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Automobile Parking and Accidental Control by using Labview and Arduino

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Abstract—**The main aim of this proposed system is to develop automobile parking and accidental control system. This is just a step forward to reduce the traffic created on the roadsides due to parking of vehicles and to reduce accidents. Each and every Public places like offices, shopping malls; Entertainment Plazas have a major problem of parking and road sides accidents are common. Now a day with the platform of LabVIEW and arduino a smart car parking and accidental control is to be designed. The major task performed by this proposed system is, helping the user in finding the available free space with the help of sensors and to control accidents by using airbags. Automatic distance finding system and along with that the air bag system is developed in such a way that it avoids and protects itself from accidents that is, it stops automatically when it finds an obstacles. This system satisfies the major requirements of a parking system and to avoid accidents. This system will be smarter than the existing system to a greater extent and it is economical.**

Index Terms— **LabView, Introduction, System overview, Software,etc.**

I. INTRODUCTION

Nowadays accidents occur due to errors done by driver. An intelligent system needs to be developed to overcome these errors. This system is proposed where errors done by vehicle driver are prohibited. In this system we use ultrasonic sensor to identify the distance between the vehicles or from vehicle to the object. This system propose when a vehicle moving with greater speed comes close to other vehicle or object then alert is set to the driver even after the alert if the car speed is not brought into control then air bag will be opened.

Ultrasound is an acoustic wave with a very high frequency, beyond human hearing. Since the audible frequency range is said to be between 20Hz and 20kHz, ultrasound generally means acoustic waves above 20kHz. Bats, with their echo-location (biological ultrasonic radar), can hear sounds up to 200kHz, way beyond the capabilities of the human ear. Ultrasound has several characteristics which make it so useful and that have led to its use in many electronics applications. Firstly, it is inaudible to humans and therefore undetectable by the user. Secondly, ultrasound waves can be produced with high directivity. Thirdly, they are a compressional vibration of matter (usually air). Finally, they have a lower propagation speed than light or radio waves.

Ultrasonic sensors, use a type of sonar. Using echo-times from sound waves that bounce off nearby objects, the sensors can identify how far away the vehicle is from said object, and alert the driver the closer the vehicle gets. If the object is close enough buzzer offer an alert to the driver. Even after the alter set by buzzer , if driver does not slow the vehicle then there is chance of accident . Hence when the vehicle is too close to the object(approximately distance is less than 5 cm) , then air bag should be opened(here dc pump is used as an air bag) . So by this means driver life can e saved.

Ultrasonic sensors is used for calculating the distance and/or direction of an object from the time it takes for a sound wave to travel to the target and back. An ultrasonic sensor is a speaker or microphone that emits or receives ultrasound. There is also a type that can handle both emission and reception. Vehicle parking sensors are equipped with this type of sensor. Ultrasound sensors initially found use in vehicles for detecting obstacles when parking .

II. SYSTEM OVERVIEW

The system overview is as shown below

A. Application 1: When the automobile speed is less(Less than 2km approx)

This case is applicable when a car is moving in slow moving traffic or while parking a car. In this case we use ultrasonic sensor to see the distance between other vehicle or object. When the car speed is very less even though if the car touches the other car or object there is no necessary of airbag to open as it will not affect the driver life, hence in this condition we switch off the air bag.

B. Application 2:When the automobile speed is high(More than 2km approx)

In this case as the car is moving in greater speed if the car comes to any object or vehicle then a buzzer is set on to alert the driver. As the buzzer is turned on the driver will get alert and reduce the car speed, if he fails to do that and if car moves further close then sudden dc pump will be turned on. Pump will fill air in the airbag. This state will be represented by red LED light turned on.If the car distance is not close to other vehicle or object then it is considered as safe condition and it is represented by green LED light turned on.

C. Application 3:While taking reverse

In this case a ultrasonic sensor will be fixed at backside of the car. Usually people tend to hit other vehicle or object while taking reverse, this problem can be overcome by this system. The drive can read the ultrasonic sensor output and decide how far can he come back.

