SIGNS WITH SMART CONNECTIVITY FOR BETTER ROAD SAFETY

SUBMITTED BY

TEAM ID : PNT2022TMID29479

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PROBLEM STATEMENT DEFINITION

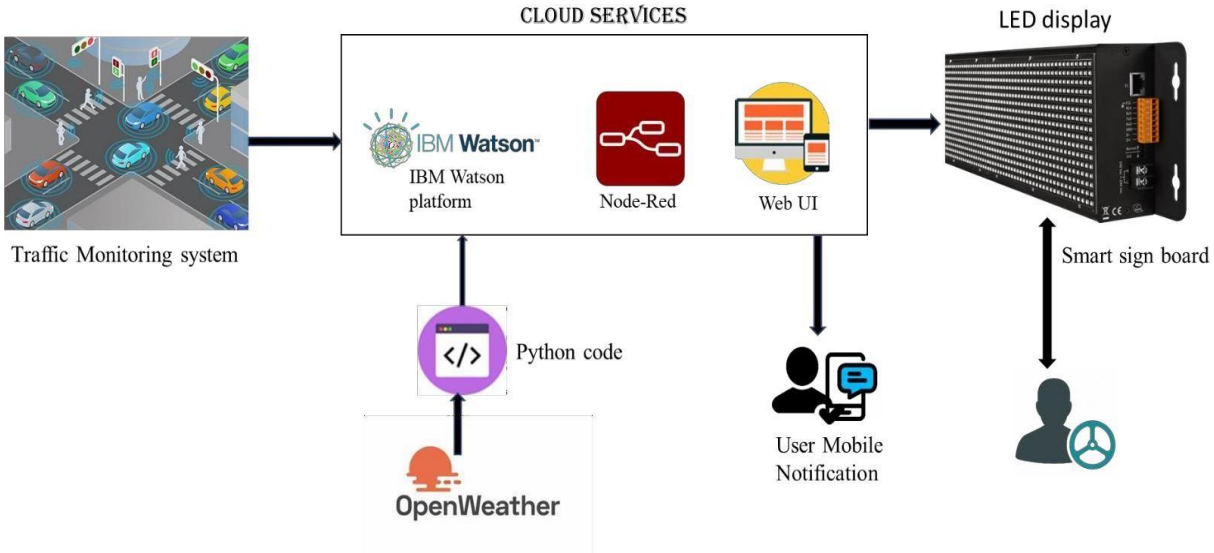
In present Systems the road signs and the speed limits are Static. But the road signs can be changed in some cases. We can consider some cases when there are road diversions due to heavy traffic or due to accidents then we can change the road signs accordingly if they are digitalized. This project proposes a system that has digital signboards 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 on road diversions, accident-prone areas, and information sign boards can be entered through the web app. This data is retrieved and displayed on the signboards accordingly.

PROPOSED SOLUTION

S.No	Parameter	Description
1.	Problem Statement (Problem to be solved)	Project - Signs with Smart Connectivity for Better Road Safety is used to educate the drivers digitally using IOT who do not have knowledge about traffic signs and weather indication for the drivers and passengers convenience. Based on the traffic and fatal situations the diversion signs are Displayed. Guide(Schools), Warning and Service (Hospitals, Restaurant) signs are also displayed accordingly.
2.	Idea / Solution description	Replacing the man made painted signs into digital as well as their name which is more visible compared to current signs and also indicating weather in the same sign boards for driver where weather is not predictable. The weather and temperature details are obtained from the OpenWeatherMap API. Using these details, the speed limit will be updated automatically in accordance with the weather conditions
3.	Novelty / Uniqueness	Weather indication on sign boards is unique which will help mostly the two wheelers from unfortunate heavy rains and winds. Digital traffic signs also educates the drivers to follow traffic rules easily.

4.	Social Impact / Customer Satisfaction	It makes the people to know about traffic signs if they don't know ,it shows signs digitally to avoid the accidents and weather indication based on IOT to avoid accidents
5.	Business Model (Revenue Model)	This project can make revenue by selling many equipments to the government sector and also private sectors(educational & medical institutions).Maintain services are also taken by the company. The public will also gain all the information about the road, even if they are checking for an alternate path because of some mishaps that happen on the roads and these functionalities will increase the value of the product in the global market.
6.	Scalability of the Solution	It makes the daily life of drivers and passengers better. The product can be scalable by adding new features to the product makes more revenue. The hardware components can be directly interfaced with the microcontroller and small modifications can be made in the programming of the existing product. In case of the software, the website application has to be updated with the additional functionality by creating a new section for the updated hardware

TECHNICAL ARCHITECTURE

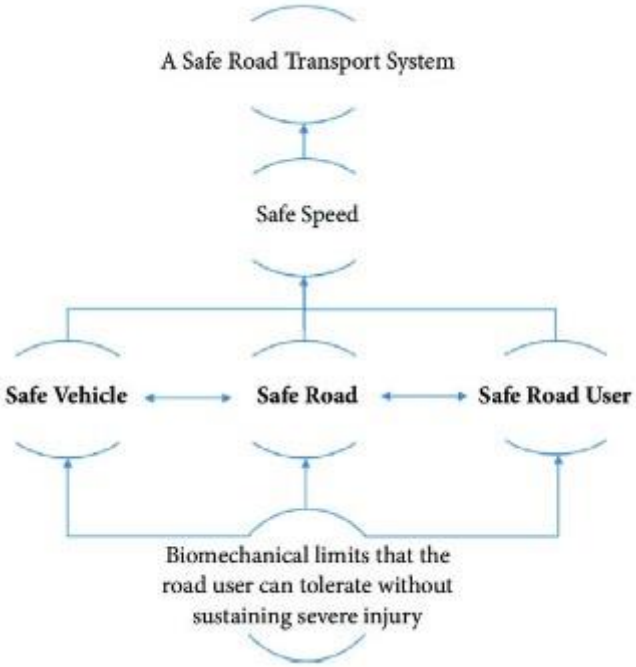


WORKING DEMO OF THE PROJECT

LINK:https://drive.google.com/file/d/1kUNoH-590ThIwgzHFHHMHlFWVEVVHRWV/view?usp=share_link

PERFORMANCE METRICS

Based on the IBM pack we chose, the performance of the website varies. Built upon NodeJS, a light and high performance engine, NodeRED is capable of handling upto 10,000 requests per second. Moreover, since the system is horizontally scalable, a even higher demand of customers can be served.



FUTURESCOPE / SCALABILITY

IoT obtains the majority of its data with the help of connected cars. These incorporate a large number of sensors that establish communication with the cloud, other vehicles, and devices. Thanks to this it provides data and information of great utility for the improvement of road safety. The safe system approach to road safety emphasizes safety by design ensuring safe vehicles, road networks, and road users. Evolving towards the future, the road needs to boil with advanced sensors and antenna systems to have peace with the new era.