

Virtual speed breaker the speed reducing medium

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Abstract - *The virtual speed breaker can be also called as the dynamic type of speed breaker. As this kind of speed breakers are able to boost up and scrolled down it is very useful and preferable than the permanent speed breakers. This is the modified form of the permanent speed breaker which has been consisting of a **motor, relay driver, sensors, indicator (like LED), LCD screen for the display, a buzzer.** This are all the components which are being used in the formation of virtual speed breaker. These breakers have became the important factor of the roads for the speed calming of the vehicles and volume on residential streets. The shape of the common humps are parabolic, circular and sinusoidal.[3] This model has been modeled using orcad. The Aurdino Uno is used in the model for the programming purpose on which basis the project will work.*

Introduction:

Speed bumps (or **speed breakers**) are the common name for a family of **traffic calming** devices that use vertical deflection

to slow motor-vehicle traffic in order to improve safety conditions. Variations include the **speed hump, speed cushion, and speed table.** The use of vertical deflection devices is widespread around the world, and they are most commonly found to enforce a low speed limit, under 40 km/h (25 mph) or lower. Although speed bumps are effective in keeping vehicle speeds down, their use is sometimes controversial—as they can increase traffic noise, may damage vehicles if traversed at too great a speed, and slow emergency vehicles. Many **sports cars** have this problem with such speed bumps. So this problem can be overcome or reduced by using the **virtual** type of the **speed breaker** or the dynamic type of speed breaker. As these kind of the speed breakers are able to **boost up and scrolled down.** A speed bump is a bump in a roadway with heights typically ranging between 3 and 4 inches (7.6 and 10.2 cm). The traverse distance of a speed bump is typically less than or near to 1 foot (30 cm); contrasting with the wider speed humps, which typically have a traverse distance of 10 to 14 feet (3.0 to 4.3 m).

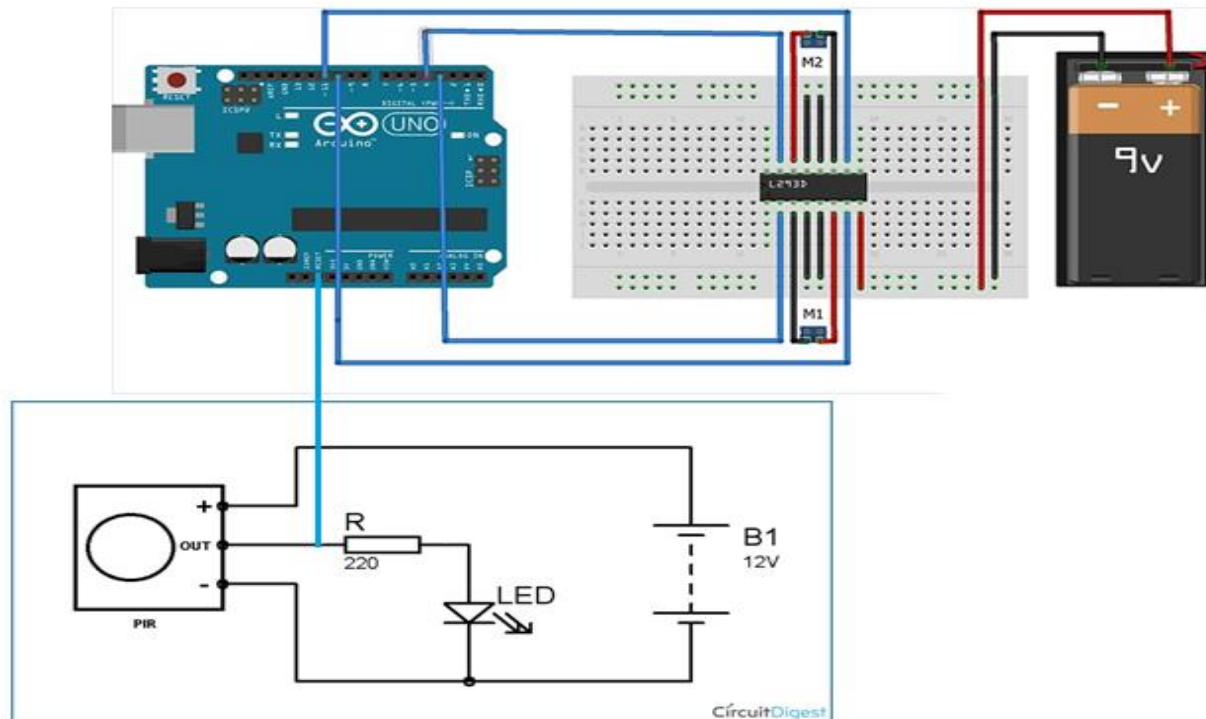
Road transport ministry data reveals that permanent speed breakers are the cause of 30 crashes daily, killing at least nine people a day. Speed breakers in India claimed more lives (3,409 in 2015) than all road accidents in Australia and the UK (2,937 deaths in 2015) combined. Faulty design, poor material make them dangerous for road users.

Methodology:

The working principle is based on speed sensation. The programming part is done with the help of arduino which will be stored into the secondary IC placed on the arduino. The two **ultrasonic sensors** that to be used for the speed sensing purpose, and

the **counters** are fitted with the sensors. As soon as the vehicle crosses the **first sensor** the counter gets starts. The other sensor is placed on the same way at certain specified distant of about **100meters**. As soon as the vehicle crosses the another sensor the counter gets stopped, and will give the specified value. For getting the speed of the vehicle the distance between the two sensors will be divided by the value given by the counter. If the value of the **speed** would be **more** than the specified value (**40km/hr**) of the **speed limit** then the **hump/bump** will **boost up** with the indication of the yellow led and sound made by the buzzer fixed at the road side, otherwise the bump would be in lined with the road surface with the speed limit below 40km/hr and the **green led** light.

Circuit diagram



Advantages:

- The most important advantage of the project is it is eco friendly and consisting of less cost.
- Require less maintenance.
- Suits all roads.
- Helps in reducing the physical problems like back or neck pain of the people travelling over the roads.
- Visibility is more.

Applications:

- This speed breaker can be mostly put over the roads where narrow roads meets.
- Can be placed on the divergent roads.
- In the area where there are schools and colleges.
- Highly congested areas.

Conclusion:

We have done work on a project i.e. virtual speed breaker in a order to provide the safety to the people from road accident fatal. This project is going to be very helpful and eco friendly. It will reduce the speed of the vehicle very significantly also will help to maintain the speed.

References:

- [1] "Definition of LCD". www.merriam-webster.com.
- [2] "LCD Image Persistence". Fujitsu technical support. Fujitsu. Archived from the original on April 23, 2012. Retrieved December 11, 2011.
- [3] <https://www.facebook.com/IngeniaroDice/videos/1335579789830896/>