

Autonomous Vehicle Race

General Information:

- Each team shall comprise a maximum of 3 student members.
- Project cost must not exceed AED 2000.
- Students could learn easily about Arduino and Raspberry Pi by using Zero Ohm training material.
 - o [Click here for Arduino tutorials.](#)
 - o [Click here for Raspberry Pi tutorials.](#)

Background

The global industries' vision towards self-driving/autonomous cars has dramatically increased in the last few years. We can see big companies such as Google and Tesla taking big leaps in this particular field.

The purpose of this competition is to increase the student's knowledge in this field.

Competition Description

- An autonomous vehicle must be built using the platform in [this link](#) .

The robot is shown in “Figure 2 - Robot Platform”



Figure 2 - Robot Platform

- A racetrack will be built, it will contain outside guiding walls and white lines on the ground (Depicting an actual road). The actual track shape will remain anonymous.

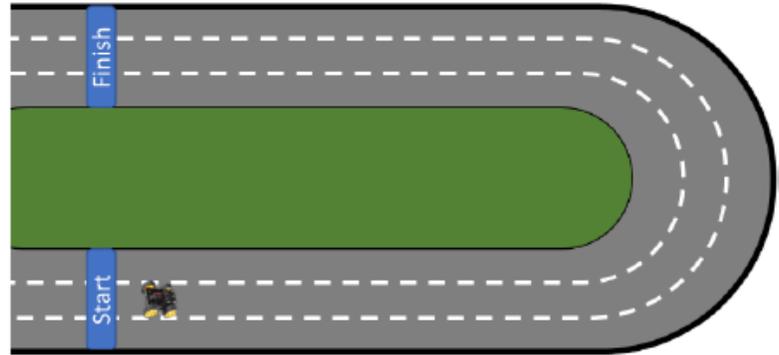


Figure 3 - Individual Racing Race Track

- Students must build a navigation system that enables the vehicle to follow the lane to reach to the “Finish” line.
- The student will be free to develop their own methods to achieve the self-driving goal of this competition, however, the vehicle must be autonomously driven with no human intervention.
- Student are free to choose any type of controller and programming language (arduino, raspberry pi...etc.).
- The autonomous driving must be activated after powering up the vehicle and waiting for a “Start” button. The starting button implementation method is a free choice.
- The motors should not be operated at more than 5v.
- The teams will go one by one on the race track.
- Teams will be allowed to adjust their vehicles 2 times only.
- If a vehicle gets stuck more than two times the traveled distance from the start line will be recorded.
- The team how reaches the furthest WINS.
- If two or more team reached the same travel distance then the team who reached the fastest will WIN.