SIGNS WITH SMART CONNECTIVITY FOR BETTER ROAD SAFETY

ABSTRACT:

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.

INTRODUCTION:

Our goal, here, is to achieve reliable identification of road signs by smart vehicles without limiting the solution to learning-based techniques. Particularly, we can view the road-sign classification problem from a wider perspective as a communication problem. The road sign and smart vehicle can be viewed as a transmitter and a receiver, respectively. Then, the message is the type of the road sign, the signal carrying that message is the physical road sign, and the signal received is its digital image taken by the smart vehicle. Based on this viewpoint, we can reconfigure this information flow by also designing the signal.

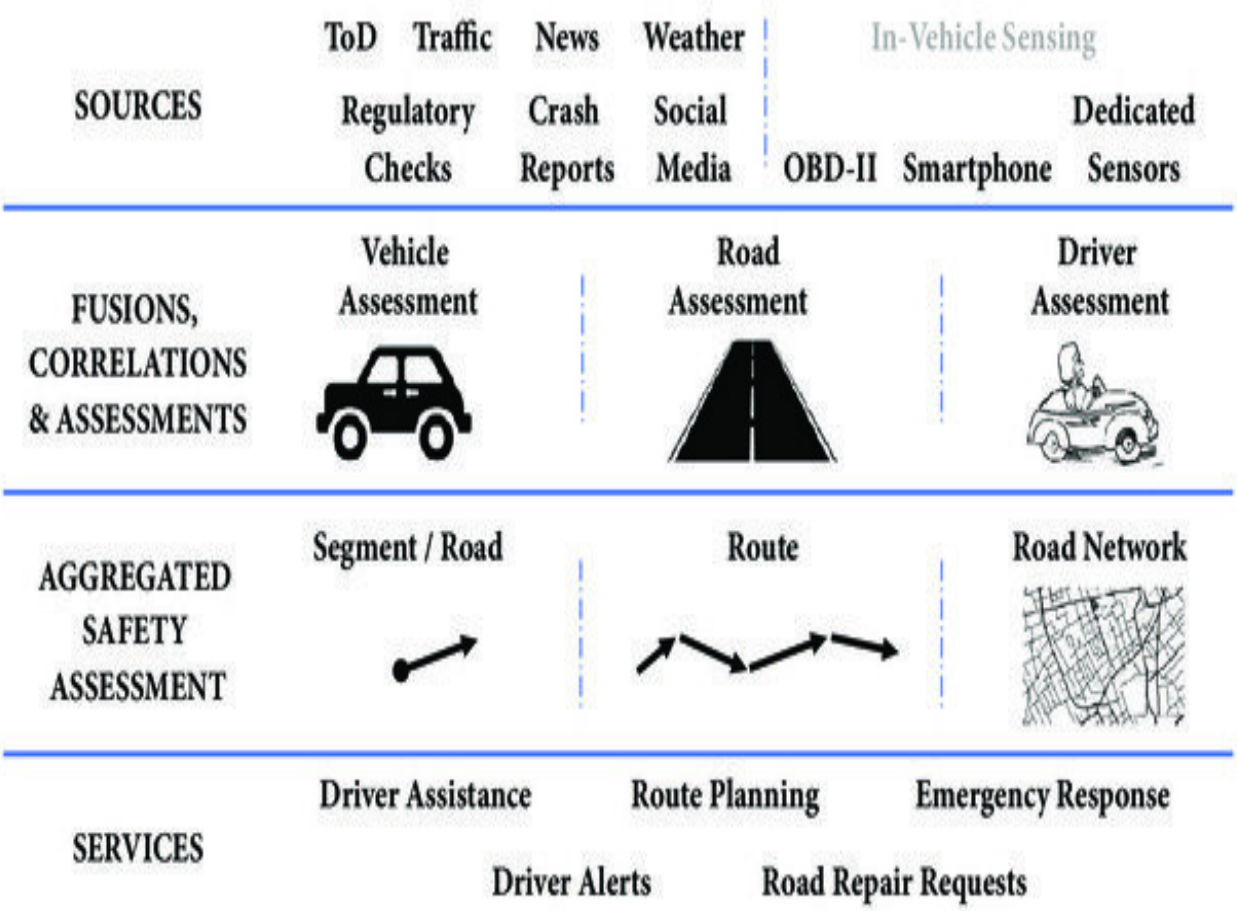
SOFTWARE USED:

- Arduino IDE
- Embedded C

HARDWARE USED:

- NodeMcu ESP8266

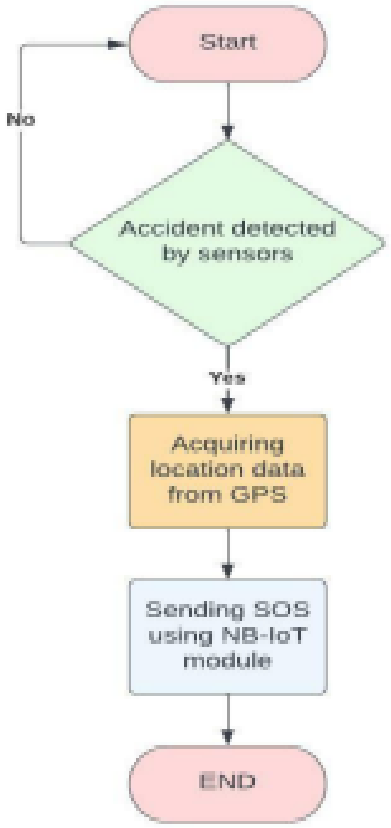
DESIGN:



WORKING ARCHITECHTURE:

Working Architecture SOS signal is distributed within a variety of messages or calls or emails to all or any of the emergency services. The paper uses the Narrowband transmitters embedded inside the dashboard of the vehicle together with the pressure sensor, Micro-electromechanical systems (MEMS) sensors, GPS, and GSM modules. At the purpose of the accident, the vehicle produces abnormal vibrations which will be detected by a microcontroller, and also the MEMS sensor senses the tilting of the vehicle and detects the occurrence of the accident. The GPS module transmits the accident location to the control station and GSM sends the placement to the hospitals. by sending out a sound wave at a frequency above the range of human hearing. These compact sensors provide enhanced flexibility for areas with limited space and are excellent for standard packaging and assembly applications. These are ideal for the Perception of the

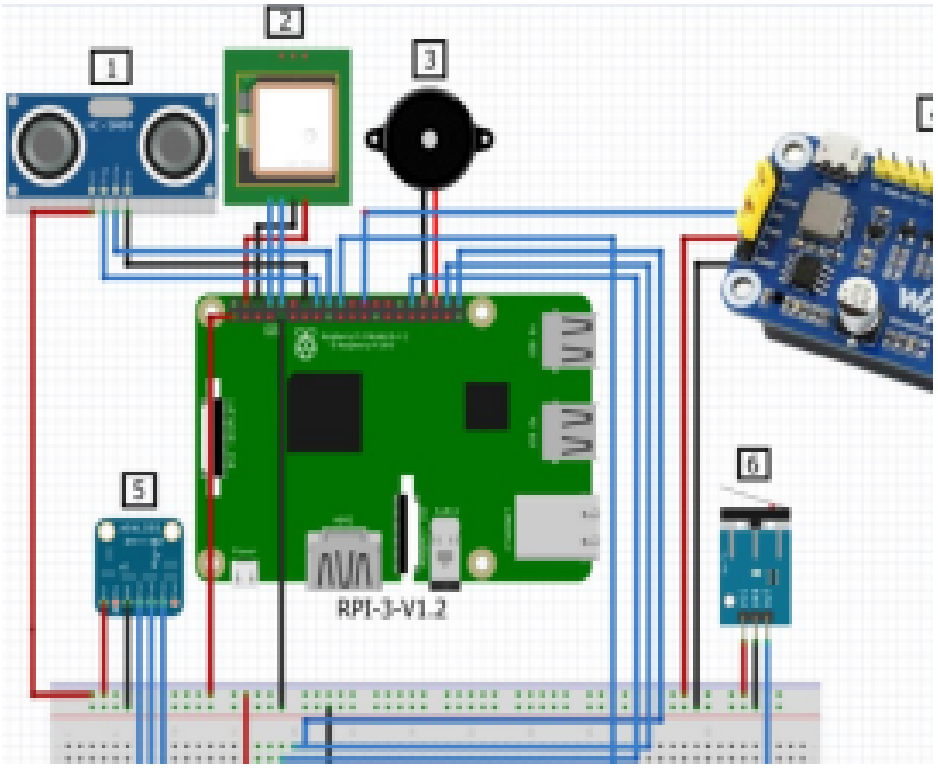
targets that are challenging for photoelectric sensors to perceive.



IMPLEMENTATION:

The NB-IoT design makes use of the basic functionalities of Long-Term Evolution (LTE). It significantly increases the consumption of power of

devices and the capacity of the system. It is highly spectrum efficient in the field of deep coverage.



The Raspberry Pi 3 Model B is a single-board computer that acts as the heart and brain of the system.. The module is connected to an ultrasonic sensor (1) which detects obstacles using ultrasonic waves. MEMS accelerometer (5) and impact sensor (6) are interfaced with Analog to digital converter

(ADC) (7) then connected to pi 3 for detecting accidents. GPS (2) is interfaced with raspberry pi for finding the exact live location of the vehicle and the buzzer (3) alerts the surrounding nearby ones. The location is sent via NB IoT module SIM7020e (4) which sends an SOS to the emergency services and other concerned persons so the damage can be mitigated.

CONCLUSION:

When future scope is considered, There is a wide range of applications to implement and enhance the solution for various problems. The proposed implemented model can be further improved to use to find solutions for drink and drive cases, solutions for rash driving by obstructing spark-plug. This can also be implemented with voice-based real-time advising drivers when the person is over drunk or the person is rash driving on the road.