

IC HACK 2.0

TITLE: An Intelligent Vehicles Networking System.

TEAM NAME: VISUAL SPECTACLE

TEAM LEADER: T R ANUREGA

INSTITUTE NAME: Sri Sai Ram Engineering
College

TOPIC: Transportation



PROBLEM STATEMENT

In today's ever-changing transportation landscape, the imperative for vehicle safety and connectivity is more critical than ever before. This challenge serves as an open invitation for individuals and organizations to spearhead innovation in these vital spheres of transportation. As technology and transportation methods continue to advance, the need for pioneering solutions in the realms of transportation safety and communication becomes increasingly evident. Our solution encapsulates these challenges, and gives a whole connected system which ensures both vehicle's safety and communication simultaneously.

ABSTRACT



The safety maintenance and communication system of vehicles is a comprehensive solution that integrates hardware sensors, communication networks, and software applications to offer real-time monitoring and management of the health and performance of vehicles. As a result, we divide the problem statement into two categories. One is for vehicle communication, while the other is for vehicle safety and maintenance. We offered a solution that stands out in the communication business by utilizing "GEOFENCING" TECHNOLOGY to increase vehicle communication. This device generates an alert signal and notify other passengers along the 1 to 2 mile path. This system also has a route finder API to display the defined path. On the other hand, for vehicle safety, we are developing features such as checking tyre pressure, coolant oil and engine oil temperature, and adding brake pad sensors to avoid accidents and ensure the safety of the passengers. The system also includes drowsiness detection technology, which alerts drivers who gives signs of fatigue and sends notifications to fleet managers and owners. Our one software incorporates both categories.

OBJECTIVES

1. IMPROVE VEHICLE SAFETY:

The project can improve vehicle safety by detecting issues early on and alerting drivers to potential hazards.

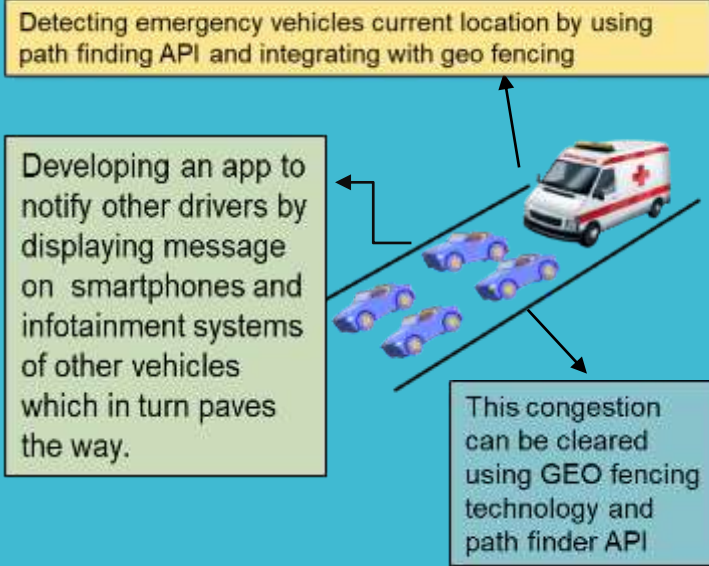
2. REDUCE MAINTENANCE COSTS:

The project could be to reduce maintenance costs for vehicle owners and fleet managers by providing predictive maintenance capabilities, remote diagnostics, and other features that help identify issues before they become more serious and costly.

3. USER EXPERIENCE:

Improve the in-vehicle experience by offering services, including infotainment, navigation, and connectivity with smart devices.

PROPOSED SOLUTION



- Our proposed solution stands out by using “GEOFENCING” technology in order to enhance the efficiency and effectiveness of emergency response systems. Within a city or region, geofencing may be utilized to designate distinct geographic boundaries or zones.
- Using this technology the emergency vehicle motorist will send a signal to the route where he or she is on, which will then send an alert signal within 1 to 2 km of that path.
- The users will receive an alert messages in **G-map form**, so that they can readily ascertain the location of emergency vehicles.
- Path finder API is incorporated with this system to show the defined path. So this system provides a tranquil path for the emergency vehicles.
- We also give emergency vehicle booking access and also to find near by location of fuel bunks, EV charging stations, mechanic shops.

