***PROBLEMS/CHALLENGES FACED AND USE CASE:***

Road safety is a major issue nowadays.Several steps have been taken by government but there are no such major outcomes of the same.As per the studies 1,46,377 people have died in 2017 in India due to road accidents out of which 9,317 is the contribution from foggy conditions .

***VAAHAN*** is a device which focuses on reducing these road accidents to a major extent.It focuses on 4 major aspects…

***TASK 1:***During *FOGGY* and *SMOKY* conditions, there is a major problem of low vision which leads to collision of vehicles .People tend to look for resources or vehicles which they can use or follow to reach their destination. So, VAAHAN will be taking the responsibility to alert/notify the driver about the speed and distance of any vehicle in vicinity of the driver in order to prevent any sort of threat.

***TASK 2 :*** In india, there are numerous cases when people lose their lives due to *DRINKING & DRIVING.* As per reports, an average of 7,061 people die due to drinking and driving per year in India . Hence, to prevent such incidents, VAAHAN will be involving an alert system associated with it that will be alerting the alcoholic driver to stop his/her vehicle if he/she is driving the car. Still,if the driver doesn’t bother stopping the vehicle, VAAHAN will inform the police about the details of the driver and vehicle preventing any sort of threat to the driver or the people in vicinity of the vehicle.

***TASK 3 :*** There are many cases when a person meets with an accident and there is no one around him/her to provide AID at the point of incident. But from now on, VAAHAN will provide a channel to deal with such incidents. It will be sending the vehicle’s current location to the near and dear ones of the driver whenever any mishappening occurs to alert them about the incident INSTANTANEOUSLY so that some AID could be provided to the person in need of help.

***TASK 4:*** VAAHAN will also be targeting to alert the driver if any vehicle approaches it/or if the driver is approaching any vehicle, so that driver can take required action like making adjustments in the speed of the vehicle to prevent accident. It will also be collecting the evidence of any sort of accident that happened by recording a video of the same.

***PLATFORM USED AND IMPLEMENTATION:***

We are using **IoT** and **machine learning** as major platforms to develop VAAHAN.

VAAHAN will be using RASPBERRY PI 3 as its major component that will be responsible for handling all the tasks of our device.

It will be integrated with a GPS module due to which it will be able to notify the driver about other vehicles(which have installed our system in their vehicles) in his/her vicinity even during foggy conditions.

It will also be integrated with an alcohol sensor and GSM module that will sense and alert the police if the driver is drinking while driving.

The same GSM and GPS module will be used to inform the near and dear ones of the driver if any mishappening  has occurred. The SOS button will be triggered automatically whenever the crash sensor (already embedded inside the vehicle) gets activated.

It will also have a camera as its part that will be used to notify/alert the driver about any vehicle approaching it using machine learning . This task does not require active internet connection. The camera will be taking new videos (after every 20 seconds by replacing the previous one) that will help to collect the post accident evidences (like the number plate of the incoming vehicle,etc.)  if needed.

***ARCHITECTURE DIAGRAM:***

