

ACCIDENT PREVENTING SYSTEM WITH THE HELP OF PNEUMATIC BUMPER PROTECTION

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Abstract- Now a days we can see that there are lot of accident happen in world. Over 137000 people killed in road accident in 2013.in India there are 60 children die on road accident daily. 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.

1.INTRODUCTION

Vehicles accident is most common. If driving is inadequate driver drowsiness recognized as an important factor in the vehicle accident. Where vehicle has brake system. The system include sensor arrangement for sensing an object in front of the vehicle that generates an object recognition single unit it sense an object within the range the bumper opens and protect the car from damage. The sensor arrangement include passive IR sensor or reflected pulse sensor such as radar sensor on the front a control generates an accident prevention response signal and receiving an object recognition signal from the sensor arrangement.

The project involves whenever the obstacle comes in front the car. The sensor senses the obstacle and command to the bumper extended out by which we can avoid damage of car.

The road accident is caused by human. The cause of road accident is rash driving, over speed, and caused of injury and death are non-wearing seat belt. There are various steps taken by the experts to reduce the probability of accident. There are three approaches to prevent accident.

1. Education and training
 - a) Traffic rules should be thought to the student.
 - b) Radio, news paper to draw the attention of all road users both to danger and to safe practices on the road.
2. Enforcement by
 - a) There should be law and rules which ought to follow by people.
3. Engineering of vehicle and road
 - a) There should be proper design of spare parts of cars.
 - b) The design of vehicle should be improving and making comfortable for people.
 - c) The number of things that other driver do. Which is dangerous to not following lane, poor tailgating, not indicating while turning.

1.1 Problem Statement

There are various mechanism operated for braking the system like ABS, pneumatic breaking, hydraulic breaking etc. but all this mechanism which given above its totally manually operated. Whenever the obstacle come in front of vehicle the man press the brake pedal by which the car stop that is all breaking mechanism receive input from the driver so it called manual operated. But man is fail to give power input because whenever the obstacle come in front of vehicle the man is unable to stop the car. He becomes mazy and he unable to judgment therefore the breaking mechanism is unable to work properly and the car driver is unable to decreases the car damage. Now we use the pneumatic bumper. The pneumatic bumper having a specific capacity when the force of accident is very high that time bumper is unable to protect the car damage. So this system is unable to reduce the damage of human being and cars.

1.2 Objectives

- To decreases the rate of car accident.
- To increases the response of breaking system.
- To increases the sureness of people who fear from accident.
- We are trying to protect car damage from road accident.
- To stop vehicle from road accident.
- To increases external safety device like bumper.

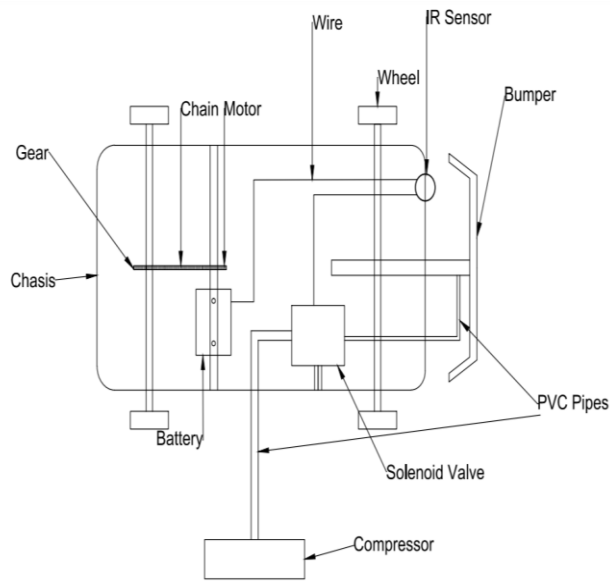
1.3 Scope

- This system is suitable for all types of vehicle like cars, trucks, bus, etc.
- Vehicle will stop at right time by this mechanism.
- System also able to protect the car before collapse.
- This system play very important role to protect from damaging the cars and also helpful for saving human life.

2. LITERATURE REVIEW

1. Generally a vehicle was manufactured with an analogdriver-vehicle interface for indicating various vehicle statuses like speed, fuel level, Engine temperature etc., This work presents the development and implementation of a digital driving system for a semi-autonomous vehicle to improve the efficiency of driver-vehicle interface. It uses a PIC based data acquisition system that uses ADC to control data from analog to digital format and visualize through LCD. This work focuses the development of distance measurement by using Ultrasonic sensors which denotes that vehicle's position from obstacles. The vehicle detects the speed breaker and also some primary zones before certain limitation by tags using UART module for introducing the new invention of priority based Intelligent Braking System (IBS).

2.ABS braking systems have been well-known in the automotive industry for many years. At first, they were optional extras for upmarket vehicles, then became more "democratic" as part of the basic equipment of most vehicles. Several generations of such systems have followed one another and now they are considered perfect by the general public and so need not, or can not, be improved. Yet, a generalized conception (Richalet 1991) or a mechatronics approach (Isermann, 1996), i.e. a reflection on all the principles, components, sensors, actuators, regulation, etc., can lead to important improvements in these fields, as in others.



2.1 Proximity Sensor

Proximity is a sensor which senses the obstacle without any physical contact. Proximity sensor emits an electromagnetic radiation. When the electromagnetic radiation impinge the target The proximity sensor sense that any obstacle comes in the range of vehicle proximity sensor having a very long life because it does not having any physical contact with object therefore there is no chance of damage. Without damage and any physical contact it sense object. Proximity sensor is mostly used in smart phones.

2.2. Nylon small tire wheel

Tier is a ring shaped covering that fits around a wheel rim to protect it and enable better vehicle performance. A tire is made up of synthetic rubber, natural rubber, fabric with carbon black and other chemicals compounds.

Specifications:-

Wide of tire:-20mm

Diameter of tire:-70mm

Diameter of shaft hole:-6mm

2.3. Dry battery

It was introduced by German scientist carl gassner in 1886.

Sealed lead calcium maintenance free battery is contains the paste of electrolyte with a less moisture for passing current. It is advanced battery and economic different from other type battery.

2.4. Pneumatic cylinder

Pneumatic cylinder uses the power of compressed gas to produce the force in reciprocating linear motion. The piston rod transfer the force it develops to the object to be moved

2.5. Pneumatic valve

Pneumatic valve is connected with pneumatic cylinder and compressor. The pneumatic valve having two outputs and one input from input the compressed air is given and one output is use for stopping the piston and

other output is use for giving the force to the piston rod. The compress air is given through the input one output is use to reciprocating the piston and other is used for stopping the piston by applying force from front side.

3. Applications

- In bikes.
- In four wheels.
- In train.

4. Advantages

- Comfortable driving at busy roads and in narrow space.
- These types of cars may be easily taken through traffic jam.
- This type of mechanism eliminates the accident chances.
- Reduce vehicle expenses.

5. Limitations

In our model use electronic circuit and operates on 12 volt DC battery if unfortunately any voltage fluctuates occurred in the line damage the circuit components and due to this system got failure.

6. Conclusion

- Reduce the number of accident or damages in car.
- It is also used for security alert alerts where 24 hours surveillance is required.

7. References

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BIOGRAPHIES



Aamir Sayed assistant professor in mechanical having 4 year teaching experience and 1year experience total experience 5year.



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