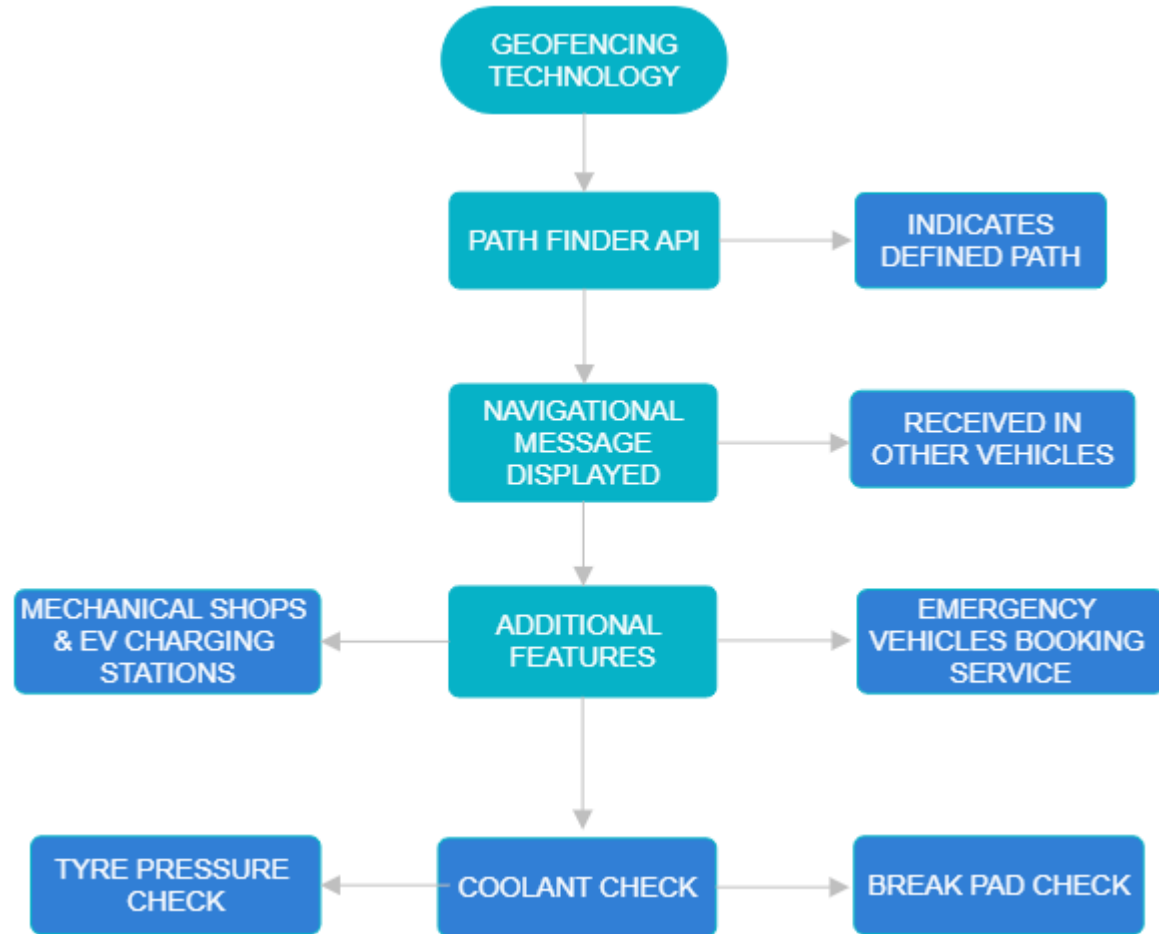
PROPOSED SOLUTION



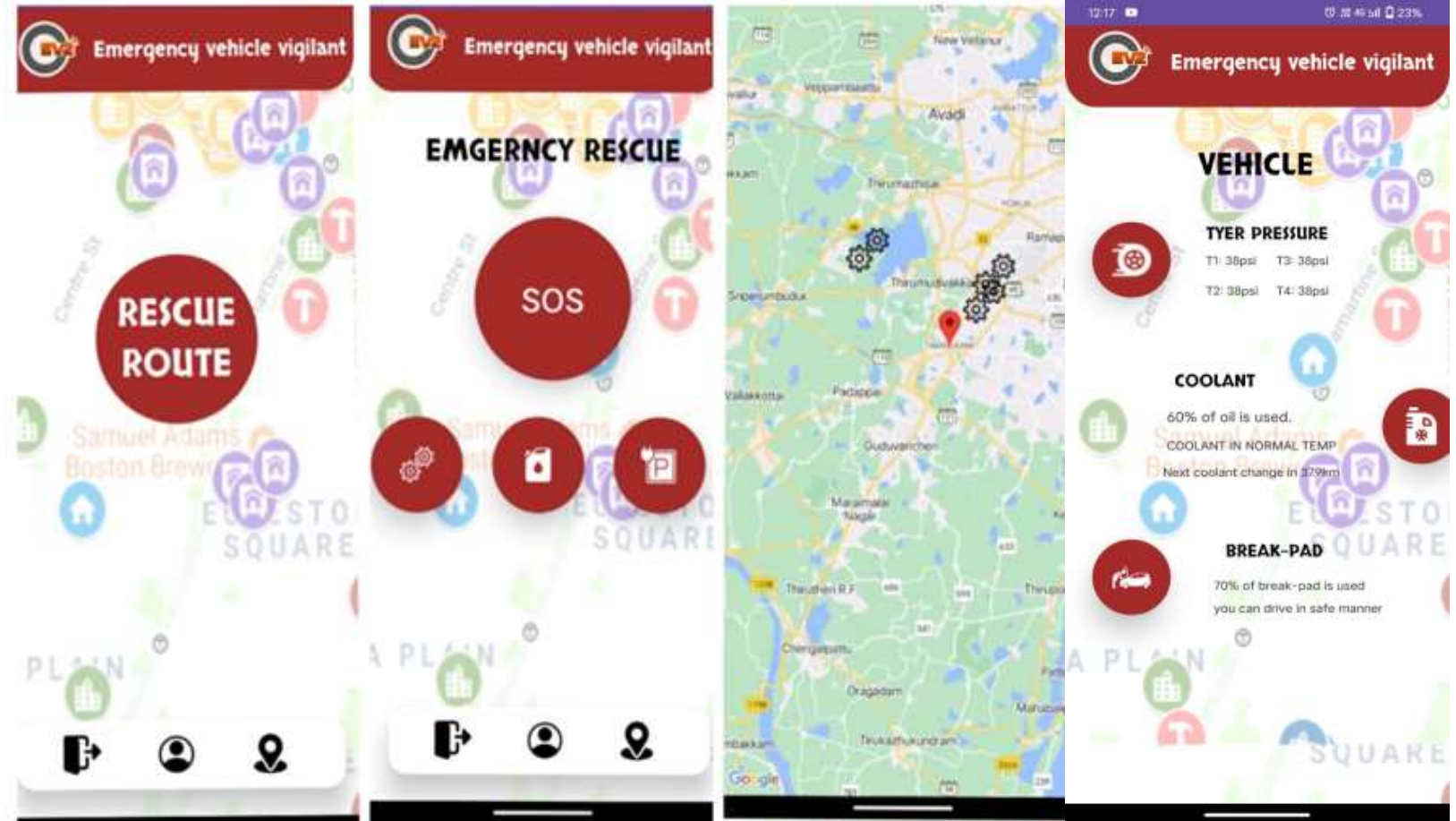
For ensuring vehicle safety we came with adding new features in our app

- 1. TYRE PRESSURE MONITORING SYSTEM:** This is accomplished by adding a sensor to the vehicle's tyres and receiving data from that sensor, which is then shown in our app. The tyre pressure will be determined by the vehicle, which can be linked to a database.
- 2. ENSURE OPTIMAL COOLANT OIL PRESSURE:** Checking the coolant level and pressure in vehicles is crucial to minimize overheating, engine damage, and potential accidents. We are tracking oil pressures and upgrading that in the app, so that the temperature of the oil can be monitored and any fire-breakage may be avoided.
- 3. ATTACHING BREAK PAD SENSORS:** break pad wear sensor will monitor the thickness of the brake pad material. When the pad material reaches a specific amount of wear, the sensor activates a warning light on the dashboard, informing the driver that it is time to replace the brake pads.

FLOWCHART



