



IIIT
NAYA RAIPUR
TECHNOVATE 2020



ROBO CROSS

PROBLEM STATEMENT

Design a robot either wired or wireless that can be operated manually and can travel through all turns of the track. The robot that will complete the specified task with maximum points will be the winner. Think your robot can overcome any obstacle-big or small in a specified time.



COMPETITION DESIGN

- 1) The competition is point based, there will be qualifying round for each team .
- 2) Top 8 teams from qualifying round makes it to the semi-final round.
- 3) The top 3 teams from qualifying round makes it to the final round on basis of points.



ROBOT SPECIFICATIONS:-

- 1) The maximum dimension of the robot can be 25 cm x 20cm x15 cm (l x b x h).
- 2) The robot may be wired or wireless.
- 3) The length of the wire (for wired bots) should be long enough to cover the whole track (around 17m or more) and the wire should remain slack during the complete run.
- 4) Maximum weight must not exceed 4 kg.
- 5) The participants will be provided with 220 Volts, 50Hz standard AC supply. Participants will have to themselves arrange for adaptor or batteries.
- 6) The machine must not be made from Lego parts, or any ready-made kit, if we find such machine it will be disqualified.
- 7) The machine must be powered electrically only. Use of IC engine is not allowed.
- 8) The electric voltage anywhere in the machine should not be more than 12V DC at any point of time.
- 9) However a tolerance of 5% is acceptable.



GAME RULE:-

1) Wires should remain slack during the course of the run. Pulling the wire to aid the robot in traversing may lead to disqualification.

1) If any of the robots starts off before start up call, the counter would be restarted and the machines will get a second chance. If repeated again then team will be disqualified.

3) There will be 3 checkpoints, If the Robot crosses a checkpoint, and moves off track, then the Robot would be placed back on the previous checkpoint crossed.

4) During the game play, if any part of a robot is destructed/ dismantled/ damaged the participant will be given a timeout to repair at an expense of a penalty, while the next participant will be called for play.

5) Only 1 timeout will be given for any participant and the participant will repair it without the help from the mentor.

6) Points will be awarded on the basis of the difficulty of obstacles .

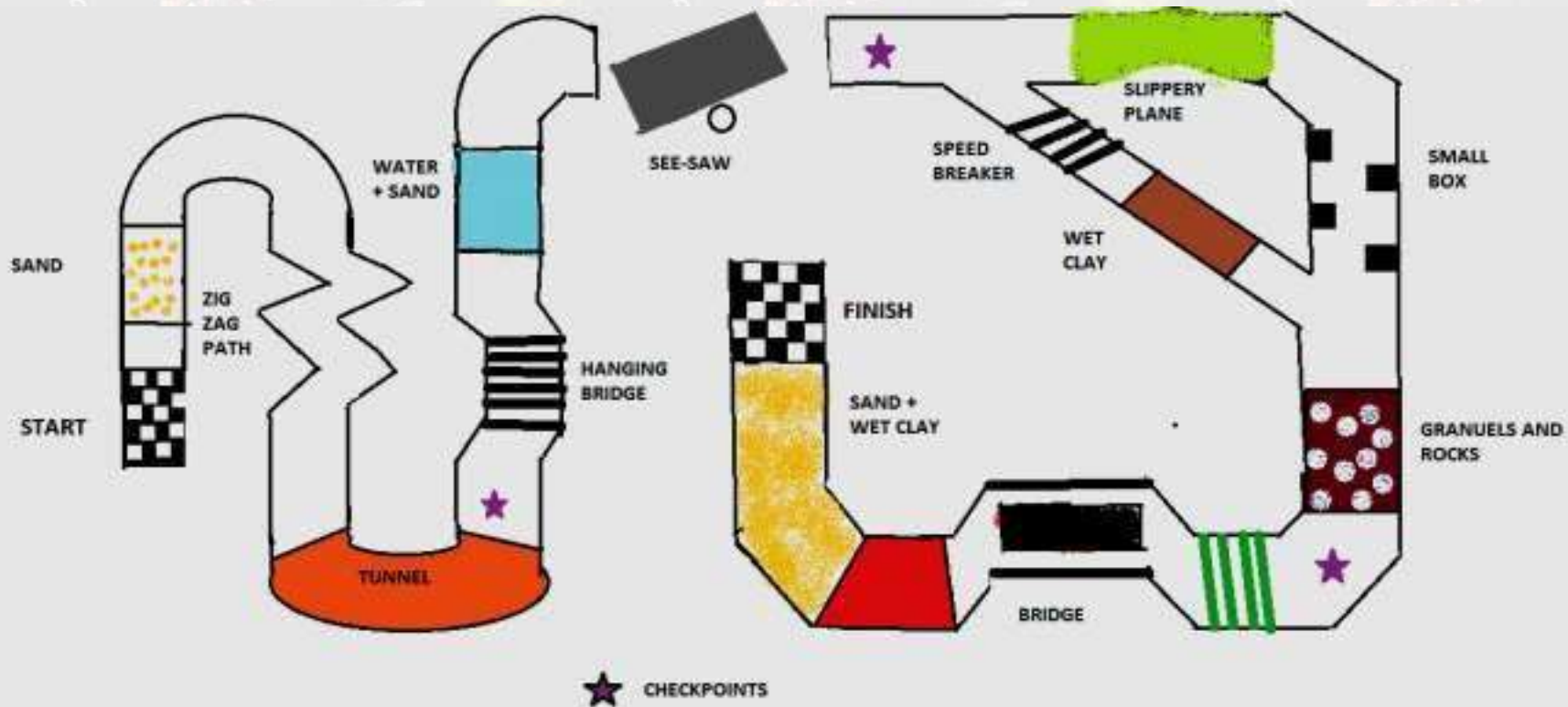


TRACK SPECIFICATION:-

- 1) The track surface and course line may have unevenness.
- 2) There will be certain obstacles in the race track which will try to slow down the robo.
- 3) Arena will consist of :-
 - Sand, slippery plane and wet clay
 - Speed breaker , granules and rocks
 - Hanging bridge and tunnels
 - Zigzag path and boxes
 - See-saw
 - Hollow bridge



