



# CONNAISSANCE 2024



## 1. ROBO RACE (Duel Style)

### PROBLEM STATEMENT

- Each participating team has to make a manually controlled robot that will navigate through the obstacles in the arena.

### EVENT DESCRIPTION

- Think your robot can overcome any obstacle, big or small and beat the other robots? Then you have come to the right place. The arena will consist of different kinds of obstacles, slippery paths and incline
- One who completes the given path in the least time by passing through all the check posts will be declared as the winner.

### PRIZE MONEY

- Register with Rs. 399/- per team and get a chance to win a cash prize worth Rs. 6000/- and for runner up Rs. 4000/-
- The winners will be awarded a certificate of excellence and the next top 2 teams will be given a certificate of appreciation.

### ROBOT SPECIFICATIONS

- The robot should be manually operated.
- SIZE should be minimum of 200mm×200mm(L×B)
- SIZE should not exceed 300mm x 300mm (L x B)
- The voltage at any point on the electrical connections should not exceed 12 V DC. No AC source would be provided.
- The weight of the robot should not exceed 5 kg.

**NOTE: The robot will be disqualified if it does not satisfy the above-given specifications.**

## **RULES AND GUIDELINES**

- All teams should produce the robots to the organizers for inspection before starting the race.
- If a team is not ready at the time of competition, the organizer has the right to disqualify the team.
- Rules are subject to change under unavoidable circumstances, as the teams will be informed of any changes made through email and text or informed by the referee before the commencement of the match.
- Participants should not dismantle their robots before the results are announced. The organisers may request to produce the robot for inspection, in case of any suspected rule violations.
- The organizer's decision will be the final decision

## **GAMEPLAY**

### **Initial Setup**

- Before the event, each team will be allotted 5 minutes to test their robots in the arena.
- During the event, each team will be given 5 minutes to set up their robot in the arena.
- After the game starts, only one member of a team will be allowed to enter the arena.

### **Game Procedure**

- The robots will have to start from the starting point specified by the organisers.
- The bot should always stay in its tracks.
- If the robot deviates out of the track, it will be reset back to the checkpoint.
- The team can also request the robot to be reset, in case of any technical issues. The game should be resumed within 2 minutes of calling a reset,
- A robot can be reset only up to 3 times, after which it will be disqualified.
- Each time the robot hits the walls of the arena, then the robot must start from the previous checkpoint. The game is completed when the robot reaches the exit points.



# CONNAISSANCE 2024



## 2. ROBO RACE (Time Trial)

### PROBLEM STATEMENT

- Each participating team has to make a manually controlled robot that will navigate through the obstacles in the arena and make it in least time

### EVENT DESCRIPTION

- Think your robot can overcome any obstacle, big or small and beat the other robots? Then you have come to the right place. The arena will consist of different kinds of obstacles, slippery paths and incline
- One who completes the given path in the least time by passing through all the check posts will be declared as the winner.

### PRIZE MONEY

- Register with Rs. 399/- per team and get a chance to win a cash prize worth Rs. 6000/- and for runner up Rs. 4000/-
- The winners will be awarded a certificate of excellence, and the next top 2 teams will be given a certificate of appreciation.

### ROBOT SPECIFICATIONS

- The robot should be manually operated.
- SIZE should be minimum of 200mm×200mm(L×B)
- SIZE should not exceed 300mm x 300mm (L x B)
- The voltage at any point on the electrical connections should not exceed 12 V DC. No AC source would be provided.
- WEIGHT of the robot should not exceed 5 kg

**NOTE: The robot will be disqualified if it does not satisfy the above-given specifications.**

### RULES AND GUIDELINES

- All teams should produce the robots to the organizers for inspection before starting the race.

- If a team is not ready at the time of competition, the organizer has the right to disqualify the team.
- Rules are subject to change under unavoidable circumstances as the teams will be informed of any changes made through email and text or informed by the referee before the commencement of the match.
- Participants should not dismantle their robots before the results are announced. The organizers may request to produce the robot for inspection, in case of any suspected rule violations.
- The organizer's decision will be the final decision

## **GAMEPLAY**

### **Initial Setup**

- Before the event, each team will be allotted 5 minutes, for testing their robots in the arena.
- During the event, each team will be given 5 minutes to set up their robot in the arena.
- After the game starts, only one member of a team will be allowed to enter the arena.

