

# Distance Based Accident Avoidance System Using Arduino

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**Abstract-** In this paper, we present another system in car innovation about how to forestall street mishap on India in these we keep 10 meter remove between one vehicle and another vehicle, with the goal that the vehicle don't crash or cause any activity issue. The point of the framework is to avert mischances mostly because of not knowing the accompanying separation (i.e., 5m) between one vehicle and another vehicle. The proposed framework contains a thought of having security while turning around a vehicle, recognizes any question inside the accompanying separation, and presentations the separation between one vehicle and another vehicle to the driver utilizing LCD. We have utilized ultrasonic sensors to distinguish any vehicle on both front and posterior of our vehicle. This framework is additionally utilized as a part of vast crane which is principally worked in harbor zone. On the off chance that the auto achieves 10 meter, green shading light will gleam. At 8 meter separate yellow shading light will shine. When it achieves 5 meter remove red shading light will gleam. The separation is likewise demonstrated to the vehicle driver. By this proposed framework the security is kept up on swarmed zones and in vehicle turning around process.

**Keywords-** Microcontroller, Arduino, LED, LCD, Ultrasonic sensor.

## I. INTRODUCTION

As per the world mishap report, India has the extremely most noteworthy number of street mischances inside the world. Street mishaps have earned India a questionable qualification. With more than 130,000 passings yearly, the nation has overwhelmed China and now has the most exceedingly bad street car crash rate around the world. Upwards of 1,39,091 individuals lost their lives in 4,40,042 street mischances in the nation a year ago.

Tamil Nadu finish the rundown of with 16,175 passings in 67,757 mishaps, trailed by Uttar Pradesh with 15,109 passings in 24,478 mischances. Andhra Pradesh is third with 14,966 passings in 39,344 mischances and Maharashtra fourth with 13,936 passings in 45,247 mishaps. The Capital city of Delhi represents around 1,866 passings in 6,937 mischances. The states in India like Tamil Nadu, Uttar Pradesh and Andhra Pradesh accounted every year for 15.4%, 10.3% and 10.1% of the street Mishaps in the nation. Street mishaps have earned India a questionable refinement. With more than 130,000 passings yearly, the nation has overwhelmed china and now has the most exceedingly awful street car crash rate around the world. One genuine street mischance in the nation happens each moment and 16 bites the dust on Indian streets consistently. 1214 street crashes happen each day

in India, Two wheelers represents 25% of aggregate street crash passings.

**Reason-** There is no real way to decide the correct separation of cars going behind as that will be in charge of mishap.

- We don't know that we will have a protected travel to achieve our goal even a little diversion may awful to a mishap.
- Sleepiness have bigger part in mischances. A large portion of the mishaps happens because of driven obliviousness since they doesn't have an approach to get caution.
- As needs be to the national wrongdoing record, India bears almost 30% of the world's aggregate mischance rates

## II. MODEL DESCRIPTION AND ANALYSIS

**1. LED-**(light emitting diode) is a two lead semiconductor light source. It is a p-n junction diode that emits lights, when activated. If a suitable voltage is applied to the leads, electrons are able to recombine with electron holes within the devices and releasing energy in the form photon. This effect is called electroluminescence and the color of the light is determined by the energy band gap of the semiconductor. LEDs are typically small and Integrated Optical Components. ).

**2. Power Supply**-power supply is a device that supplies electric power to an electrical load. The term is most commonly applied to electric power converters that convert one form of electrical energy to another thought it may also refer to devices that convert another form of energy (mechanical, chemical, solar) to electrical energy. A power supply may be implemented as a discrete, stand-alone device or as an integral device that is hardwired to its load. All power supplies have a power input connection, which receives energy in the form of electric current from a source, and one or more power output connections that delivers current to the load.

**3. Ultrasonic Sensor**-The ultrasonic sensor is an extremely reasonable vicinity/remove sensor that has been utilized chiefly for question shirking in different apply autonomy ventures. It basically gives our arduino spacial mindfulness and can keep our robot from smashing or tumbling off a table. It can likewise been utilized as a part of turret applications, water level detecting and even as a stopping sensor. The exactness of ultrasonic sensor can be influenced by temperature and moistness of the air it is being utilized as a part of.

**4. Arduino**- Arduino is an open source stage utilized for building hardware ventures. Arduino comprises of both a physical programmable circuit board (regularly as a microcontroller) and a bit of programming or IDE (coordinated advancement condition) that keeps running on our PC. The arduino stage essentially utilized c++ and other programming for coding reason. Arduino board outlines utilize an assortment of microchips and controllers. The sheets are outfitted with sets of advanced and simple info/yield (I/O) sticks that might be interfaced to different development sheets and different circuits.

**6. PCB**-A printed circuit board(PCB) mechanically bolsters and electrical interfaces and electrical segments utilizing conductive tracks, cushions and other scratched from copper sheets covered onto a non-conductive substrate.PCB is utilized as a part of everything except the least difficult electronic items. They are likewise utilized as a part of some electrical items, for example, aloof switch boxes.

**7.LCD DISPLAY:** - A LCD is an electronic show module which utilizes fluid precious stone to deliver a noticeable picture. The 16x2 LCD show is an extremely essential module regularly utilized as a part of DIYs and circuits. The 16x2 interprets on a show 16 characters for every line in a 5x7 pixel framework.