The track will almost look like--





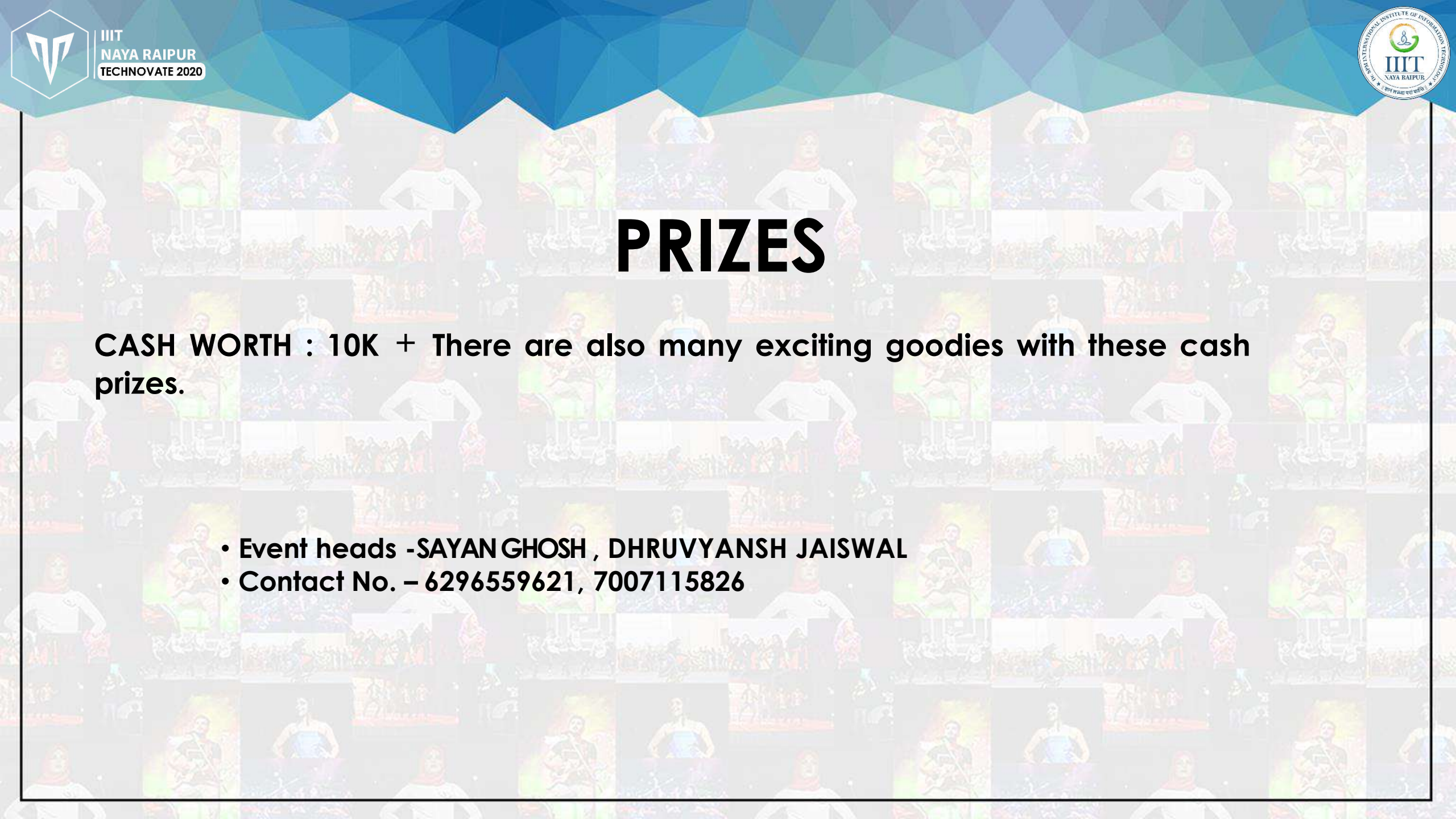
Some Important points regarding point distribution:-

- 1) Different hurdles are listed below along with the points given to successfully cross the hurdles.
 - Sand, slippery plane , wet clay ,Speed breaker , granules and rocks +2pt
 - Hanging bridge , tunnels, Zigzag path and boxes +4pt
 - See-saw, Hollow bridge +6pt
- 2) Participant can skip any of the obstacles but negative points will be added in their final score.
 - Sand, slippery plane , wet clay ,Speed breaker , granules and rocks -0.5pt
 - Hanging bridge , tunnels, Zigzag path and boxes -1pt
 - See-saw, Hollow bridge -1.5pt
- 3) Maximum of 7 min will be given to complete the whole arena.



GENERAL RULES:

- 1) This is racing event so fastest and most balanced robot will win.
- 2) Robot should be as per the given specifications.
- 3) Each team can have maximum three members . Students from different institutes can also form a team.
- 4) The robot should not damage the arena.
- 5) No test practice will be allowed on the arena.
- 6) The robot must not leave behind any of its parts during the run, it may result in disqualification.
- 8) Unethical behavior could lead to disqualification. Coordinators have all the rights to take final decision for any matter during the event.



PRIZES

CASH WORTH : 10K + There are also many exciting goodies with these cash prizes.

- **Event heads -SAYAN GHOSH , DHRUVYANSH JAISWAL**
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