

CONTROLLING OF VEHICLE SPEED BY USING SPEED BUMP

Shilpa Das

*Faculty of Engineering and Technology,
Jain (Deemed-to-be University), Ramnagar District, Karnataka – 562112
Email Id: d.shilpa@jainuniversity.ac.in*

Abstract

The most commonly used transportation is roadways. There are many vehicles passing day and night on roads. Since many are using the same way of transport, there is a risk of accidents everywhere. The ambulance should be provided with a free path to safeguard human life from risk. Since the new system of speed breakers is not revolving, we have to slow down the ambulance's speed near the speed breaker. It will not provide the vehicle, like the ambulance, with a simple route. This leads to delays in reaching the clinics. The flat speed breaker system provides the ambulance with a brakeless track. This device consists of a transmitter and an RF receiver. The receiver receives the signal from the transmitter and causes the motor to rotate 180 degrees in order to establish the ambulance's flat route and return to its usual location. The ambulance will then enter the hospital very soon.

Keywords: Breaker, IoT, Speed bump, Traffic, Vehicles.

I. INTRODUCTION

An intelligent system has many features, such as combined with a variety of fields, customized design, automatic processing and intuitive functions, without the full human control and easy to use and replace. In recent years, intelligent systems with the Internet of Things (IoT) development have been increasingly popular and widely used in diverse applications. One important aspect is the connectivity and mobility for the task execution. Centered on the IoT definition, we propose an intelligent traffic control technique in this work. As part of the transport infrastructure, the goal is to build a vision-enabled mechanical device. A traffic facility called 'speed bump' is typically mounted on some road sections for pedestrian or driving safety purposes, such as in the vicinity of hospitals, schools, parking slots, or specific intersections[1]. To avoid traffic collisions, it is used to remind drivers to pay more attention to the surrounding environment and to slow down. However, under such conditions, speed bumps have many disadvantages. For instance, those installed near a hospital may increase the pain of patients, and possibly delay the first-aid time. In more general situations, the speed bumps still make the driver and passengers uncomfortable even if the vehicle is at a low driving speed. Thus, it is desirable to have a mechanism to selectively enforce the speed bump deceleration according to the information of the incoming vehicles[2].

A modified speed bump system that can momentarily disable the road bump to prevent a crash and uncomfortable driving. The speed bump will change automatically for registered vehicles based on the license plate recognition outcome and the demand from a database. In addition,

vehicles with an appropriate driving speed can also be dealt with. To measure the vehicle speed for road bump compliance activation, the trigger time difference between two pressure sensors with a known distance on the ground is used. Experiments are done with license plate recognition of the photographs of the real scene[3].

The proposed techniques consist of two parts, one is the design of adjustable speed bump mechanism and the other is the license plate recognition. A speed bump is a commonly adopted traffic control facility, but its fixed height is a serious issue for comfort driving. The concept of an intelligent speed bump has been suggested in the past few years to solve this problem. The new smart speed bumps can be classified as the electronic, mechanical, and hydraulic forms. Accelerometers are used for electronic speed bumps to measure the vibrations that the tyres produce when rolling over the bump. Hydraulic and mechanical speed bumps follow hydraulic and mechanical systems to respectively regulate and lift the arch portion of the bumps. By attaching several removable bump cells, the author has built a portable speed bump with a variable duration.

To avoid the risk of accidents from faulty speed breakers many countries initiate to develop smart speed breakers such as automated speed breakers, hydraulic speed breakers, liquid speed breakers, and three-dimensional speed breakers, etc.

Three dimensional (3D) painting speed breakers

By installing the newly well-designed three-dimensional (3D) painting speed breakers to prevent the possibility of accident from irregular speed breakers on the Bajaj Marg, this virtual speed breaker exactly looks like the real speed breaker, the New Delhi Municipal Council (NDMC) has put forward the revolutionary concept in the field of traffic calming devices. As an effort to make traffic flow smoother and to avoid the possibility of accidents from irregular speed breakers in the area under its authority, this revolutionary concept has been adopted. According to the NDMC, this practise can be extended in other areas that are under the NDMC if this new idea is successful. They also announced that the feedback of traffic would be taken under this novel idea's trial and that the same practises were being tested in the other region of India[4].

