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Fabrication of Obstacles Avoiding Robotic Vehicle

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ABSTRACT: Obstacle detection is the primary requirement of this autonomous robot. The robot gets the information from the surrounding area through mounted sensors on the robot. Some sensing devices used for obstacle detection like bump sensors, infrared sensor, ultrasonic sensor etc. The ultrasonic sensors are most suitable for obstacle detection and it is of low cost and has a high ranging capacity.

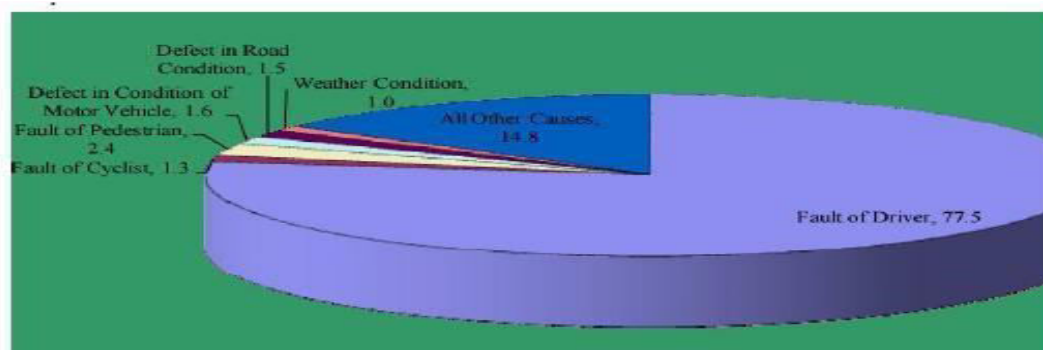
Obstacle Avoidance is a robotic discipline with the objective of moving vehicles on the basis of the sensorial information. The use of these methods front to classic methods (path planning) is a natural alternative when the scenario is dynamic with an unpredictable behavior. In these cases, the surroundings do not remain invariable, and thus the sensory information is used to detect the changes consequently adapting moving.

I. INTRODUCTION

By a separate low-power signal from a micro controller. When activated, the first demonstration of forward collision avoidance was performed in 1995 by a team of scientists and engineers at Hughes Research Laboratories in Malibu, California. The project was funded by Delco Electronics, and was led by HRL physicist Ross D. Olney. A small custom fabricated radar-head was developed specifically for this automotive application at 77 GHz. The forward radar-head, plus the signal processing unit and visual-audio-tactile feedbacks were first integrated into a Volvo S40, and shortly thereafter into a Cadillac STS.

A. N.H.A.I Report

According to the N.H.A.I data of number of accidents occurred during the 2011 analysis. Accidents 4.97 lakh (annual) i.e. (1 every minute) and the deaths for the accidents are recorded as 1,42,485.



B. Introduction To Braking

A Brake is a mechanical device used to slowing or stopping a moving vehicle i.e. wheel, axle, or to prevent its motion, most often accomplished by means of friction. Stopping distance consists of three factors:

- Driver's reaction time
- Brake lag
- Braking distance

C. Design and Function

- Air brake system is used heavy vehicles because they need higher impact of braking . Piston cylinder arrangement is made for braking. Compressed air is used to hit the brakes, for that a compressor is provided in the vehicles. Braking time is small and less by using pneumatics in heavy vehicles.[2]

D. Design and Construction

1. Depending on the specimen specification, there are multiple forms of body constructions:
 2. Tie rod cylinders: The most common cylinder constructions that can be used in many types of loads. Has been proven to be the safest form.
 3. Flanged-type cylinders: Fixed flanges are added to the ends of cylinder, however, this form of construction is more common in hydraulic cylinder construction.
- Bullock-drawn seed drills
 - Tractor-drawn seeds drills

COMPONENTS:

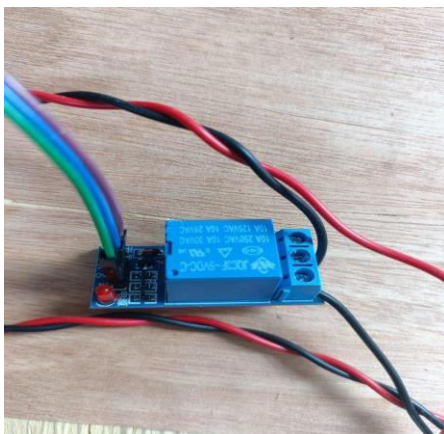
- Dc Motor
- Battery
- Wheeler
- Sensor
- Micrometer
- Solar Panel



