Smart connected Signs for Improved Road Safety

INTRODUCTION

In present Systems the road signs and the speed limits are Static. But the road signs can be changed in some cases. We can consider some cases when there are some road diversions due to heavy traffic or due to accidents then we can change the road signs accordingly if they are digitalized.This project proposes a system which has digital sign boards on which the signs can be changed dynamically.If there is rainfall then the roads will be slippery and the speed limit would be decreased.There is a web app through which you can enter the data of the road diversions, accident prone areas and the information sign boards can be entered through web app. This data is retrieved and displayed on the sign boards accordingly.

System Required:

RAM-Minimum 4GB Processor-Min.

Configuration OS-Windows/Linux/MAC

IOT device on field

eg: sensors,cameras

Cloud service

WORKING PRICIPLE

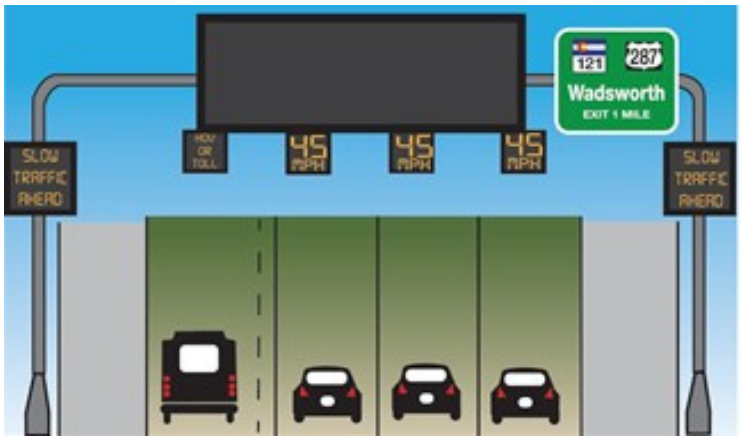
- To replace the static signboards, smart connected sign boards are used.
- These smart connected sign boards get the speed limitations from a web app using weather API and update automatically.
- Based on the weather changes the speed may increase or decrease.
- Based on the traffic and fatal situations the diversion signs are displayed.
- Guide(Schools), Warning and Service(Hospitals, Restaurant) signs are also displayed accordingly.
- Different modes of operations can be selected with the help of buttons.

SPEED INDICATION DISPLAY

Warning signs can be beneficial for road users. The speed indication displays – that serve as a warning sign – are digital speed boards which are installed on roads for identifying whether a vehicle crosses the speed limit or not. These devices are installed along with a radar sensor, and can evaluate the speed of the vehicle, which is displayed on the LED displays, visible to all vehicles. Today, a wide range of speed indication display devices is available; while some display the vehicles which are driving under and over speed limits, others display the real-time speed of each vehicle. At times, the device captures and stores images of speeding vehicles. Speed Indication Displays have been implemented in Singapore and UK, and the Indian Government has already suggested the installation of these devices in its scheduled ‘Integrated Traffic Management System’.

VARIABLE MESSAGE SIGNS

Variable message signs are LED boards which display vital information to commuters. These signs are installed in Indian cities such as Bangalore and Hyderabad. Delhi is also planning to install the sign in the near future. As a result, it serves of value to road users as they are able to receive the latest updates on the road and traffic conditions, especially that of vehicle breakdowns and traffic congestion.

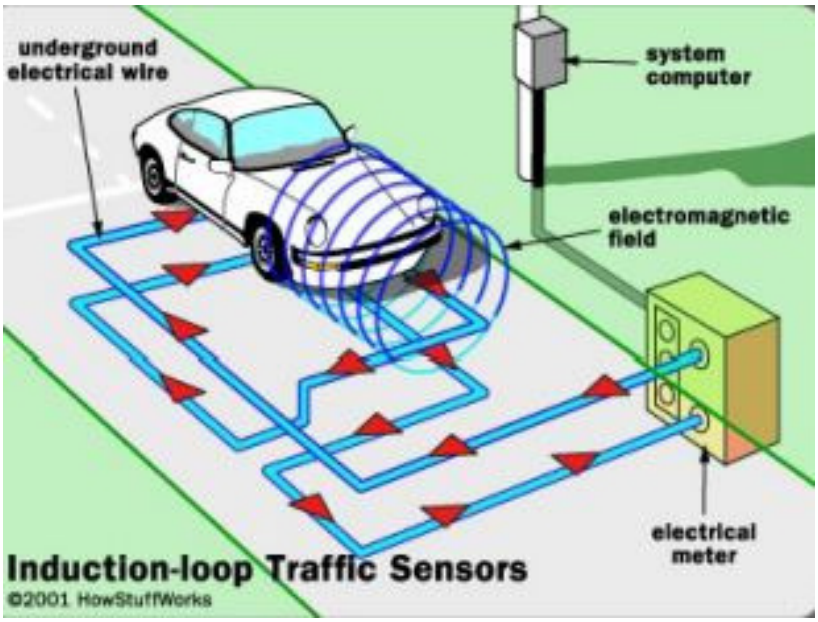


SPEED GOVERNORS

Speed governors, as the name implies, allow you to recognize when a vehicle crosses the decided speed limit. With the sensors attached to the device, you can recognize how swiftly a vehicle is going, and whenever the vehicle attempts to cross the speed limit, it will restrict the air flow and engine fuel. Hence, the vehicle will automatically slow down and stop. Therefore, the speed governor is an ideal solution for vehicles to remain within the speed limit.

INDUCTION LOOPS

Induction loops are beneficial since they detect vehicles waiting at the junction and send this data to traffic signals, which change automatically based on the situation. These loops utilize electromagnetic fields and will experience a change in frequency whenever a vehicle enters that particular area. The feedback obtained from it is transferred via connected cables. In addition to this, the type of vehicle can also be determined on the basis of the changes in frequency



- **SPEED INDICATION DISPLAY**
- **VARIABLE MESSAGE SIGNS**
- **SPEED GOVERNORS**
- **INDUCTION LOOPS**

WHY ROAD SAFETY IS IMPORTANT

In its Global Status Report on Road Safety – 2015, the World Health Organization (WHO) noted that the worldwide total number of road traffic deaths has plateaued at 1.25 million per year, with tens of million either injured or disabled. Different initiatives, such as the United Nations' initiative for the 2011-2020 Decade of Action for Road Safety, have led to improvements in road safety policies and enforcements. However, the WHO notes that the progress has been slow and has maintained the call for urgent action to reduce these figures.

Added to the losses in human lives and wellbeing, considerable monetary losses are incurred in medical expenses, infrastructure repair, and production downtime. While the worldwide figures have plateaued, the Global Status Report does indicate higher road fatalities and injuries in low-income countries. Such disparity, as noted in. Signals a barring-limitation in low-income countries to improve road-safety by adopting solutions implemented in high-income countries.

The WHO describes different measures that can be implemented with minimal economic impacts in its "Save LIVES: Road Safety Technical Package" .A cornerstone of these steps is realizing economic systems for "monitoring road safety by strengthening data systems". Meanwhile, a key theme in the package is motivating the adoption of a Safe System approach, which is a holistic approach to road safety that parts from traditional management solutions by emphasizing safety-by-design.

CONCLUSION

In India, there is a huge potential for such PPP models but the authorities and private investors are still not finding a balance, and are unable to create a clean, non-profit, safety objective-driven campaign to reduce road fatalities. But in the future, as more and more international investor-driven platforms will operate these roads, these models could be a reality soon.