

ABSTRACT

DESIGN AND MODELING TRAFFIC LIGHT SYSTEM FOR ACCOMODATING EMERGENCY VEHICLE VIA JUNCTION ROAD

Indonesia is a country with a high level of traffic jam, this causes the traffic jam happens in the most of its big cities including Jakarta, Bandung, Surabaya, Makassar, and other metropolis. Besides it's disrupting people's activities, traffic jam also caused the emergency vehicles such as ambulance and fire trucks, have trouble passing the streets. Of all the disadvantages of the traffic jam which the emergency experience, one of them is to wait for the traffic lights to turn green.

According to the background explained before, a research has been conducted to propose a simulation model towards the traffic lights to accomodate emergency vehicles using Queueing Theory and Historical Data-based system. Queueing model M/M/1 Has been analyzed for subsequently being compared. The historical data is used to develop the normal vehicle traffic pattern and the position of the tail in the queue. This pattern is used when the emergency vehicles passed by, to determine how long the emergency vehicles come across the intersection.

The model which is proposed and tested towards the intersection models with the fixed time. The proposed model have shown the the emergency vehicles travel time to be more faster if then being compared with the model which do not accomodate emergency vehicles, this guarantees that the emergency vehicles do not undergo the significant delay.

Keywords: emergency vehicles, traffic jam, traffic lights, adaptive, simulation.