### **Game Procedure**

- The robots will have to start from the starting point specified by the organizers.
- The bot should always stay in its tracks.
- If the robot deviates out of the track, it will be reset back to the checkpoint.
- The team can also request the robot to be reset, in case of any technical issues. The game should be resumed within 2 minutes of calling a reset,
- A robot can be reset only up to 3 times, after which it will be disqualified.
- Each time the robot hits the walls of the arena, then the robot must start from the previous checkpoint. The game is completed when the robot reaches the exit points.
- None of the checkpoints are to be skipped. The robot can reach the exit only after passing through all the checkpoints



# CONNAISSANCE 2024



## 3. ROBO SOCCER

### PROBLEM STATEMENT

Design a robot which plays soccer. The robot would compete against other robots in a one-on-one match.

### EVENT DESCRIPTION

Are you a lover of both football and robotics? Then this is the right place for you to combine the two and showcase your talent. **Robo Soccer** is a game of soccer played by robots between two robots.

### PRIZE MONEY

- Register with Rs.399/- per team and get a chance to win a cash prize worth Rs.6000/- for winners and Rs.4000/- for runner-up.
- The winners will be awarded a certificate of excellence and the next top 2 teams will be given a certificate of appreciation.

### AREA SPECIFICATION

- The soccer field dimensions are 250cm x 250cm.
- The start of the robot is 500mm x 500mm. (The robots must be able to remain completely inside the starting zone before the start of the game)

### ROBOT SPECIFICATIONS

- SIZE should not exceed 300mm x 300mm (L x B)
- The voltage at any point on the electrical connections should not exceed 12 V DC. No AC source would be provided.
- The WEIGHT of the robot should not be more than 5 kg.
- The robots are not allowed to use grippers or actuation which are intended to harm the opponent's robot.

**NOTE: The robot will be disqualified if it does not satisfy the given specifications.**

### RULES AND REGULATIONS

- Each team will have to defend the goal on its side as well as score the goal on the opposite side.
- There will be one robot participating on each side and they will have a soccer match between them.
- The match-ups are decided randomly by lots based on the number of teams participating.
- A team can only enter one robot, taking into consideration that the total weight of the controller and batteries should not exceed 5kg. (This means that whatever components the participants enter onto the field should not weigh more than 5kg.)
- The robots must be able to remain completely inside the start zone (500mm x 500mm) before the start of the game.
- The game will start at the count of 3 given by the referee, followed by a whistle. In case a team starts its robot before the whistle, the game restarts and a team making this mistake more than 3 times will be disqualified.
- The ball can be either dragged or pushed by the team. A robot can move freely in the given field (250cm x 250cm).
- Each goal scored by a team by rolling the ball into the goal will fetch the team +1 point.
- Any foul committed in the game will lead to a -1 point. (Fouls include wire touching the ground or manually touching the robot during the progress of the game).
- The game will last for 5 minutes and the team scoring the maximum points will win the game.
- Maximum 2 members per team will be allowed to remain close to the field for operating the robots.
- In case of a jam-up of robots for more than 30 seconds the robots will have to kick off again at the order of the referee.
- Any act of misbehaviour or misconduct will lead to immediate disqualification of the team.

- The competition is aimed at making the game a friendly football match rather than a robot war.
- All fouls will be explained by the referee before the start of the match.
- In case of any discrepancy, the final decisions rest in the hands of the event organizers.

**NOTE: The organizers reserve all rights to change any of the above rules at any point of the event if the circumstances deem it necessary and his/her decision will be final.**

### **PARTICIPATION**

- Participants can register in teams of 1-3 people.
- Students from different educational institutes can form a team.
- All participants must have a valid ID card from their educational institute



# CONNAISSANCE 2024



## 4. ROBO COMBAT

### PROBLEM STATEMENT

- Design a robot that can wrestle. The robot would compete against other robots in a one vs one match.

### EVENT DESCRIPTION

- Do you want to experience the wrestling mania between the robots? Then come & join the Robo Combat event at CONNAISSANCE- 2024. Each participating team has to prepare a manually operated robot that will fight against the opponent's robot in the arena. Whoever comes out of the arena will be eliminated and the remaining will be declared the winner.

### PRIZE MONEY

- Register with Rs.399/- per team and get a chance to win a cash prize worth Rs. 6000/- for winners and Rs.4000/- for runner-up.
- The winners will be awarded a certificate of excellence ,and the next top 2 teams will be given a certificate of appreciation.

### ROBOT SPECIFICATIONS

- The robot should be manually operated and must have four wheels.
- Size of the robot should not exceed 300mm x 300mm(L\*B).
- Weight of the robot must not exceed 5kg for the robot combat.
- The diameter of the wheels should not exceed 65mm for the robot. The maximum potential difference between any two points on the robot must not exceed 24 volts.

**NOTE: The robot will be disqualified if it does not satisfy the given specifications.**



## **AREA SPECIFICATION**

- The combat arena dimension for the robot is 130cm x 210cm.