PROTOTYPE EV₂ – EMERGENCY VEHICLE VIGILANT



PRTOTYPE- MEASURES FOR VEHICLE SAFETY



REFERENCES

- [1] Shared S, Bagavathi Sivakumar P, Anantha Narayanan V, "The Smart Bus for Smart City –A real-time implementation", IEEE International Conference Advanced Networks and Telecommunications Systems (ANTS), 2016.
- [2] Reshma Rathod, "Smart assistance for public transport system" International Conference on Inventive Computation Technologies (ICICT), 2016.
- [3] G. Raja, D. Naveen Kumar, G. Dhanateja, G. V. Karthik, Y. Vijay Kumar, "Bus Position Monitoring system to facilitate the passenger," IEEE and Advanced technology (IJESAT), Volume -3 , Issue-3 pp: 132- 135, 2014.
- [4] Shekhar Shinde, Vijay Kumar Nagalwar, Nikhil Shinde ,B.V.Pawar," Design of E-City Bus Tracking System ," Int. journal of Engineering Research and application, ISSN: 2278 9622 , Vol 4, Issue 4 (Version 9), pp: 114-117, April 2014.
- [5] Abid khan , Ravi Sharma , "GPS-GSM based tracking system," International Journal of Engineering Trends and Technology, Vol.3, Issue 2, pp: 161-164, 2012



THANK YOU