

Intel Contest-2017

SYNOPSIS

[IoT BASED REAL TIME DRIVING SKILL MONITORING SYSTEM]

INTRODUCTION:

In current scenario Regional Transport Office (RTO) is responsible for maintaining a database of drivers and a database of vehicles for various states in India. RTO issues driving license after conducting a basic skill test. Once licensee is issued there is no check on the driving skills of the driver and also driver training is not mandatory. Human dependent enforcement and minimal use of technology leading to ever increasing accidents and thus loss of life. The statistics (Figure 1) clearly depicts that major cause of accidents is the fault of driver (77.1%). Thus today's time demands real time check on driving skills by using technologies. Another statistics (figure 2) shows that majority of the people skip driving test. A survey by Save Life Foundation states that 57% people will pay for safety features.

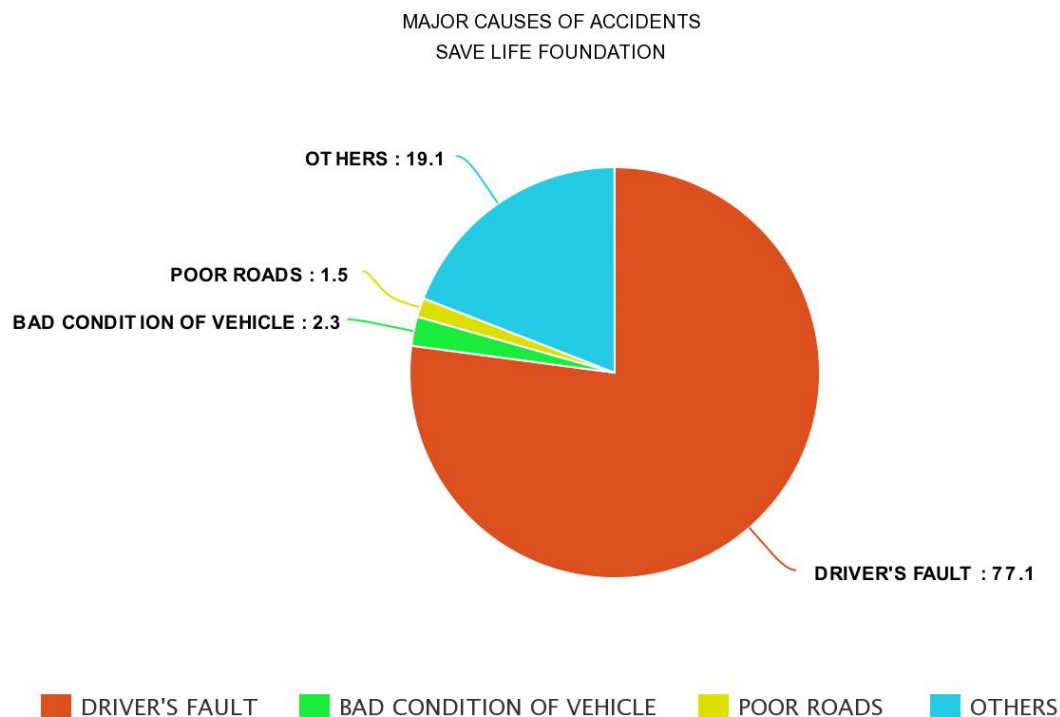


Figure 1

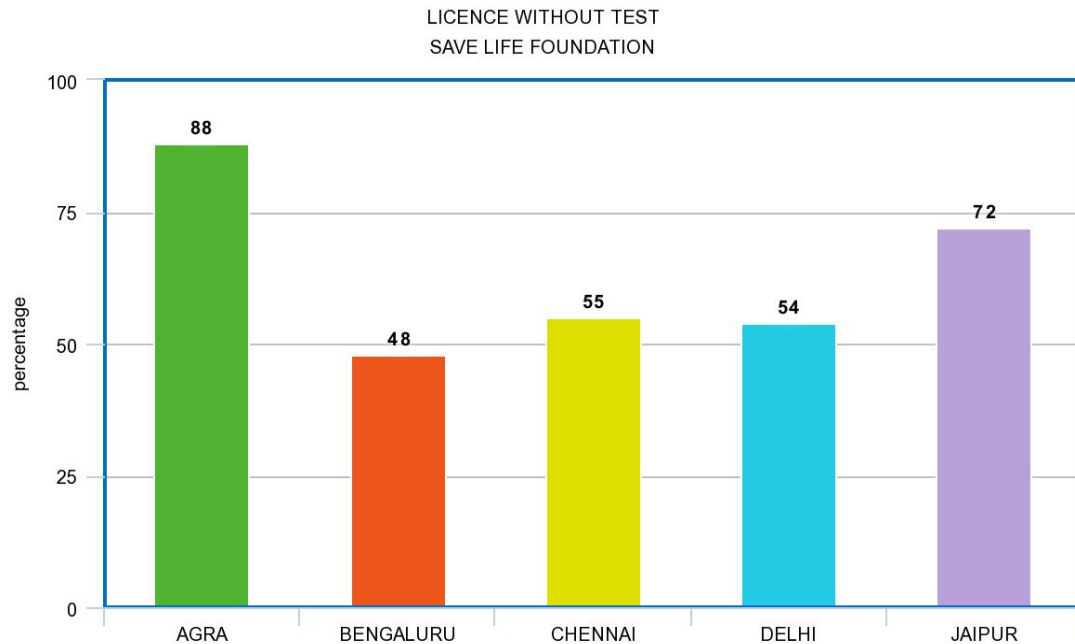


Figure 2

PROBLEM IDENTIFICATION:

1. Driving test currently is very inefficient and requires manual work. Moreover it is not very accurate and judgment is based only on what the person does on the test day.
2. The Traffic Rules enforcement in India is completely manual and the guilty is punished only if person in charge has watched him/her. Many accidents caused by drivers fault are due to ignorance of rules.
