following judging criteria listed below:

1. The bot should be made on prescribed criteria that are given by the organizer.

2. A robot is declared victorious if its opponent is immobilized.
   - A robot will be declared immobile if it cannot display the linear motion of at least one inch in a time period of 10 seconds.
   - A robot that is deemed unsafe by the judges after the match has begun will be disqualified and therefore declared the loser. The match will be immediately halted and the opponent will be awarded a win.
   - If a robot is thrown out of the arena the match will be stopped immediately, and the robot inside the arena will automatically be declared as the winner.
   - If a bot gets stuck inside the arena due to the deformity of the arena itself. The timer will be stopped and the bot will be released by the safest means.
   - Points will be given on the basis of aggression, damage and control.

3. The judge's decision will be final; no requested from participant will be entertained.



2 - ROBO **RACE** COMPETITION

Objective:

Design a wireless Bot within the specified dimensions that can operated manually and can travel through all turns of the track. The robot that will complete the specified task in least time will be the winner. Think your robot can overcome any obstacle-big or small in the least of time.

Weight Limit:

The total weight of the robotic competition bot, including all components, attachments, and batteries, should not exceed 3 kilograms.

Competition Arena:

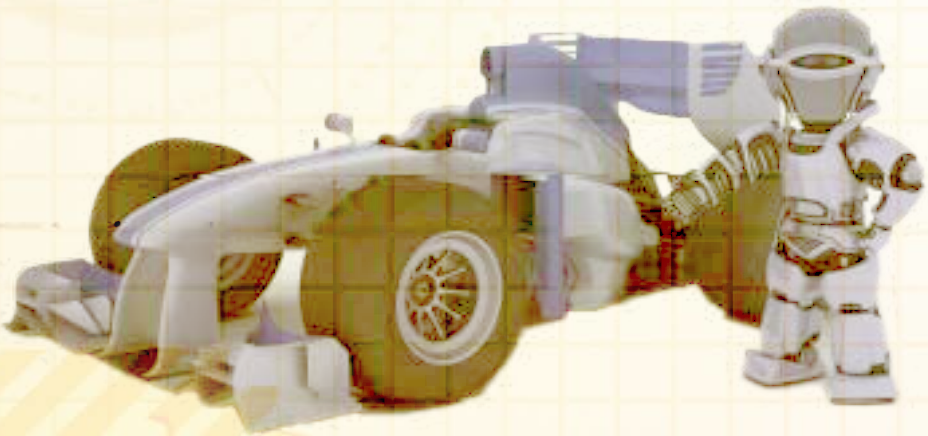
The competition will take place within a designated arena with defined boundaries and obstacles. The bot should be designed to navigate and complete tasks within this arena.

Technical Failures:

In the event of technical failures or malfunctions during the competition, teams may be allowed a limited number of restarts or repairs, depending on the competition rules.

Judges' Decision:

Decisions made by the judges regarding bot performance and rule compliance are final.



3 - ROBO **SOCCER** COMPETITION

Objective:

The objective of this competition is to design and build a robot capable of playing football game within a limited time frame.

Field Dimensions:

The field dimensions are usually standardized and may vary depending on the league within management. A standard size for the field is often used, with markings for goals, penalty areas, and the centre circle.

Game Duration:

Matches are usually played in two halves, with each half lasting a specified amount of time, typically between 5 and 10 minutes.

Game Start:

1. Matches begin with a kick-off from the centre circle.
2. Robots must be placed in their own half before kick-off.

Scoring:

Goals are scored when the entire ball crosses the goal line.

Off sides:

Off side rules may or may not be enforced, depending on the competition rules.

Winning Criteria:

1. The team that scores the most goals within the allotted time wins the match.
2. In the case of a tie, some competitions may have overtime or penalty shootouts to determine the winner.

4 - ROBO **TALK**

Objective:

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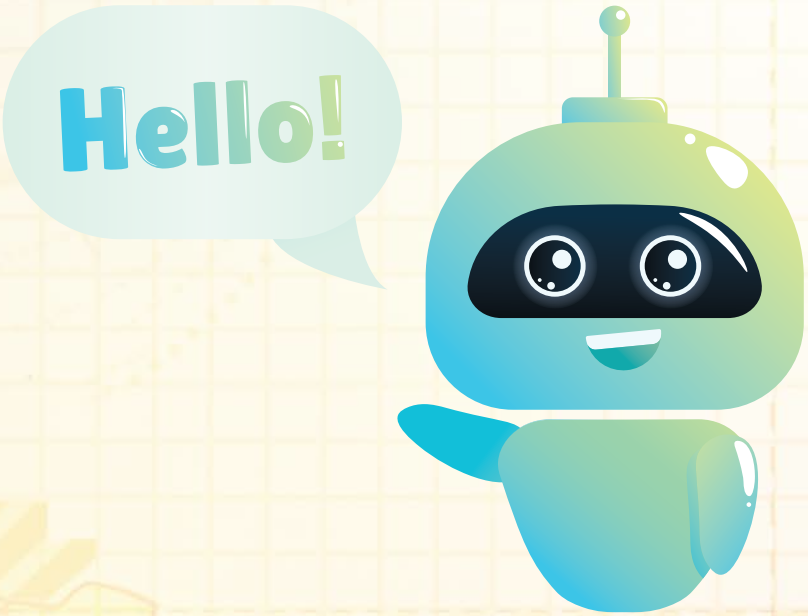
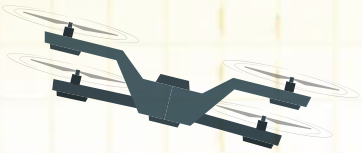
1. State the specific objectives and goals of your project.
2. Highlight what you aim to achieve through your robotics solution.
3. Explain how you approached the development phase, including materials, components, and technology used.
4. Presentation should be maximum 5- minutes
5. Detail how you implemented your design, including software and hardware components.
6. Discuss any innovative or unique aspects of your implementation.
7. Highlight any innovative technologies or approaches used in your project.
8. If possible, include live robot demonstrations or pre-recorded videos to showcase your project's functionality.
9. Use visuals like slides, diagrams, and images to enhance understanding.
10. Encourage audience interaction through questions and answers.
11. Allocate time for a Q&A session after your presentation
12. Be prepared to provide detailed responses to questions from the audience and judges



5 - **DRONE** RACING



Objective:

The challenge is to build a drone within the specified dimensions that are aerodynamically stable to achieve a successful flight.

