2021 年臺灣國際科學展覽會
優勝作品專輯

作品編號　**100047**

參展科別　**工程學**

作品名稱　**Autonomous Vehicle**

國　　家　**Nepal**

就讀學校　**Brainycube Research Organization**

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關鍵詞　**Automatic、Vehicle、Driverless**

作者照片

Abstract

This is the self-driving and navigating vehicle which follows a track. This robot is made by our group. We made this robot together assembling the parts. This robot is commonly used in industries to shift goods and product. In this robot we have arranged all the things also metal detector which buzz when a metal is detected under it.

This robot helps a lot in industrial life and is also easy to make if we learn the steps. This robot also needs programming to make it work. The programming software used for it is known as Arduino IDE. This is the figure of this robot in industries.

Here the people are keeping goods in the pickup and shifting them. This robot can also run in white track, only if we do the programming right for the white track. Nowadays in cars too this type of system is used like example: Tesla model X. In the car this system is used and to avoid the obstacles something named Lidar is used. To make this vehicle follow its track and the motor to run different things are used like IR Sensor, and L298N motor driver module respectively.

Background

The self-driving and navigating vehicle is made for different working purposes. This robot is commonly used in industries. They attach a big pickup at the back of robot; there is also a track on the floor to indicate the robot a way. They keep the goods and supply on the pickup and the robot follows the track denoting its way and it helps in supplying goods. This robot is made for different purpose.

This robot follows its track by the help of IR sensor. The L298N motor driver module helps the motor to go in different direction like left, right, front, back. At the last when the robot stops the distance between ultrasonic sensor and obstacles is shown in LCD display and the servo motor helps the ultrasonic sensor to move left and right. The Arduino UNO is connected to laptop and the program is written in the laptop. Then all the things are controlled according to it. The servo motor movement, L298N motor driver module, metal detector, LCD are connected to it. We connected all the wires to the Arduino and to the things that needed to work like servo motor, metal detector, IR sensor etc. we made this robot ourselves and also with the help of a book of assembly. My group member Arogya Pudasaini helped a lot on assembly.

The self-driving and navigating vehicle idea is also used in many Tesla Company's car and it's known as auto-pilot. To avoid the obstacles they use Lidar which detects the obstacles in specific distance then goes to the way where there are no obstacles. The system is kind of similar and works accordingly to the programming.

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This abstract is a conceptual discussion of self-driving and navigating vehicle with edge detection in following a pre-determined track, which fulfills the demands of human beings and industries. The topic is good enough while the author completes the project with hardware and firmware using open sources. It is suggested that the author can add more innovative designs into the project.