3. The driver himself has no method to know what wrong he does regularly and where there is a scope for improvement. Also once vehicle is operated by someone else, owner (mostly parents) have no means to keep check on driver's skills.

SOLUTION FOR IDENTIFIED PROBLEM:

1. When a person gives driver's test, he will be asked to drive a vehicle on a particular road. The device attached with vehicle will give every aspect of driving a score and only if it's above a threshold, license shall be issued. And also after issuing the learner's license, taking the data of the time after it and before issue of license can be noted. The score allotted shall be linked with the license along with photographs which were taken during the test.

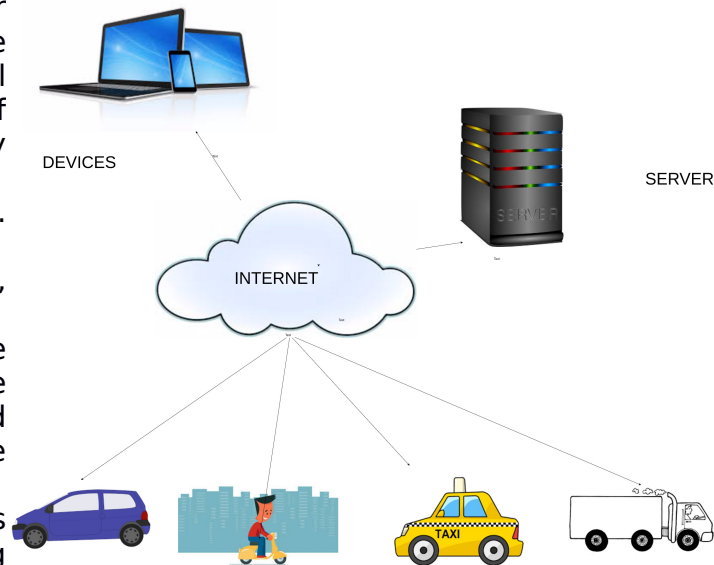


Figure 3

2. Every vehicle will be given an online account which is connected to the IoT device on the vehicle and will update the driving skill index in real time. This way we will be able to eliminate manual enforcement of laws.
3. It will be possible to see loop holes in our own skills, as a mail will be sent to the owner after regular interval of time. This way users are always remain updated about driving skills of user. This way we will be able to reduce the accidents caused by drivers fault which accounts for 77% of all accidents.

