Design and Implementation of Vehicle Over Speed Warning System

K Jyothi, R Karthik

Abstract: *This paper presents the design and implementation of vehicle's over speed warning system. Road accidents are very common in the present world with prime cause being the careless driving. With the advancement in the technology, different governing bodies are demanding some sort of computerized technology to control the over speed driving. At this scenario, we are proposing a system to detect the vehicle which is being driven above the maximum speed limit. After the detection the system captures the image of the vehicle and gives the indication to the higher authorities.*

Index Terms: **Speeding, Arduino Uno, Vehicle over speed .**

I. INTRODUCTION

We all see every day a traffic slogan, Speed thrills but kills. While a few people drive with high speed to reach the offices on time, a few people cross the prescribed speed limits just to have fun. Although we won't get caught always by the traffic police for exceeding the speed limits, the over speed might cause the road accidents and hence death. One of the methods to avoid such accidents and deaths is to first monitor the speed of the vehicles by some mechanism and then intimating the traffic police.

In order to address this issue we have come up with an excessive-speeding vehicle detecting circuit to monitor and control the speeding using various electronic circuits like Arduino Uno, Infra-Red Sensors, Power supply, Buzzer and 16×2 LCD Display. Though the proposed model can also be designed by using microcontroller but due to its high complexity and high cost. This design uses Arduino Uno instead of microcontroller because of high complexity and cost of the microcontroller.

One of the advantages of this circuit is that it can be easily carried by the traffic police. Not only this system displays the speed but also sounds an alarm whenever the vehicle's speed exceeds the predefined speed of the roads or highways. This system calculates the time taken to travel between the two set points at a fixed distance in order to measure the speed of a vehicle under consideration. This circuit can be extended by attaching a camera to the system so that the image of the vehicle that is violating the speed limitations can be captured. The objectives of the proposed work are to: 1. Design a speed

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detecting system which detects speed of the vehicle. 2. Implement a speed detecting system to detect the speed of the vehicle (prototype).
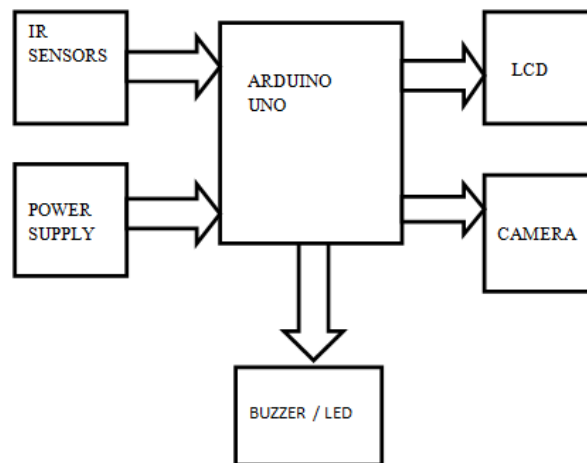
II. BLOCK DIAGRAM IMPLEMENTATION

Fig 1: Block diagram implementation

III. CIRCUIT DIAGRAM

The circuit of this proposed project contains a power-supply, Arduino UNO board, Infra-Red sensors, LED and Displays. The power supply used can supply the power to the whole system. Both Infra-Red sensors are connected to the Arduino's interrupt pin to detect the falling wave. The measured speed gets displayed on LCD that is connected to Arduino. Internal timer of the Arduino gets switched ON while the vehicle crosses the first sensor and gets stopped when the crosses the second IR sensor.
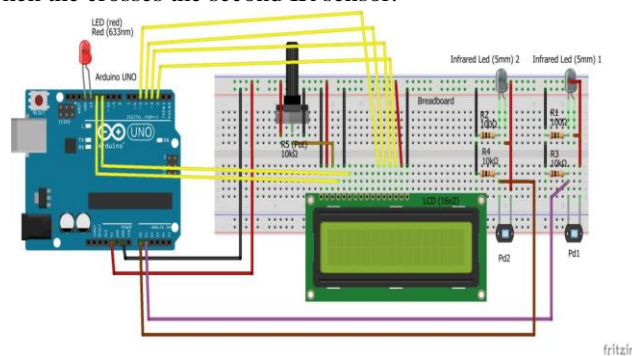

Fig 2: Circuit diagram of the proposed system

Based on the time taken by the vehicle to pass through both the sensors the speed of the vehicle will be measured and gets displayed on the LCD.

