ABSTRACT

One of the main problems in a very congested metropolitan city is road traffic jams. Some services are delayed due to traffic jams. Ambulance service is one of the important services that is delayed quite often. Ambulance is a vehicle equipped with medical equipment to transport sick people or accident victims. Traffic congestion and tidal flow management are the two main problems that often occur in large cities that cause accidents and fatalities.

In designing thissystem, Smart Traffic Light it works based on IoT and several tools are needed to support this design, such as: ESP8266 which is already connected to firebase via an internet connection, where theservices firebase used in theapplication Smart Traffic Light are authentication and realtime database. The GPS feature is useful for storing updated travel location data to Firebase via an internet connection. When the ambulance car is a certain distance away from the traffic light, the traffic light turns green so that it can be passed without disturbing other traffic flows.

From the experiments that have been carried out all the experiments were successful. All experiments carried out succeeded in changing the traffic light when the distance between the user and the intersection was less than 150 m. In the test, the results obtained from the distance value of 3 trials for each lane with the average changing value of intersection A (63.157 m), intersection B (76.821 m), intersection C (26.901 m), and intersection D (59.018 m). And with an average deviation value of 93.525 m.

Keywords: Ambulance, IoT, Smart Traffic Light, ESP8266, Firebase