REQUIRED HARDWARE:

Tabulate the list of hardware required along with brief description of components.

- Intel Edison : for processing and sending data to server.
- DC power source : to power the components.
- Ultrasonic sensor(HC-SR04): for measurement of distance between vehicle and other objects.
- Alcohol sensor(MQ-3): to check for drink and drive cases.
- Tilt sensor: for measurement of tilt by vehicle.
- Speed sensor: for measurement of speed of the vehicle.

BLOCK DIAGRAM & DESCRIPTION:

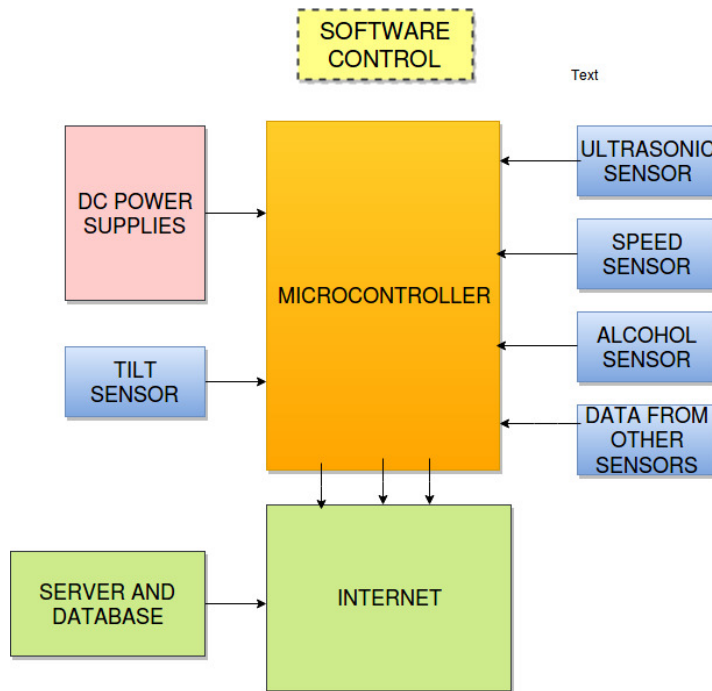


Figure 4

Sensors are connected with the Intel Edison. DC power source will power the Edison. Sensors will send the data to Intel Edison. Intel Edison process the data and will perform computation on the received data. After the computation, the prepared data will be send to the server.

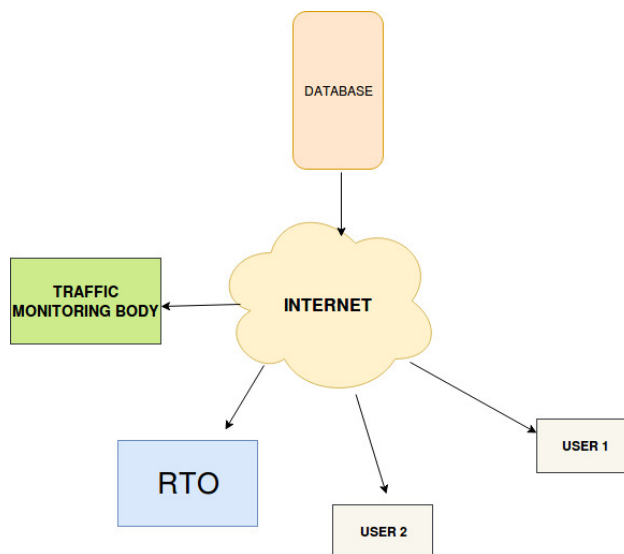


FIGURE 5

Database will store the data received from Intel Edison and this data will be send to RTO office, Traffic monitoring body and user on regular interval through Internet.

- RTO can use this data to keep check on driving skills.
- Traffic monitoring body can use this data for imposing fines.
- Driving statistics will be sent to user for improvement of their driving skill.