LED speed breaker: According to Telangana newspaper today, which announced that Hyderabad traffic control installed creative LED speed breakers at the KBR park junction to control traffic and fast riders just for experiment, and if it were successful, they would install more devices in the entire city, the results would be noted. In the field of traffic control, this new concept could be secure and innovative for the future[5].

Digital Image Processing (DIP) and AVI software tool method

As per a recent study by Indian researchers who documented the novel technique of Digital Image Processing (DIP) and AVI software tool that was used to monitor the threat of speed breakers just before using some voice and display to come in the way of the driver. The primary aim of this innovation was to fix the problems of sudden damage to sensitive parts of classic and expensive cars such as suspension, engine, etc. by unrecognized speed breakers. Basically, damage is caused by vehicles driving over unrecognized speed breakers at high speed. The technique concluded that if the automobiles are automated afterward output of Digital Speed Processor (DSP) can be provided to automation control precisely. The research claimed that

the DIP technique is a more efficient and error-free tool as compared to other sensor detected or software-based speed breaker detected techniques[6].

Acti-bump anti-speeding system

An anti-speeding system was developed by the Swedish company Edeva; they essentially created the smartest speed bump called Acti-bump. Anti-bump was first successfully installed in Linköping in Sweden in 2010 and then installed in other regions of Sweden. Installed to monitor heavy roads where the speed limit is 40-60 km/h, the acti-bump. This intelligent machine is also used at airports, customs stations, etc. It is a powerful system which, while reducing emissions and noise, maximizes road safety and accessibility[7].

BIV (Intelligent Speed Bump)

The BIV was developed by the Spanish company Badennova (Intelligent Speed Bump). This speed reducer varies entirely from the conventional speed breaker. This latest technique is intended to avoid the driver moving too quickly. In particular, the interior of such speed bumps is filled with non-Newtonian viscous liquid that alters its viscosity when high velocity pressure is given and soft deformable material is created outside. The liquid becomes hardened when the vehicle passes over the speed bump at very high speed, but when the vehicle passes slowly over the bump it becomes softened, the liquid would not allow immediate deformation and transfers its shock to the vehicle. This intelligent speed breaker has been tested over five year's duration under proper observation after its successful trial it is installed across the country[8].

Speed-breaker early warning System (SWAS)

The new smart technique called the Speed-breaker early warning system (SWAS), which uses smartphone-based software to alert the driver quite earlier when the vehicle arrives at a speed-breaker, has been documented by Indian researchers Mohit Jain, Ajeet Pal Singh, Sushant Bali and Sanjit Kaul. These revolutionary strategies provide drivers with an alert warning for over-speeding. Even when there are no warning signs or lights on the lane, or when the markings are inconspicuous because of low visibility conditions, SWAS may alert the driver. This advanced smartphone programmer takes advantage of the GPS system and downloads all nearby speed-breakers after it starts monitoring the GPS position of the smartphone and warns the driver when the vehicle hits a speed-breaker. A smartphone-based framework is a smart solution for all countries with a low budget[9].

Power generator Speed Breakers

Developing a pollution-free system for generating energy is very efficient. The researcher developed the innovative mechanical speed breakers that can be used for dual purpose traffic control in this contemporary world, as well as a power generator, these innovative speed breaker genera, referred to as speed breaker generator (SBG) or speed breaker power generator (SBG) (SBPG). Centered on using the wasted kinetic energy of cars that drive over speed breakers, this concept is extremely enormous.

II. CONCLUSION & DISCUSSION

This review article emphasizes the short literature review on traffic calming devices and the latest technology regarding it. It will be useful for researchers who are studying smart speed

breakers, analysts, and government agencies. The creative ideas for the production of smart speed breakers from research around the world were explored in this review article. Traffic traditional calming devices are not now a complete solution to control over-speeding, as we mentioned earlier that traffic calming devices have various drawbacks, but smart speed breakers may be the best and safest solution for traffic control and over-speeding in this modern technological period. It is concluded that the world needs more smart and creative speed breakers for roads.

III. REFERENCES

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