

A Study On Automatic Pneumatic Bumper Car

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Abstract: The technology of pneumatics plays a major role in the field of automation and modern machine shops. The aim is to design and develop a control system based intelligent electronically controlled automotive bumper activation and automatic braking system is called Automatic Pneumatic Bumper Car. There is any obstacle closer to the vehicle (within 3-4 feet), the control signal is given to the bumper activation system and also pneumatic braking system simultaneously. This vehicle speed is sensed by the proximity sensor and this signal is given to the control unit and pneumatic bumper and braking activation system.

Keywords: GSM, GPS, IR sensor, Ultrasonic sensor.

1. Introduction

The project consists of ultrasonic sensor, Control Unit, Pneumatic bumper system. The ultrasonic sensor senses the obstacle. If there is any obstacle closer to the vehicle (within 3-4 feet), the control signal is given to the bumper and break activation system. This bumper activation system is activated when the vehicle speed above 30-40 km per hour. The speed is sensed by the proximity sensor and this signal is transfer to the control unit and pneumatic bumper activation system. In this project we have used GPS, GSM, Ultrasonic sensor. GSM is used for send and receive messages if anything happens, GPS is used for sending the location to the other end, location is send through message and in location latitude and longitude of certain place is there which is tracked exactly by the device

2. Literature Survey

In this system controlling is done by IR sensor with the help of IR sensor pneumatic bumper actuate brake will applied. When the obstacle come in front of sensor the IR sensor sense and it will be actuate the solenoid valve which having a two output and one input. Input is connected from compressor and the output is connected to the pneumatic cylinder by which the bumper will go further and comes back by the compressed gas. When the obstacle comes in front of car the IR sensor unit will command to the control unit and control unit will cut the power off motor by this rotation of wheel decreases and brake will applied. In our project we overcome the accident problem by means of providing the sensor arrangement in bumper. The aim is to design and develop a control system based an intelligent

electronically controlled automotive bumper activation system is called automatic pneumatic bumper. This system is consisting of IR transmitter and receiver circuit, control unit, pneumatic bumper system. The IR sensor is used to detect the obstacle.

3. Objective of our Project

It is the project which has been fully equipped and designed for auto vehicles. In regular vehicles there are various mechanism operated for the braking system like use of hydraulic, pneumatic, or mechanical system. But all these braking mechanisms receive the input signal directly from the driver by application of force on brake pedal. Thus, braking of vehicles is totally manual operated. So, if the driver fails to see the obstacle in front of his driving vehicle or fails to apply proper braking force on the brake pedal, he may lose the control of his vehicle, leading to accident.

4. Comparative Study

While studying the other project we found that the existing system in vehicles are not much safe than our project which provides the automatic bumper braking system.

A. Existing System

As the available resources to run these vehicles like quality of roads, and unavailability of new technologies in vehicles are causes for accidents. The number of peoples which are dead during the vehicle accidents is also very large as compared to the other causes of death. Though there are various causes of the accidents but proper technology of braking system and technology to reduce the damage during accident mainly effect on the accident rates. Also sometimes many people do not get help instantly.

B. Existing System Disadvantages

In the existing system there is not much safety for the passenger as well as the driver who is driving the vehicle.

C. Proposed Work

The aim is to design and develop a control system based intelligent electronically controlled automotive bumper activation and automatic braking system is called "Automatic

pneumatic bumper”. It is the project which has been fully equipped and designed for auto vehicles. In regular vehicles there are various mechanism operated for the braking system like use of hydraulic, pneumatic, or mechanical system. But all these braking mechanisms receive the input signal directly from the driver by application of force on brake pedal. Thus, braking of vehicles is totally manual operated. So, if the driver fails to see the obstacle in front of his driving vehicle or fails to apply proper braking force on the brake pedal, he may lose the control of his vehicle, leading to accident.

5. Conclusion

From the above we can conclude that this proposed project is an effective secure, time saving and safety system. Such that distraction driving is a major contributor to accident death, thus by implementing this system we can reduce the close impact potential Accident. It can help and make vehicle more feature as in today world all a human being need in a vehicle are

features and safety. Hence, it can make a vehicle so safe that there is no danger to the lives of human beings. It's so easy to install and easy to use and its cost is very low so there would be no difference in the cost of the vehicle after or before installing it. This system can be used for good safety assistance.

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