Project Design Phase-I
Solution Architecture

Date	25 october 2022
Team ID	PNT2022TMID39519
Project Name	Signs with Smart Connectivity for Better Road Safety
Maximum Marks	4 Marks

Example - Solution Architecture Diagram:

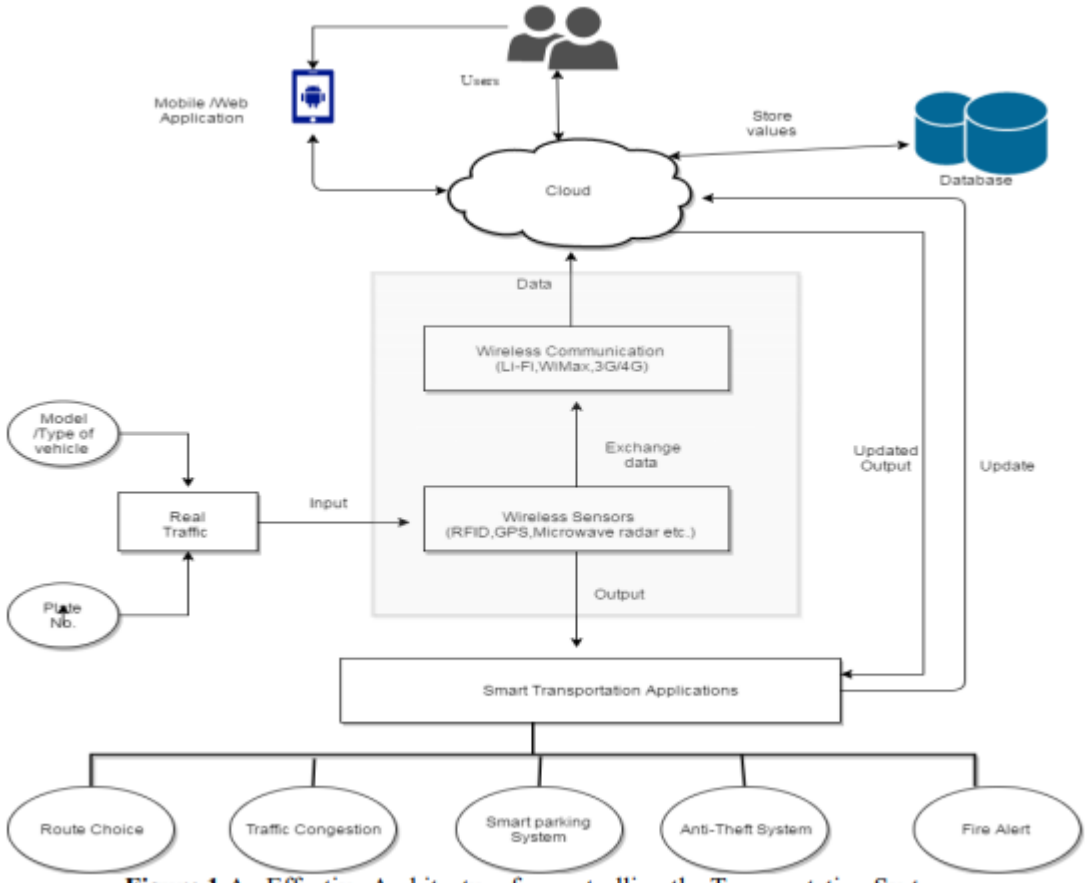

Figure 1 An Effective Architecture for controlling the Transportation System.

Traffic Congestion :

In this application, with the help of microwave radar, RFID tags and RFID readers using fuzzy logic can control the traffic efficiently. RFID used to get the real-time information about the vehicles on road. It is also used in the traffic light system to reduce the waiting time of the user and manage the traffic lights smartly without any human interaction. These also inform the user about the speed volition and alert the user about the accident situation. The radar using fuzzy provides the proper distance between the two vehicles and automatically reduce the speed of vehicle and alert the user to use brake system of the vehicle when the distance between both vehicles become less.

Route Choice :

The route choice is also one of the major problems for the driver or the user. Teodorovic et al.[21] were the first to introduce the complex route choice problem with the help of fuzzy logic. In this, the approximate reasoning and fuzzy logic are used to determine the preference for each network. The

approximate reasoning algorithm is used. The resultant route of choice is defined by determining the various inputs like total time for traveling, utility of the roads and the route, risk of accidents, environmental affects or congestion and provides a safe, short, congestion free route as an output to the user.

Smart Parking System :

In this system, we proposed a new system architecture and algorithm which is supported by Cloud and Internet of Things. This system helps the user to find the parking spot online and avoid the unnecessary traveling to find the space. This also leads to decrease in the amount of carbon or reduce the fuel consumption and provides an eco-friendly platform to the application.

Anti-Theft System :

In this system, GPS-GSM and security alarm is used. The decision is made with the help of fuzzy logic. The GSM (Global System for Mobile) is one of the fastest growing mobile communication technologies. This makes the system boundless or provides secured connectivity between the networks. On the other hand, GPS (Global positioning system) was firstly developed by U.S. Department of Defense [17]. This system is used to track the location, to check the distance from current location.

Fire Alarm :

In this system, there is two kinds of alarm are used that is smoke alarm and thermal alarm. The fuzzy logic and approximate reasoning algorithm are used for the efficient and effective result. Firstly, whenever the smoke is sensed by the smoke alarm the stage of smoke is determined by using fuzzy logic and alerts the user accordingly. In the case of fire or explode of a vehicle the temperature of a vehicle is suddenly hiked up and cross the given range of temperature than the thermal alarm is automatically turns on and alert the owner of a vehicle as well as send the location on the emergency numbers and alert the nearby people to control the situation.