

Smart Car

^[1] Athira U, ^[2] Neeraja Gopan , Neeraja Gopan ^[3] Dinto Paul, ^[4] Dr Gireeshan Mg

^[1] ^[2] Student, Dept Of Electronics And Communication Engineering, Prs College Of Engg & Technology

^[3] Project Guide, Asst.Professor, Dept Of Electronics And Communication Engineering, Prs College Of Engg & Technology.

^[4] R&D Head Sarabhai Institute Of Science And Technology.

Abstract: This project presents the automated smart car. The main aim is to prevent accidents and provide comfort travelling. Fully automated vehicles are currently under research and development and will become reality in the near future. This car may not require driver to control the car. Here we use ultrasonic waves to detect the obstacles. When an obstacle is detected speed of car is automatically reduced. This car also detect the traffic signals and obeys the traffic rules. Embedded system technology is used to control the entire system of the car

I. INTRODUCTION

In this project we are discussing about automated smart car, there by reducing the traffic jams and accidents. Here we are using embedded system technology. Radar devices are used in this project so this car can reduce the speed before being ticketed for speeding.

the components which we are using are

- | | |
|----|-------------------|
| 1. | Gps receiver |
| 2. | Ultrasonic module |
| 3. | Arduino board |
| 4. | Motor driver |
| 5. | Camera module |
| 6. | Lidar |

II.

COMPONENTS

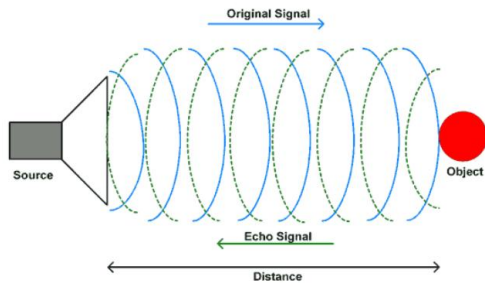
2.1

Gps Receiver

matches position with customized version of goggles road map. A gps navigation device, gps receiver or simply gps is a device that is capable of receiving information from gps satellite and then to calculate the device's geographical position. The global positioning system is a global navigation satellite system made up of a network of a minimum of 24, but currently 30 satellites placed into orbit by the u.s. Department of defense.

2.2 Ultrasonic Module

the ultrasonic sensor works on the principle of sonar and radar system which is used to determine the distance to an object. An ultrasonic sensor generates the high frequency sound waves. When this ultrasound hits the object, it reflects as echo which is sensed by the receiver as shown in figure. By measuring the time required for the echo to reach the receiver, we can calculate the distance.



Ultrasonic Working Principle

2.3 Arduino Board

arduino is an open source electronics platform based on easy to use hardware and software. Arduino boards are able to read input-light on a sensor, a finger on a button or a twitter message-and turn it into an output-activating a motor, turning on an led, publishing something online.



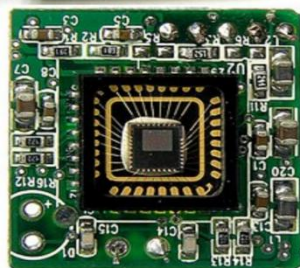
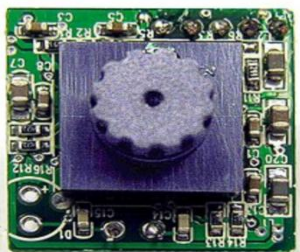
2.4 Motor driver

a motor driver is a little current amplifier, the function of motor driver is to take a low current control signal and then turn it into a higher current signal that can drive a motor.

2.5 Camera module

a camera module is an image sensor integrated with a lens, control electronics and interface like csi, ethernet or plain raw low voltage differential signal. The different type of camera used in this car are

- I. Night vision camera: for animal detection
- II. Visible camera: bsd, side-view, accident recorder, rear park assist.
- III. Stereo camera: direction and distance for ldws and traffic sign recognition.
- IV. 3-d camera: gesture recognition, presence detection.



2.6 Lidar

Used for 3d mapping of surrounding. Lidar is a surveying method that measures distance to a target by illuminating the target with pulsed laser light and measuring the reflected pulses with a sensor. Differences in laser return times and wavelength can then be used to make digital 3-d representation of the target.

III. USES

- Automation of vehicle.
- Self recognition of traffic signals.
- Recording of accidents.

IV. RESULT

by means of this car the accident rate can be reduced.