### III. SYSTEM INTRODUCTION

The mishap evasion framework keeps away from the customary mischances that will regularly happening on interstates and in city activity. These mishaps are basically occurred by diversion, obviousness, and separation obscure between our vehicles. So let us consider the Indian streets and we will have 2 ultrasonic sensors where one is put in the front and another behind the auto. Because of this sensor, we can compute the separation of different vehicles nearing us. Along these lines we can find different autos and we can shield ourselves from mishaps. The diagrammatic portrayal of the situation is clarified as

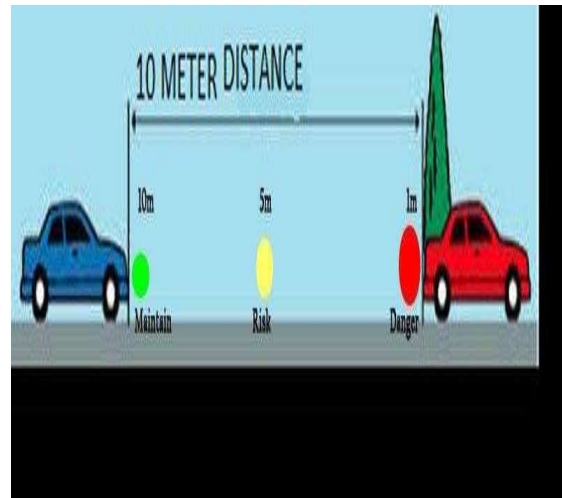


Fig.1 systematic model.

### IV.HARDWARE DESCRIPTION

Arduino is a prototyping stage for controlling numerous gadgets. Through arduino, we can construct numerous models that we envision. An essential arduino unit which frames the association between the LCD and Ultrasonic sensor. Here the LCD is the source to show the yield. Through this LCD show we can have the capacity to see the separation of the vehicle that comes. Ultrasonic sensor is to detect the vehicle that nears going to 10 meters bread sheets which permits actualizing all the association joined by the three LEDs.Connections are made to the arduino, LCD, LED, Ultrasonic sensor. The ultrasonic sensor are settled in our auto and it ordinarily faculties the auto which is closest to us on both front and posterior. At separation of 10meter the green light will demonstrate the warning and when the auto achieves 8meter he yellow shading light cautions us and when the auto achieves 5meter the red shading light alarms us about the threat zone .The separation between one vehicle and another vehicle was shown in LCD.

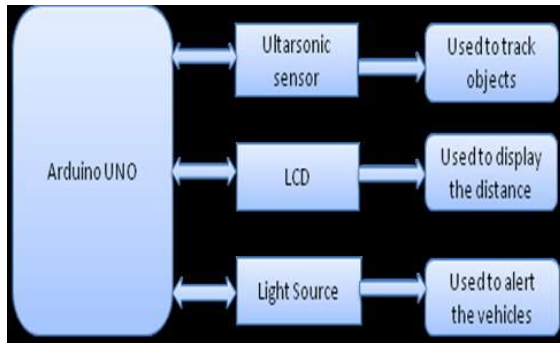


Fig.2 Functional Diagram.

## V. WORKING

The fundamental thought behind this is to stay away from mischance shown in fig. 3. It is a careful step that cautions the driver. The underlying stage starts from the ultrasonic sensor that recognizes the vehicle in the front and rear. On the off chance that the auto achieves 10meters, green shading light will gleam that will demonstrate the warning. At 8meter separation yellow shading light will cautions us. When it achieves 5meter separation red shading light will alarm us about the risk zone. In the meantime the separation between one vehicle and another vehicle was shown in LCD. Wire association is produced using the bread board to the LCD arduino pack to the ultrasonic sensors lastly bread board to the arduino unit. This undertaking will make simple estimation of a separation between one vehicle and another vehicle for the driver.

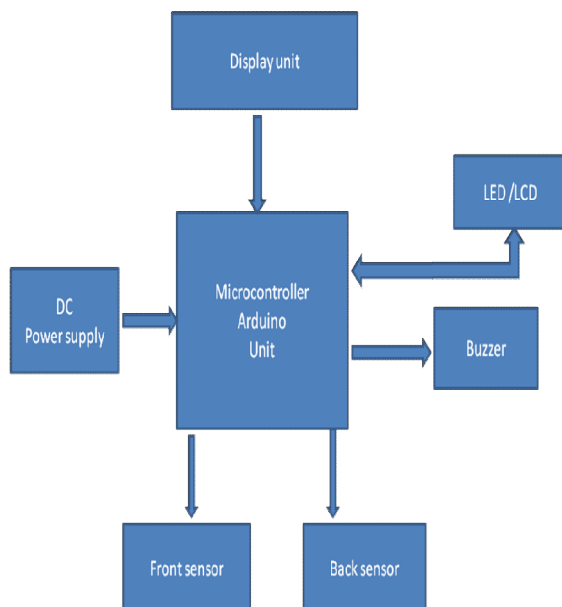


Fig.3 Block Diagram.

## VI. CONCLUSION AND FUTURE WORK

In this paper we proposed and execute the mischance evasion framework. Utilizing this framework we may keep away from numerous mishaps occurred because of the accompanying frameworks. The framework involves ease segments, for example, ultrasonic sensor, LCD, LEDs, and so on. This framework may have numerous points of interest, for example,

- Use to know the separation about after vehicles.
- In future, we will diminish the speed of one vehicle as indicated by the accompanying separation of other vehicle. By this framework, we may avert numerous mischances and INDIA will turn into a mishap less nation.

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