Speed Breaker Intimation

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Abstract - Speed bumps play a significant role in traffic calming and increasing awareness on the road. Speed is the primary factor in most vehicle accidents—increasing both risk and severity. As drivers move faster, they have less time to respond to road conditions and any resulting collision causes more damage to the person who is driving the vehicle and to the people or vehicles who are on the roads. To reduce these accidents at crowdy places like schools these speed bumps are added. By seeing these speed bumps, the person who is driving the vehicle will slow down at that place. But sometimes these speed bumps are cannot be seen by the drivers and accident occurs in that situation. And in other situation like, If a new speed bumps are added, the person who is daily travelling on the same road, he may not know the speed bump is added, He may travel with the same speed and all of a sudden by seeing the speed bump the person will apply the brakes suddenly and accident may happen. So, to reduce these accidents we have developed a prototype which will alert the person who is driving the vehicle whether a speed bump is present ahead, so that the person will slow down and reduce the accidents.

Key Words: Speed Bumps, vehicle, accidents, person

1. INTRODUCTION

There is evidence to support the claim that speed breakers can cause accidents and injury. When a vehicle approaches a speedbreaker at a speed greater than some threshold velocity, the risk of accident or injury is substantial. Speed-breakers are inconspicuous in low visibility conditions, like at night, or when there is fog, rain, or snow. This problem is particularly acute in developing countries where speed-breakers don't always accompany warning signs. The situation may be more problematic if an ambulance driver fails to recognize a speed breaker and jumps over it. And in other situation like, If a new speed bumps are added, the person who is daily travelling on the same road, he may not know the speed bump is added, He may travel with the same speed and all of a sudden by seeing the speed bump the person will apply the brakes suddenly

and accident may happen. So, to reduce these accidents we have developed a prototype which will alert the person who is driving the vehicle, whether a speed bump is present ahead, So, that the person will slow down whenever the driver gets the alert. By using this prototype, the driver can identify the speed bump and we can avoid the change of happening accidents.   The key contributions of this work can be summarized as follows:

· 	Development of an autonomous system for speed breaker data collection, analysis and route construction.

· 	A real-time and light-weight mechanism for detecting Speed Breakers.

· 	The detection system is smart enough to handle multiple road-intersections, U-turns and can dynamically determine a new route and its speed breakers.

· 	Development of an accurate and time-efficient warning system so that the driver can control vehicle speed in ahead of time.

Notification to vehicle owner/Driver is an added feature of the system.

· 	Finally, the proposed system works in adverse environments as well, e.g., night, foggy or rainy weather, etc.

### 1.1	Existing system:

 Generally, Speed Bumps can be identified by using Signs. Speed Bump Signs are best ways to warn drivers to slow down for upcoming bumps and in conjunction with speed limit signs. They are helpful within parking lots and on roads.

### 1.2	Problems of Existing System

But there is a disadvantage of these Speed Bump Signs too. While driving the vehicle the driver may not be able to see these signs, in that situation there is a risk of happening the accidents when the driver saw the speed bump and apply brakes suddenly. Whenever, a new speed bumps are added, the person who is daily travelling on the same road, he may not know the speed bump is added, He may travel with the same speed and all of a sudden by seeing the speed bump the person will apply the brakes suddenly and accident may happen

2.PROTOTYPE IMPLEMENTATION

In using Signs there are many disadvantages so, we developed a prototype which will identify the speed bumps in advance. So that the driver can slow down in advance when he gets the alert. In this project we used Ultrasonic sensor to identify the speed bumps in advance.

The proposed work uses an integrated-on chip computer Arduino UNO controller. Ultrasonic sensor is mounted to sense weather the speed bump is present ahead or not. This is reliable and reduces the accidents. By using this system, we can reduce the accidents and the driver can get the alert in advance if the speed bump is present.

3.   Tools Required

3.1   Hardware tools

         Arduino UNO

         Ultrasonic Sensor

         16x2 Lcd Display

3.2   Software tools Arduino IDE

4.   Working

After initializing the system, it checks whether the speed breaker is present ahead or not. The ultrasonic sensor sends the sound waves through the transmitter. When the speed bump is present the sound waves hit the speed bump and reflect, and these sound waves are received by the receiver which is present in the ultrasonic sensor. When these sound waves are received by the ultrasonic sensor it sends a signal to the Arduino then the Arduino sends the alert message on the display that, a speed bump is present ahead

5.HardwareSetup

5.1   Arduino Uno

The Arduino Uno SMD is a version of the Arduino Uno, but uses an surface mount version of the Atmega328P instead of the through-hole version. This version was made in response to a

shortage in supply of the through hole Atmega328P. The board is based on the ATmega328 (datasheet). It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started.

The Uno differs from all preceding boards in that it does not use the FTDI USB-to-serial driver chip. Instead, it features the Atmega8U2 programmed as a USB-to-serial converter.

5.2   Ultrasonic Sensor

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Ultrasonic sensor is a four pin module, whose pin names are Vcc, Trigger, Echo and Ground respectively. This sensor is a very popular sensor used in many applications where measuring distance or sensing objects are required. The module has two eyes like projects in the front which forms the Ultrasonic transmitter and Receiver. The sensor works with the simple high school formula that

Distance = Speed × Time

The Ultrasonic transmitter transmits an ultrasonic wave, this wave travels in air and when it gets objected by any material it gets reflected back toward the sensor this reflected wave is observed by the Ultrasonic receiver .

5.3   LCD Module

Dot matrix LCD modules is used for display the parameters and fault condition.16 characters 2 lines display is used. It has controller which interface data's and LCD panel. One each polarizer's are pasted outside the two glass panels. These polarizer's would rotate the light rays passing through them to a   definite angle, in a particular direction When the LCD is in the off state, light rays are rotated by the two polarizes and the liquid crystal, such that the light rays come out of the LCD without any orientation, and hence the LCD appears transparent.

5.4   Arduino IDE

To begin, download the Arduino IDE from the Arduino website. Make sure to select the right version
for your Operating System (OS). For a full getting started guide for each OS, please refer to the Arduino guide. Once the arduino.zip file has been downloaded, extract the file to a folder somewhere on your computer. There is no install - simply open the folder and double click the .exe. Connecting an Arduino board to your PC is quite simple. Now,

 1.Connecting the Arduino
2.   Preparing the board
3.   Loading the code

5.5. RESULT

6.CONCLUSION

This paper develops a system that can detect Speed breaker and sends alerts to the on-road vehicle drivers. We plan to bring forth more competent system in future to overcome the false positive condition in identification of speed breaker to ensure better quality of service.

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