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IV. ALGORITHMS AND FLOWCHART

Step 1: Start

Step 2: The Vehicle passes through the 1st IR sensor and counter starts.

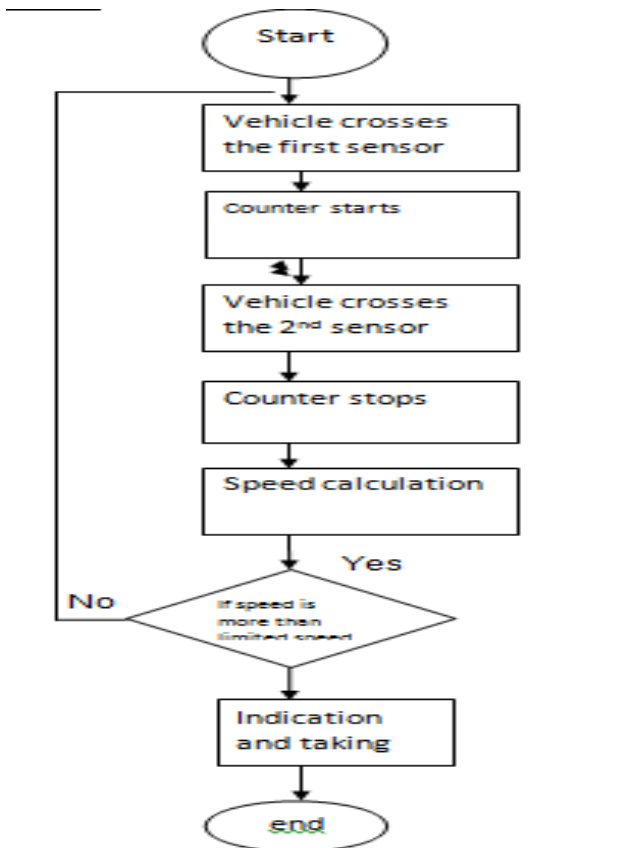Step 3: The vehicle passes through the 2nd IR sensor and counter stops.

Step 4: Speed is measured and compared with the predefined limit.

Step 5: If speed is greater than the limited speed then the system gives an indication, displays the speed and captures the picture.

Step 6: Loop repeats.

Step 7: End.

The flowchart for the proposed work is as follows,

V. RESULTS & DISCUSSION

A. Circuit Setting/Installation:

Installing JDK on PC

Download JDK fromOracle.com. Refer Fig 3. This has to be downloaded to interface the camera module in our PC.

To check the COM Port, we could check it on your Control Panel > Device Manager > Ports (COM & LPT) > right click > Properties > Port Settings > Advanced > COM Port Number > /Select Your Port Number/. Figure 4 shows the connection of USB port to Arduino module. This has to be configured for the working of the system.
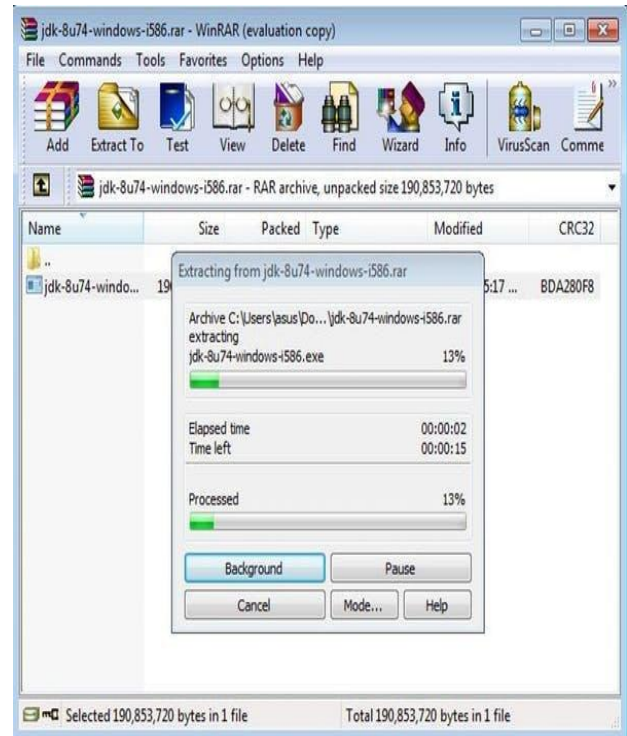

