# Department of Information Mechanical Engineering


## A Minor Project Report On

# "Smart Breaking System"

**ME6C06**

Submitted By

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# ABSTRACT:

The aim of the project is to plan and improve a control system based an electronically controlled automatic break by using IR Sensor. Due to the failure of brake the effectiveness of the brake system reduces resulting in accidents, when effective brake system which increase the stability of the vehicle. An efficient brake system is to bring the vehicle to rest within a reasonable distance. It is also desirable that the rate of retardation should be related to the pedal effort. A Automatic break indicator is consists of IR sensor, relay, rectifier buzzer and integrated circuit. The sensor is fixed car . The sensors sense the obstracle failure from distance and gives signal to the relay unit, which generate indication alarm. In case of failure due at that time of control unit sense the situation and gives the indication alarm.

# 1.INTRODUCTION:

Car safety is the escaping of accidents in automobiles or to the minimization of harmful effects of accidents, in particular as pertaining to natural life and healthiness. Special safety features which has been built into the cars for years, some for the safety of car's occupants only, and some for the safety of others, which is fully equipped by sensors circuit. It is a fully equipped and designed respectively for automobile vehicles and this forms an integral part of best quality of the vehicles. This product underwent strenuous test in our automobile vehicles and it is good. Man has been needed and used energy at an increasing rate for its sustenance and a few million years ago when he came on earth. Primitive man required energy primarily in the method of food. He derived food by eating plants or may be sometimes animals which he hunted and eat in the little mean time. Subsequently he discovered fire and his energy needs increased as he started his way to make use of wood and other bio mass products to supply the dynamism needs for cooking as well as agriculture. He added a new dimension to the use of energy by domesticating and training animals to work for him. With further depletion for energy in this world, man began to use the wind for sailing ships and for driving windmills, and the force of failing water to turn the water wheels. Up to this time it would not be wrong to say that the sun was supplying all the energy that needs of man either directly proportional or indirectly proportional that man was using only renewable sources of energy in this planet.

# 2.WORKING:

The aim is to the proposed design and develops and improves the control system based on intelligent breaking system of a normal conventional electronically controlled automotive braking system. Based on this concept model, strategies such as an ‘antilock braking system’ (ABS) and stability controlled system has been improved manoeuvrability via individual wheel braking which was actuated and developed in the later years.

They have been considerable advances in modern vehicle braking systems in recent years. For an instance, electronically actuated ABS for emergency braking system electronically hydraulic actuated individual system as brake-by-wire (BBW) concepts for saloon cars and other electronically controlled pneumatic actuated systems for heavy goods vehicles.

## IR Proximity Sensor for Obstacle Sensing and Line Follower Robots

**Proximity Sensor** are used to detect objects and obstacles in front of sensor.
Sensor keeps transmitting **infrared light** and when any object comes near, it is detected by the sensor by monitoring the reflected light from the object. It can be used in robots for obstacle avoidance, for automatic doors, for parking aid devices or for security alarm systems, or contact less tachometer by measuring RPM of rotation objects like fan blades.

## Single Channel 5v Relay Module with Isolation High Low Level Trigger

Relays are output devices which are used to control or operate some external devices. This is a 5 volt Isolated relay module which means that there is a optocoupler used in between your control circuit and the relay thus protecting your circuit in case of any short circuit issues on the relay side.

## Electromagnetic Buzzer – 5V – PCB Mount

This is a Small PCB Mountable 5V Active Electromagnetic Buzzer. It is great to add Audio Alert to your electronic designs. It operates on 5V supply, uses a coil element to generate an audible tone.

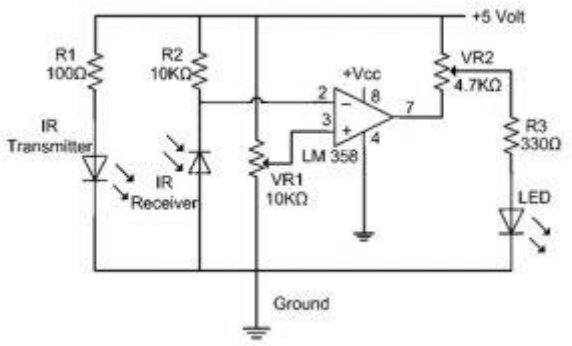
## Micro USB 55 Tangle 480mbps Data Transmission

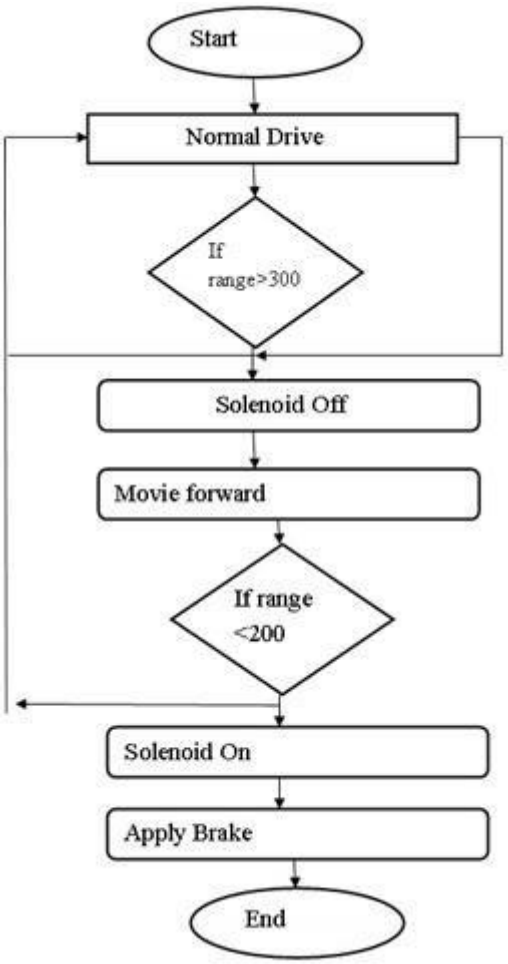
The micro USB cable provides a standard USB 2.0 connector on one end and a Micro USB connector on the other. Plug the USB connector into a computer, game console, or AC adapter, and the Micro USB connector into a device equipped with a Micro USB port.

## 3. AT BREAKING CONDITION:

The IR transmitter sensor transmits the infrared rays with the help of a Lm393. The IR receiver sensor receives the IR rays from the receiver. The transistor such as T1 are used as an amplifier section. At normal condition Transistor T5 is in OFF condition. At that time relay is OFF, the alarm is also switched OFF.

Circuit Diagram of IR sensor






## Components Used –

**1.IR sensor**
2.Relay 5V
3.Buzzer
4.USB Cable