Design Specifications

Specifications:

- An individual may participate or construct a team of a maximum 4 members. Any institution (School/College/University/Vocational Institution) or group of students may form a team.
- The team has to design and construct a drone (Tri, Quad, or Hexa) with the following specifications:
  i. The complete Drone (including Battery and landing gear) should be of length minimum 40cm*40cm (L*B) and maximum 75cm*75cm (LxB) (Measured diagonally – motor shaft to shaft / Wheel Base of the Drone frame)
  ii. Drone weight maximum 2Kg(includingbattery).
- There is no restriction on the use of any frame material or specification of the BLDC Motors, Electronic Speed Controllers, Propellers, and Batteries of the Drone.
- The Drone must be electrically powered only

Drone Racing Track:

The field area would be approx. 100 meter square

- There are marked/specified regions/spots to take off and land the drone.
- Hurdles will be placed at different locations in the arena.
- Fields will have arrows marked to depict the manoeuvring path.
- Specific checkpoints will be defined in the arena for changing the batteries, adjusting gains, calibration of sensors, etc.
- The arena consists of Circular, Rectangular as well as Square shape.
- Time will be given to the teams for charging their batteries at the completion of every stage. The requirement of time of charging the batteries during the conduct of competition will not be entertained

Match Duration:

Matches will consist of 3 minutes of active fight time exclusive of any time-outs. Hence, it is not binding but advisable to keep battery capacity, power usage and machine defences such that they can sustain a 3- minute fight.

Drone Game Play

- Rescue Boxes will be kept in the area, which is picked up by Drone and drop this box in targeted place (Rescue box is about 50 grams).
- Points will be awarded after completing each Hurdle with the defined timeline.
- Participant get extra point when Rescue box placed in targeted place.
- The team completing the round in the minimum time to complete the round and scoring the maximum point will be nominated as the winner of the competition.

3. The judge's decision will be final; no requested from participant will be entertained.

6 - **PICK** AND **PLACE**

Objective:

The objective of this competition is to design and build a robot (wired/wireless) capable of picking up objects from one location and accurately placing them in another location within a limited time frame.

Robot Dimensions:

1. The robot's dimensions must not exceed 30 cm (length) x 25 cm (width) x 25 cm (height) . The Gripper of the bot counts in high from the Ground only.
2. The tolerance of dimension of bot is acceptable +-5%
3. The robot's weight should not exceed 4 kilograms.

Game Elements:

Objects: Use standardized objects of various shapes (include Cube, Cylinder and sphere etc.) and sizes that the robot needs to pick up and place.

The size of the Cube is 100mm, Diameter of the cylinder is 100mm and 120mm height and diameter of the sphere is 71mm.

Placement Area:

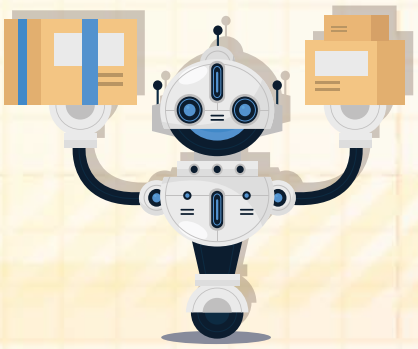
Define a designated area where the objects must be placed by the robot.

Competition Rules:

1. **Starting Point:** All robots must start from a designated starting point.
2. **Object Placement:** The robot must pick up objects from a specified location and place them in the designated placement area.
3. **Object Recognition:** Robots should be able to recognize and differentiate between the objects they need to pick up.
4. **Scoring:** Award points for each successfully picked up and correctly placed object within the time limit.
5. **Deductions:** Deduct points for any rule violations, such as touching the robot during the competition or exceeding the size and weight limits.
6. **Restart Option:** Allow teams a limited number of restarts in case of technical issues or failures during the competition.

Judging Criteria:

1. **Points Earned:** Total points earned by the robot withinthe time limit.
2. **Time Taken:** In case of a tie in points, the robot that completes the task in the shortest time wins.
3. **Rule Adherence:** Robots that follow the rules and guidelines without violations will be favoured.



MAHARISHI **botFiesta** 2024 - **PRIZE MONEY** INSTRUCTIONS

Eligibility for Prize Money:

- Participants must register and compete in the respective events to be eligible for prize money.
- Teams or individuals who place in the top positions (1st & 2nd) as per the event rules will be eligible for prize distribution..

Disqualification:

- Teams or participants found violating competition rules or engaging in unethical behaviour will forfeit their eligibility for prize money.

Disbursement Process:

- Prize money will be transferred electronically to the registered bank accounts of the winning participants/teams.
- Winners must provide valid identification and banking details (Pan Card, Bank passbook photocopy, Adhar Card)at the time of registration.

In Case of a Tie:

- If two or more teams/participants achieve the same result, the prize money will be split equally among the winners.

Tax Deductions:

- Prize money may be subject to applicable taxes as per government regulations.
- Participants are responsible for any tax implications associated with the prize.

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