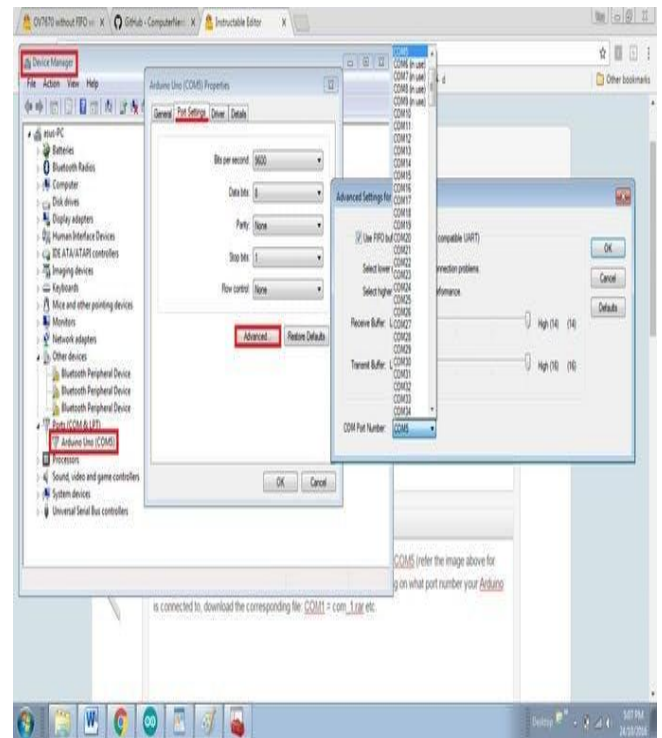**Fig. 3: Installation window of JDK on PC**

Fig 4: Connection of USB port to Arduino

B. CMD

Now open cmd and open the folder wherein the code folder is by writing its address. mine is "C:\Program Files\Java\jdk1.8.0_74\bin". For Output window, Refer Fig 5. Upload it to the arduino and run the CMD code again.

Fig 5: Output window

VI. ADVANTAGES, DISADVANTAGES AND APPLICATIONS

The advantages are as follows: 1. Reduces the risk of accidents. 2. Easy to implement. 3. Doesn't require human involvement. The disadvantages are as follows: 1.Valid only for sequential flow of vehicles. 2. It is only for one way traffic flow. This system can be used for Highways, School and Hospital zones.

VII. CONCLUSION

As the major reason behind the number of accidents on highways is the excessive speed, it is essential to monitor and thereby decreasing the speed of the vehicles on highways to ensure the safe journey. This projects helps to reduce the number of accidents by detecting the over speed, capturing the image of the vehicle and informing the police.

ACKNOWLEDGMENT

It is optional. The preferred spelling of the word "acknowledgment" in American English is without an "e" after the "g." Use the singular heading even if you have many acknowledgments. Avoid expressions such as "One of us (S.B.A.) would like to thank ... ." Instead, write "F. A. Author thanks " Sponsor and financial support acknowledgments are placed in the unnumbered footnote on the first page.

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