## **RULES AND GUIDELINES**

- All teams should produce the robots to the organizers for inspection before starting the race.
- If a team is not ready at the time of competition, the organizer has the right to disqualify the team and he/she can announce the opponent team as the winner.
- The organizer cannot be held responsible for minor/major scratches left in the arena by previous competitors.
- Rules are subject to change under unavoidable circumstances and the teams will be informed of any changes made through email and text or informed by the referee before the commencement of the match.
- Participants should not dismantle their robots before the results are announced. The organisers may request to produce the robot for inspection, in case of any suspected rule violations.

**NOTE: The organizers reserve all rights to change any of the above rules at any point of the event if the circumstances deem it necessary.**

## **GAMEPLAY**

### **Initial Setup**

- Before the event, each team will be allotted 5 minutes, for testing their robots in the arena
- During the event, each team will be given 5 minutes to set up their robot in the arena.
- After the game starts, only one member of a team will be allowed to enter the arena.

### **Game Procedure**

- The robots will enter the arena on the call of the organizer.
- The combat consists of 3 rounds of 2 minutes for each round.
- The robot standing in the arena till the end of 2 minutes will be secure one point.

- At the end of three rounds, whoever has scored more points will be declared as the winner.

**NOTE: The organizers reserve all rights to change any of the above rules at any point of the event if the circumstances deem it necessary.**

## **PARTICIPATION**

- Participants can register in teams of 1-3 people.
- Students from different educational institutes can form a team.
- All participants must have a valid ID card from their educational institute.



# CONNAISSANCE 2024



## 5. MAZE RUNNER

### EVENT DESCRIPTION

- Think of your robot can find the finest path in the maze puzzle, in the least time? Then you've come to the right place to compete against other robots and stand a chance to win exciting prizes.

### PROBLEM STATEMENT

- Each participant must build a manually controlled robot within the give specifications, which can get out of the maze in the shortest possible time. The robot which will start from the START point and reach the FINAL point in the shortest period will be declared as the winner.

### PRIZE MONEY

- Register with Rs.399/- per team and get a chance to win a cash prize worth Rs. 6000/- for winners and Rs.4000/- for runner-up.
- The winners will be awarded a certificate of excellence and the next top 2 teams will be given a certificate of appreciation.

### ARENA

- The walls of the maze will be 5-15cm high.
- Passageways between the walls will be 30cm wide.

### ROBOT SPECIFICATIONS

- The bot must fit into a cube of 200mm x 200mm (LxB) at all times.
- The maximum potential difference between any two points on the robot should not exceed 12 volts.
- The robot should be manually operated.

**NOTE: The robot will be disqualified if it does not satisfy the given specifications.**

## **GENERAL RULES**

- All teams will have to produce their robots for inspection by the organiser when asked. If they are found to be unsafe or violate the specifications in any way, that team will be disqualified.
- If a team is not ready at the time of the competition, the organiser has the right to disqualify them.
- Any damage caused to the arena, will lead to disqualification.
- The organizer cannot be held responsible for minor scratches left in the arena, by a previous team.
- Participants should not dismantle their robots before the results are announced. The organizers may request to produce the robot for inspection, in case of any suspected rule violations.
- Rules are subject to change under unavoidable circumstances and the teams will be informed of any changes made through email and text.
- The organizers reserve all rights to change any of the above rules at any point of the event if the circumstances deem it necessary and his/her decision is final.

## **GAMEPLAY**

### **Initial Setup**

- Before the event, each team will be allotted 5 minutes, for testing their robots in the arena.
- During the event, each team will be given 5 minutes to set up their robot in the arena.
- After the game starts, only one member of a team will be allowed to enter the arena. |

### **Game Procedure**

- The robots will have to start from the start point specified by the organizers.
- The arena will have several goal points, key-points, bonus points and multiple exits. Each of these will be marked as coloured squares/triangles in the arena.
- 10 points will be awarded when the bot moves over a goal point square, 20 points for bonus point square and 30 points for crossing the key point triangle.
- These points will be awarded only if the front wheel of the travels more than 3/4th the length of the square.
- To be eligible to pass through any of the exits, the robot will have to go through the key-point triangle.

- A robot will not be awarded any points for crossing the same square more than once.
- The bot should always stay within its tracks.
- If the robot deviates out of the track, it will be reset back to the start point.
- The team can also request the robot to be reset, in case of any technical issues.
- In case of reset, 40 points will be deducted.
- A robot will not be awarded any points for crossing the same square more than once, even after a reset.
- A robot can be reset only up to 3 times, after which it will be disqualified.
- The maximum time allowed for a robot in the arena is 5 minutes, irrespective of resets. When a reset is called, the timer will be paused till the robot starts again.
- The game should be resumed within 2 minutes of calling a reset.
- The game is completed when the robot reaches any of the exits, given exit conditions are met.
- The points and game time may change.
- Participant with highest points is announced as winner.