Dc Motor



Wheeler



Sensor



Battery



Ultrasonic Sensor

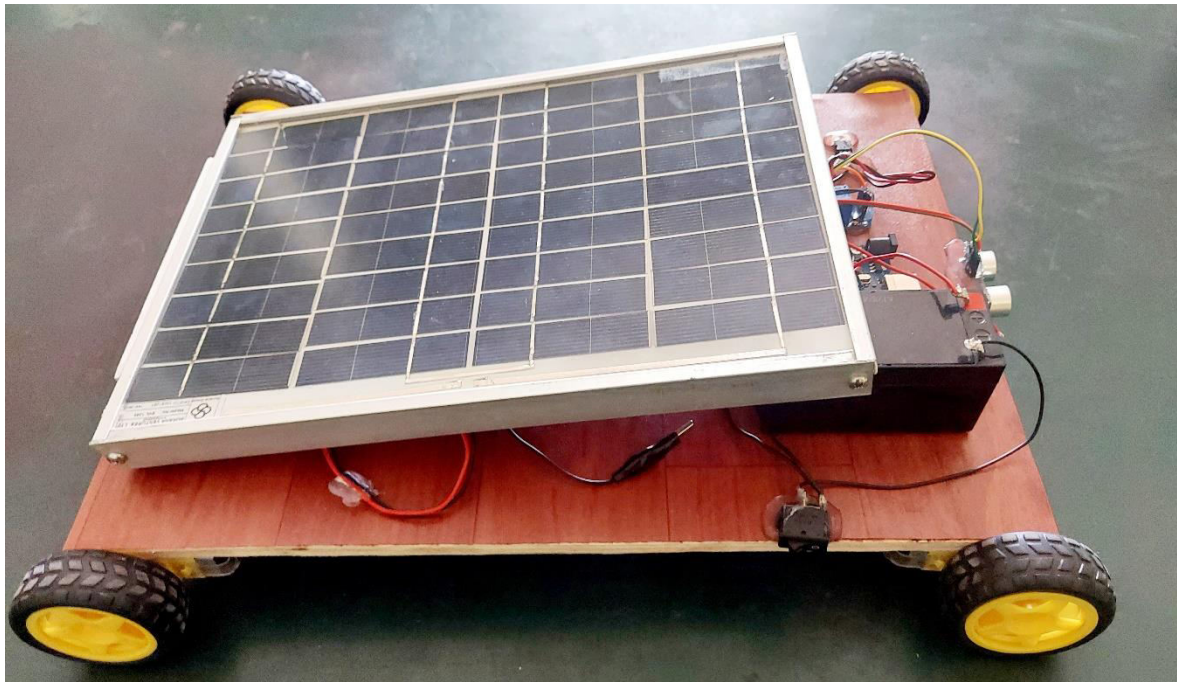


Solar Panel

II. WORKING

Ultrasound can be used for measuring wind speed and direction (anemometer), tank or channel fluid level, and speed through air or water. For measuring speed or direction, a device uses multiple detectors and calculates the speed from the relative distances to particulates in the air or water. To measure tank or channel liquid level, and also sea level (tide gauge), the sensor measures the distance (ranging) to the surface of the fluid. Further applications include: humidifiers, sonar, medical ultrasonography, burglar alarms, nondestructive testing and wireless charging. Systems typically use a transducer that generates sound waves in the ultrasonic range, above 18 kHz, by turning electrical energy into sound, then upon receiving the echo turn the sound waves into electrical energy which can be measured and displayed. This technology, as well, can detect approaching objects and track their positions.[2]Ultrasound can also be used to make point-to-point distance measurements by transmitting and receiving discrete bursts of ultrasound between

transducers. This technique is known as Sono micrometry where the transit-time of the ultrasound signal is measured electronically (i.e. digitally) and converted mathematically to the distance between transducers assuming the speed of sound of the medium between the transducers is known. This method can be very precise in terms of temporal and spatial resolution because the time-of-flight measurement can be derived from tracking the same incident (received) waveform either by reference level or zero crossing. This enables the measurement resolution to far exceed the wavelength of the sound frequency generated by the transducers.



ADVANTAGES :

1. Application for dark conditions
2. High depth resolution and accuracy
3. Long detecting range and Low power consumption.

APPLICATIONS:

- It can be used for army applications
- It can be used in mines



- Back sensors for automobiles.
- Used for reducing accidents in traffic

III. CONCLUSION

The ULTRASONIC BRAKING SYSTEM, if executed in auto it deflects mishaps and can spare human lives and property. Execution of such a propelled framework can be made mandatory like wearing of safety belts with the goal that mischance's can be deflected to some degree. Our Infrared Braking System gives a look into the eventual fate of car wellbeing and the amount more propelled this individual framework can be for staying away from mischances and ensuring vehicle tenants when they are incorporated into one framework. The fate of car security is more than simply building up another innovation; it is moving the way to deal with wellbeing.

ULTRASONIC BRAKING SYSTEM approach speaks to a huge movement from the conventional way to deal with well-being, yet it is crucial to accomplishing the significant advantages.

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