Abstract— As the population is increasing, the vehicles are also increasing and so the parking problem arises. There is a chance that a car may bump into other car while parking. Although the rear view mirror gives a rough estimate of the distance with the obstacle behind, there is still a chance of collision. There is need to alert the driver when the car is about to collide with a nearby obstacle so that necessary precautions can be taken to avoid any damage.

Our system constitutes of a sensor which senses the distance of the nearby obstacle. This sensor when installed on the car alerts the driver when he is moving close to nearby obstacle and there is a chance of collision. The system can hence help avoid collision, damage and thereby help save money.

Index Terms—Sensor, Microcontroller, Collision.

I. INTRODUCTION

In embedded systems it is essential that microcontroller takes along input sensors and transducers used in industry are analog in nature, we need to convert the analog output from the sensors to digital so that corresponding signal can be processed by the microcontroller. This paper is an example for real-time measurement system which takes input from physical world processes the input and responds accordingly with the requirement of the system. Here we are making uses 8051 microcontroller, Led monitor, ADC and distance sensor for finding the distance. As the input from distance sensor is getting lesser than threshold fixed value the analog input is converted into digital by ADC and it is passed to microcontroller and the led monitor turns to red in color which is an indication that there is some other object there.

II. 8051 MICROCONTROLLER

The 8051 microcontroller is a 8bit controller made by the Intel family which contains 128 bytes of RAM 4kb of ROM and 2 timers 40 pins and 6 interrupt sources classified as internal sources and external sources. One greater advantage with this is it has built-in serial communication UART which can be easily programmed to work at several baud rates. It also has four serial port, port 1 and port 0 are for input output functions and port 2 and 3 are for external purposes. Another good future is it can be interfaced easily with all the other devices here it is interfaced with ADC for converting analog input to digital output which is required for determining the object nearer to our car. As a result accident can be reduced easily by making use of the sensor.

III. DISTANCE SENSOR

The GP2D120 is an infrared sensor which has the capacity to measure the distance from 4-30 cm but consumes very more power. Hence making use of capacitor energy for this is an ideal solution and this can minimize the usage of power.
these capacitor must be kept as nearer as possible and using of the ceramic capacitors is fair as they have no polarity and we can use any pin for any connection. If we observe it from the back we observe three connections one from left to right while others are for ground and power. The working procedure of this distance sensor is initially it sends an infrared ray to the object that is to be detected the reflected sound known as echo divided by half is the distance and for performing such an operation an voltage level of 2.7v is applied the voltage output decreases as the distance between sensor and the object increases. For measuring the distance it has a position detective selector and also a signal processing circuit while measuring the distance care should be taken about the voltage given to the circuit as it results in damage of the sensor so that the entire effort done might go in vain. Thus sit measure the accurate distance and prevent accidents.

IV. ANALOG TO DIGITAL CONVERTER (ADC)

This device is used for converting analog input to digital output by using +5v volts of power. This power supply to that is given to ADC by making use of an external capacitor of value equals to 110us. Firstly the CS (select chip) must be enabled for starting the working of ADC.

Hence the pins are connected in an orderly manner as shown in the final resultant diagram. Care should be taken while earthing as it results to short circuit.

Stepper motor

The motor here is used for indicating a moving car. One endpin of motor is grounded and other pins is connected to port P1 of 8051 as it acts as microcontroller as they are input output pins. One special future of this is it has feedback mechanism and hence it is known as open loop controller.
The stepper can be rotated in both directions clockwise and anticlockwise presently anticlockwise is used here an led id also used here indicating with glow when the sensor identifies an object at a particular distance.

V. RESULTS

![Diagram](image)

Fig. 7.

CONCLUSION

By adopting this like of sensors we can cannot avoid accidents completely but we can prevent them to some extent. This will be tricky in case if the device gets spoiled hence care should be taken about this.

REFERENCES

[1] “micro processor and microcontroller” by Mohammad ali mazidi