III. RESULTS AND DISCUSSION

According to this proposed system, the module which has been developed for automobile parking and accidental control using arduino and labVIEW is tested. The below figure shows the flowchart, hardware implementation and results.
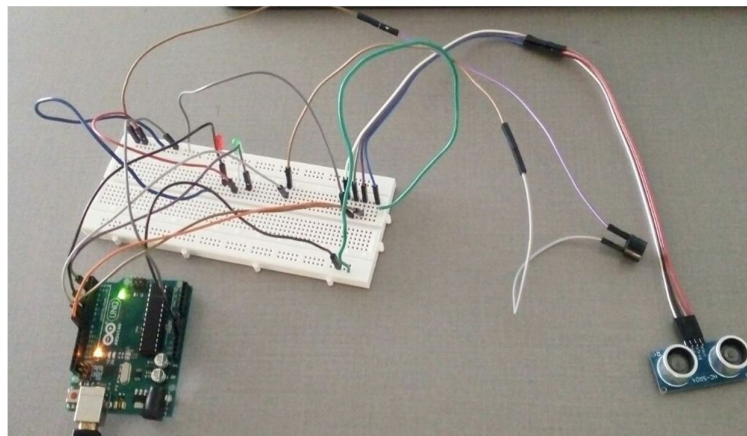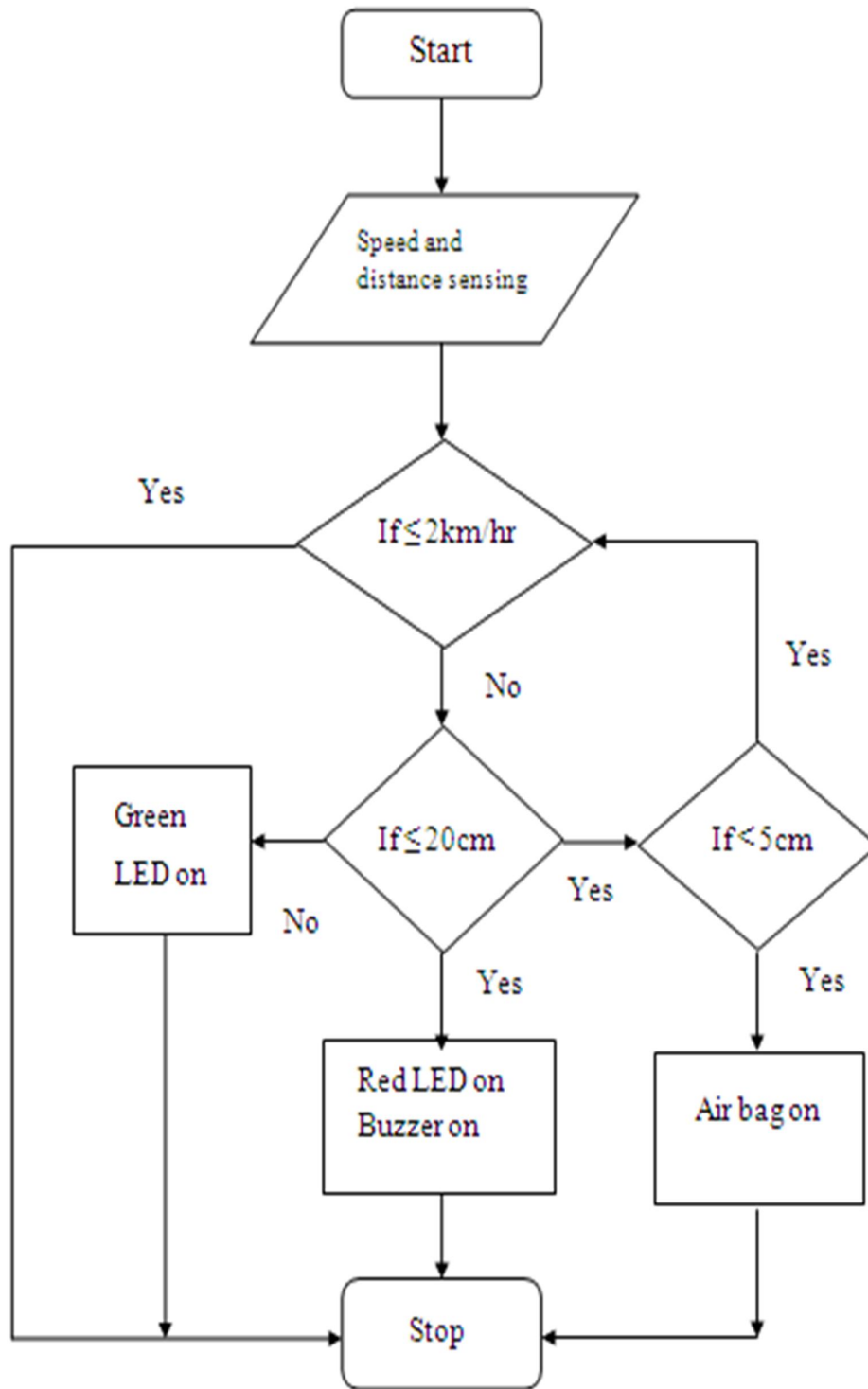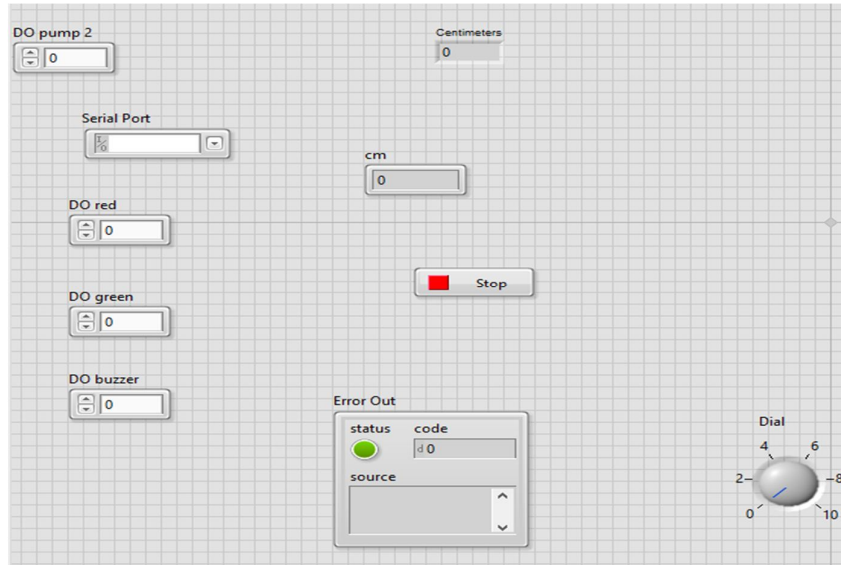

Figure A Hardware implementation

Flowchart

A. Results

IV. CONCLUSION

The main aim of the design is to develop automobile parking and accidental control by using labVIEW and arduino, It is very convenient thus we can avoid traffic in parking places and to avoid automobile dashing accidents. It is cost effective as well. We have programmed through labVIEW so it is compatible to programmer as well as user. Through labVIEW we can easily achieve first class hardware implementation, simplified complexity, powerful multithread execution. Arduino is best platform to program and it has wide variety of features like good clock speed, good memory, compatible i/o pins etc,

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