UNIVERSITI TEKNOLOGI MARA

TECHNICAL REPORT

AN ANALYSIS OF TRAFFIC FLOW IN CAR FOLLOWING BY USING OPTIMAL VELOCITY MODEL

P30S19

NURFADILAHAMIRA BINTI MAHMOD (2017554503)
NUR FATIHAH NABILAH BINTI MOHD RAZEMAN (2017323167)
FARAH HANNANI BINTI AMBOK HASSANUDDIN (2017908079)

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IN THE NAME OF ALLAH, THE MOST GRACIOUS, THE MOST MERCIFUL

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ABSTRACT

Optimal Velocity Model (OVM) is a method used by mathematicians and engineers to determine traffic flow by implementing car-following model application. Nevertheless, the velocity of a car depends on the drivers speed and time variables. However, the sensitivity of the driver affected the behavior of the traffic flow. The objectives are to determine the velocity and time arrivals at a certain distance by using Initial Value Problem (IVP) and to compare the maximum velocity and the sensitivity of the driver by using OVM. The equation of Optimal Velocity is solved by numerical method which is Runge Kutta Fehlberg (RK45). Mathematical formulation for each car following model being modified based on the case model such as case of a car with a stopped object, case with a clear road in front of the cars and case of two cars with a stopped object. Optimal velocity will achieved when the car arrived at certain time with different maximum velocity and the sensitivity of the driver.