

# Design and Development of Anti Accident Braking System

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**ABSTRACT** - In view of the increasing the number of traffic accident in recent years it is conceded that traffic accident have assume the dimension of serious social problem it is indicated that there are three main elements involved in an accident that is the driver, the vehicle and environment it is reported that the main cause of accident has been identified as the driver.

It is reported that many different sensors and system from sonar to machine vision have been installed on ground vehicles and automobiles in experience have been conducted over 40 years a review of the promising of days sensors and related present devices. A brief summary is also provided of number of attains to develop autonomous vehicle i.e. vehicles that can navigate in traffic without intervention by drivers.

## 1. INTRODUCTION

The “**ANTI ACCIDENT BRAKING SYSTEM**” is an automobile safety system design to reduce the severity of accident also known as per crash system forward collision warning system or collision mitigating system. It uses ultrasonic sensor with microcontroller to detect an imminent crash. Once the detection is done, these system either provide signal to driver when there is an imminent collision or take action autonomously without any driver input.

The auto braking system was design and fabricated to keep a distance. It provide pre crash safety system for intelligent car these model can detect the distance between front vehicle and your vehicle to keep constant distance using a sensor to operate the brake system forcibly if the driver does not decrease the speed of car. The system displays the distance between the two vehicle and the speed of your vehicle. The performance of system is good.

## 2. DESIGN AND DEVELOP

**In system design we mainly concentrated on the following parameters:-**

### 2.1 System Selection Based On Physical Constraints

While selecting any machine it must be checked whether it is going to be used in a large scale industry or a small scale industry. In our case it is to be used by a small scale industry. So space is a major constrain.

### 2.2 Arrangement of Various Components

Keeping into view the space restrictions the components should be laid such that their easy removal or servicing is possible. More over every component should be easily seen none should be hidden.

### 2.3 Components of System

As already stated the system should be compact enough so that it can be accommodated at a corner of a room. All the moving parts should be well closed and compact.

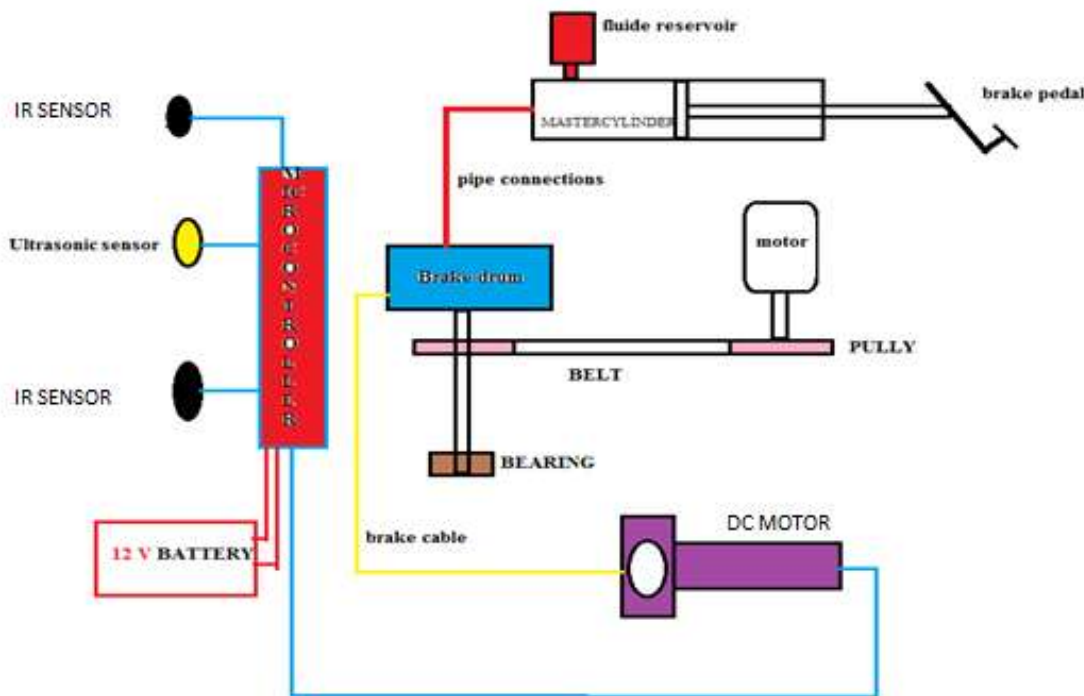
### 2.4 Man Machine Interaction

The friendliness of a machine with the operator that is operating is an important criteria of design. It is the application of anatomical and psychological principles to solve problems arising from Man – Machine relationship.

### 2.5 Scope of Future Improvement

Arrangement should be provided to expand the scope of work in future. Such as to convert the machine motor operated; the system can be easily configured to required one.

**CONSTRUCTION**



**Constructional details**

The system consisting of 3 sensors out of which 2 are IR sensors and one is ultrasonic sensor. These sensors are connected to the microcontroller the power

Supply is provided the microcontroller by the 12V battery. The hydraulic brake system is provided for the normal braking the brake drum is mounted on the frame and rotated by the pulley and belt drive through the 3 phase induction motor the brake cable is connected to the dc motor and the microcontroller is connected to the motor for speed control.

**3. WORKING**

The stator of the motor consists of overlapping winding offset by an electrical angle of 120 degree. When th primary winding or the stator is connected to a 3 phase AC source, it establishes a rotating magnetic field which rotates at the synchronous speed.

According to Faradays law an EMF induced in any circuit is due to the rate of change of magnetic flux linkage the circuit. As the rotor winding in an induction motor are either closed through an external resistance or directly shorted by end ring.

Voltage	230 V
Speed	1440 rpm
Power	0.5 HP
Frequency	50 Hz

**4. CONCLUSIONS**

Sensor is reliable for detecting human or animals and this technique certainly can save lots of life. Human lives are most valuable. Pre-crash detection system must be equipped with combination of different sensor.

Detection human or animals including obstacles will certainly give us a better solution to reduce the death of humans in road crash.

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