**NOTE:** The organizers reserve all rights to change any of the above rules at any point of the event if the circumstances deem it necessary.

## **PARTICIPATION**

- Participants can register in teams of 1-3 people.
- Students from different educational institutes can form a team
- All participants must have a valid ID card from their educational institute.



# CONNAISSANCE 2024



## 6. All Terrain Off-road Race

### PROBLEM STATEMENT

- Each participating team has to make a manually controlled robot that will navigate through the obstacles in the arena.

### EVENT DESCRIPTION

- Think your robot can overcome any obstacle, big or small and beat the other robots? Then you have come to the right place. The arena will consist of different kinds of obstacles, slippery paths and incline
- One who completes the given path in the least time by passing through all the check posts will be declared as the winner.

### PRIZE MONEY

- Register with Rs. 399/- per team and get a chance to win a cash prize worth Rs. 6000/- and for runner up Rs. 4000/-
- The winners will be awarded a certificate of excellence, and the next top 2 teams will be given a certificate of appreciation.

### ROBOT SPECIFICATIONS

- The robot should be manually operated.
- SIZE should be minimum of 200mm×200mm(L×B)
- SIZE should not exceed 300mm x 300mm (L x B)
- The voltage at any point on the electrical connections should not exceed 12 V DC. No AC source would be provided.
- The weight of the robot should not exceed 5 kg

**NOTE: The robot will be disqualified if it does not satisfy the above given specifications.**

### RULES AND GUIDELINES

- All teams should produce the robots to the organizers for inspection before starting the race.
- If a team is not ready at the time of competition, the organizer has the right to disqualify the team.
- Rules are subject to change under unavoidable circumstances, as the teams will be informed of any changes made through email and text or informed by the referee before the commencement of the match.
- Participants should not dismantle their robots before the results are announced. The organisers may request to produce the robot for inspection, in case of any suspected rule violations.
- The organizer's decision will be the final decision

## **GAMEPLAY**

### **Initial Setup**

- Before the event, each team will be allotted 5 minutes to test their robots in the arena.
- During the event, each team will be given 5 minutes to set up their robot in the arena.
- After the game starts, only one member of a team will be allowed to enter the arena.

### **Game Procedure**

- The robots will have to start from the starting point specified by the organisers.
- The bot should always stay in its tracks.
- If the robot deviates out of the track, it will be reset back to the checkpoint.
- The team can also request the robot to be reset, in case of any technical issues. The game should be resumed within 2 minutes of calling a reset,
- A robot can be reset only up to 3 times, after which it will be disqualified.



# CONNAISSANCE 2024



## 7. DRONE RACE

### EVENT DESCRIPTION:

- The participants have to build a drone within the specified dimensions
- that are aerodynamically stable to achieve a successful flight.

### PRIZE MONEY:

- Register with Rs. 499/- per team and get a chance to win a cash prize worth Rs. 6000/- and for runner up Rs. 4000/-
- The winners will be awarded a certificate of excellence, and the next top 2 teams will be given a certificate of appreciation

### DRONE SPECIFICATIONS:

- Maximum frame size: 250mm.
- Maximum of 4 motors will be allowed.
- Motor size: Not more than 2300W.
- KV Rating: Not more than 2500V.
- Propeller diameter should not be greater than 6 inches.
- Only electrical motors are allowed.
- Use of stabilization board and programming assistance in receivers is not allowed.
- No ready-made quadcopters are allowed.
- No metal propellers should be used.

### RULES AND REGULATIONS:

- All teams should produce the drones to the organizers for inspection before starting the race.
- If a team is not ready at the time of competition, the organizer has the right to disqualify the team.
- Rules are subject to change under unavoidable circumstances and the teams will be informed of any changes made through email and text or informed by the referee before the commencement of the match.



- Participants should not dismantle their drones before the results announced.
- The organisers may request to produce the drone inspection, in case of any suspected rule violations.
- The organizer's decision will be final.

## **GAMEPLAY:**

### **Initial setup:**

- Before the event each team will be given 5 minutes to test and set up their drones.
- After the commencement of the event only one person will be allowed to enter the arena.

### **Game procedure:**

- The drone must take off from the START point and reach the FINISH point, in the given path.
- There may be hurdles in the given path.
- The timer will start when the drone takes off from the START point and the timer will stop when the drone reaches the FINISH point. ;
- The drone which takes the least amount of time to reach the FINISH point will be declared as the winner.

## **PARTICIPATION:**

- Participants can register in teams of 1-3 people.
- Students from different educational institutes can form a team.
- All participants must have a valid ID card from their educational institute.