# Avishkar-2019

# Mind The Traffic

## Introduction

This event is focussed on designing an intelligent autonomous vehicle which will be performing each action automatically, usually performed by you putting lots of efforts behind the steering wheel. This may include different kinds of perception tasks, identifying road signs, other vehicles and pedestrians, predicting their actions, as well as making multiple decisions to maneuver safely through traffic.

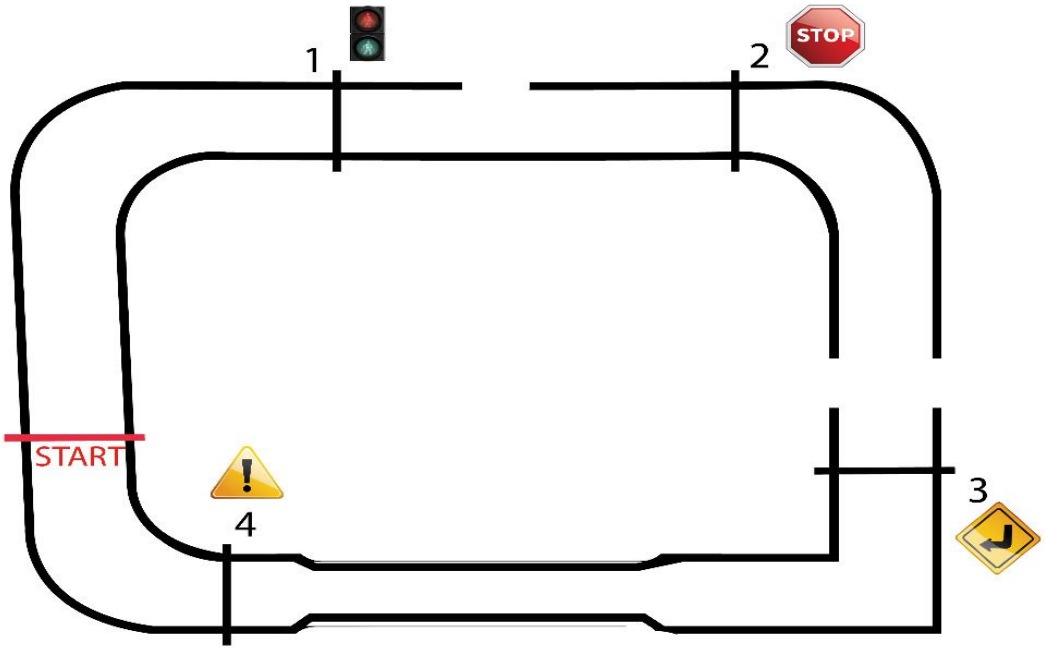
To successfully implement the problem statement, you need to master a lot of skills which mainly include Neural networks, Machine Learning, image processing, Python, Raspberry pi and communication between devices.

## Game Play

In the race part of the competition, each car has to do some laps of a race track completely autonomous. There are multiple checkpoints inside the track and cars have to cross them while navigating through the track. At every checkpoint they need to identify a road signal and every incorrect identification will result in a penalty which is discussed in detail in the score section.

As shown in the image below, the track will be drawn on the ground using two black continuous or broken sidelines. The checkpoints are shown in balck and the start/finish line is shown in red. The start/finish line will be

marked using a different color than road markings but not necessarily red.




**Mind the Traffic Arena**

# Rules and Regulations

1. A team can have a maximum of 6 members.
2. You will be provided with 220V 50 HZ AC power.
3. You can't supply more than 120W power to your robot.
4. Voltage must not be more than 24V between any two points.
5. If therobot is supplied with AC power, RMS voltage between any two points can't be greater than 24V.
6. Your Code should not be hard-coded.
7. Damaging the arena will lead to disqualification.

8. Robot must fit into a box of dimension 30 cm x25 cm x30 cm however it can expand later during gameplay.
9. Robots must not weigh more than 5Kg.
10. You are allowed to use readymade sensors.
11. Judges' decision will be final and binding to all.
12. Organizers reserve the right to change any rules or make new as they deem fit.
13. Maximum number of trials allowed are 3.
14. This event is open for all years and cross year teams are allowed.

# Score

For Checkpoint 1 : C1 : 100 points
For Checkpoint 2 : C2 : 120 points
For Checkpoint 3 : C3 : 150 points
For Checkpoint 4 : C4 : 180 points
For every correct identification of a signal : C5 : 50 points
Total time = T sec
Total Points = C1 + C2 + C3 + C4 + 50 * C5 - 2 * T

# Event Format

## Round 1: Abstract Submission

The abstract should convey the implementation of you bot describing the idea, work done and a picture of your bot in not more than 300 words. Robot design need to be submitted at the official robotics club e-mail ID roboticsclub@mnnit.ac.in with subject "TeamName_EventName_AbstractSubmission" by 7th September 2019. Abstract must be submitted in .doc or .pdf format. Abstract submission is only for outside participants.

**Round 2**: Gameplay as per the above mentioned rules.

**Final Round:**

Teams which qualified for final round, will run the bot at final day (19th September) of “Avishkar 2k19” as stated above in gameplay.

# Rules Change

These rules may change by the technical committee at any time before the competition. Teams have to check these rules regularly to make sure they know about any changes made.

# Contact Details

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