

**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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## TABLE OF CONTENTS

ACKNOWLEDGEMENTS.....	ii
TABLE OF CONTENTS.....	iii
ABSTRACT.....	vi
1. INTRODUCTION .....	1
PROBLEM STATEMENT.....	2
OBJECTIVES .....	2
SIGNIFICANT OF THE STUDY .....	2
2. BACKGROUND THEORY AND LITERATURE REVIEW .....	4
2.1 Background Theory.....	4
2.2 Literature Review .....	6
3. METHODOLOGY .....	10
3.1 Set up the Ordinary Differential Equations (ODE) of Optimal Velocity Model.....	10
3.2 Reduction of order.....	11
3.3 Implementation of Runge Kutta Fehlberg method (RK45).....	15
4. RESULTS AND DISCUSSION .....	17
5. CONCLUSIONS AND RECOMMENDATIONS .....	33
REFERENCES .....	36
APPENDIX A .....	38
A.1 Traffic Model Code.....	38
A.1.1 Traffic Model Equation Code .....	38
A.1.2 Runge-Kutta for Stopped Object and One Car .....	38
A.1.3 Runge-Kutta for a Clear Road in Front of the Car.....	39

## LIST OF FIGURES

Figure 1: A case with a stopped object and one car.....	11
Figure 2: A case with a clear road in front of the car .....	12
Figure 3: A case with a stopped object and two cars.....	14
Figure 4: (a) Position of the car (b) Velocity of the car of case stopped object and one car.....	17
Figure 5: (a) Position of the car (b) Velocity of the car with different value of $v_{max}$ and $\alpha = 1$ .....	18
Figure 6: (a) Position of the car (b) Velocity of the car with and different value of $\alpha$ and $v_{max} = 4$ .....	20
Figure 7: (a) Position of the car (b) Velocity of the car of case with a clear road in front of the car.....	21
Figure 8: (a) Position of the car (b) Velocity of the car with different value of $v_{max}$ and $\alpha = 1$ .....	22
Figure 9: (a) Position of the car (b) Velocity of the car with different value of $\alpha$ and $v_{max} = 4$ .....	24
Figure 10: (a) Position of the two cars (b) Velocity of the two cars of case with a stopped object.....	26
Figure 11: (a) (c) Position of the two cars (b) (d) Velocity of the two cars with different value of $v_{max}$ and $\alpha = 1$ .....	28
Figure 12: (a) (c) Position of the two cars (b) (d) Velocity of the two cars with different value of $\alpha$ and $v_{max} = 4$ .....	30

## LIST OF TABLE

Table 1: Terms and abbreviation .....	3
Table 2: Initial condition for case 1.....	12
Table 3: Initial condition for case 2.....	13
Table 4: Initial condition for case 3.....	14
Table 5: Result of case 1 with maximum velocity and sensitivity of the driver.....	17
Table 6: Result of case 1 with different values of maximum velocity.....	19
Table 7: Result of case 1 with different value of sensitivity of the driver.....	20
Table 8: Result of case 2 with maximum velocity and sensitivity of the driver.....	22

## **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.