

# Accident Avoidance Autonomous Car

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**Abstract :** The basic ideology behind the project is to reduce the number of accidents happening on the road on daily basis. And try to save the people who get into the accident no matter how minor or major accident it is. In this, we're using a microcontroller named AT89S52. A pair of DC motors, A motor driver L293D and a few more, small components. Here, the microcontroller AT89S52 is a silicon microcontroller manufactured by Atmel. It has 40 pins works on 5V DC. So the microcontroller will be placed on the car bot and by using KEIL software similar to 8051 microcontroller we going to program the car to detect and dodge the obstacles, could be a tree or a human or even some other car. To detect the obstacle, we're using the obstacle sensors, which will be placed on the left and right side of the car. These sensors will detect the obstacle and will inform the microcontroller about it. A certain action will be taken according to program and the object will be dodged. In case, if an accident takes place, we are using a Limit switch to detect the accident happening to the car. This switch is a sensitive switch combines with an internal timer switch and a buzzer. The moto of all these things is to guess the intensity of the accident and to insure the safety of the passengers.

**IndexTerms - Component,formatting,style,styling,insert.**

**Keywords- AT89S52, HC-05, L293D, KEIL, FLASH, GPS, GSM.**

## I. INTRODUCTION

The Autonomous car is inspired by Google and Tesla. Whereas we are hereby just adding some more safety features into it. The inner safety timer switch connected to the buzzer further connected to the android app and the GPS and GSM modules, all are the safety measures.

The microcontroller used here AT89S52 is a 40 pin 8Kb ROM microcontroller. The system will be all connected to this microcontroller with a 5V DC supply. We are using a motor driver to convert the available 5V into 12V, because the DC motors runs on 12V. Moving forward, the HC-05 Bluetooth module is connected.

All the switches, Bluetooth, Motors are powered by the microcontroller. Programming the microcontroller using KEIL and other applications to convert it into a hex file and then burn onto the IC. Basic programming for android to make a basic android app. So, this is the overview of the project.

### 1. The Hardware System-

#### AT89S52 microcontroller:

Features:

- II. Compatible with MCS-51 Products
- III. 8K Bytes of In-System Programmable (ISP) Flash Memory
  - Endurance: 1000 Write/Erase Cycles
- IV. 4.0V to 5.5V Operating Range
- V. Fully Static Operation: 0 Hz to 33 MHz
- VI. Three-level Program Memory Lock
- VII. 256 x 8-bit Internal RAM
- VIII. 32 Programmable I/O Lines
- IX. Three 16-bit Timer/Counters
- X. Eight Interrupt Sources
- XI. Full Duplex UART Serial Channel
- XII. Low-power Idle and Power-down Modes
- XIII. Interrupt Recovery from Power-down Mode

- XIV. Watchdog Timer
- XV. Dual Data Pointer

**Bluetooth Module HC-05:**

HC-05 Bluetooth Module is an easy to use Bluetooth SPP (Serial Port Protocol) module, designed for transparent wireless serial connection setup. Its communication is via serial communication which makes an easy way to interface with controller or PC. HC-05 Bluetooth module provides switching mode between master and slave mode which means it able to use neither receiving nor transmitting data

**Specification:**

- XVI. Model: HC-05
- XVII. Input Voltage: DC 5V
  - Master and slave mode can be switched

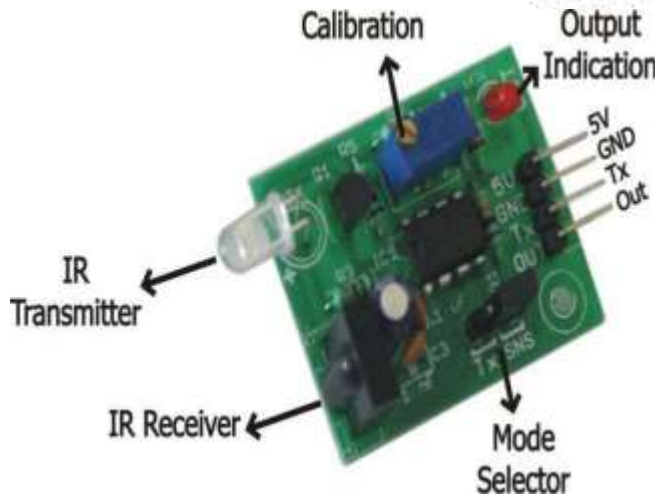
**Limit Switch:**

Presence Sensing is the act of detecting the presence or absence of an object with a contact or non-contact sensing device. The sensors then produce an electrical output signal that can be used to control equipment or processes  
 Mechanical limit switches are contact sensing devices widely used for detecting the presence or position of objects in industrial applications. The term limit switch is derived from the operation of the device it-self. As an object (or target) makes contact with the operator of the switch, it eventually moves the actuator to the "limit" where the electrical contacts change state.  
 Through this mechanical action, electrical contacts are either opened (in a normally closed circuit) or closed (in a normally open circuit). Inductive proximity, capacitive proximity, and photoelectric sensors perform this same process through non-contact sensing.



**Obstacle sensor:**

This is an infrared based sensor which can be used for obstacle sensing, color detection (between basic contrasting colors line sensing, encoder sensor, IR remote signal sensing, etc and also for wireless infrared communication. The sensor provides high immunity from ambient light and can be used in all light conditions quite effectively.



## 2. Software used:

KEIL microprocessor programming for 8051 family microprocessors. Flash microprocessors software to convert program files into hex files. Burn IC to feed the programme to microcontroller. BGA Basic android app development.

## 3. Applications:

- **For Handicaps** – People who are handicap or physically challenged can use this autonomous car to go to their desired place.
- **As a safety measure** – We can install this safety device in any car, not necessarily be an Autonomous car. Safety can be achieved anywhere.
- **As a CAB** – We can use this Autonomous car as a pickup and drop vehicle by doing some more modifications. Adding fare payment using card swipe.

## 4. Future scope:

- By using Autonomous car, traffic can be controlled.
- Physical challenged peoples can be able to use or drive autonomous car.
- Peoples can be able to reach their destination easily.
- Accidents can be controlled by using autonomous car.

## 5. Conclusion:

The autonomous cars will reduce the amount of accidents on a very large scale. It will help in traffic management in the new era of private vehicles. The autonomous car with IOT is a fully modernized high-tech safety features installed car to take care of the accidents. It does have a lot of ways and openings to add more and more features and make it more reliable and user friendly. This car will guaranteed save a lot of lives by preventing accidents as well as by all the installed safety measures.

## 6. Acknowledgement:

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## 7. References:

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