



PROJECT REPORT  
Traffic Charts in Semarang Based On Google  
Maps and Waze Maps

Samuel Wisnu Tede Lelang Ayaq

12.02.0081

2016

INFORMATICS ENGINEERING DEPARTMENT

FACULTY OF COMPUTER SCIENCE

SOEGIJAPRANATA CATHOLIC UNIVERSITY

# APPROVAL AND RATIFICATION PAGE

## PROJECT REPORT

Traffic Charts in Semarang Based On  
Google Maps and Waze Maps

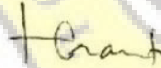
by

Samuel Wisnu Tede Lelang Ayaq – 12.02.0081

This project report has been approved and ratified by the Faculty of  
Computer Science on November, 16<sup>th</sup> 2016

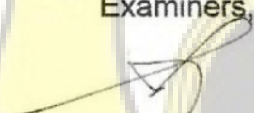
With approval,

Supervisor,

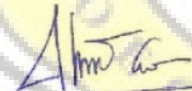
  
Rosita Herawati, ST, MIT  
NPP : 058.1.2004.263

Examiners,


1.)

  
Suyanto Edward Antonius, Ir., M.Sc  
NPP : 058.1.1992.116

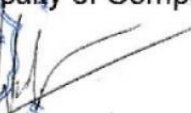
2.)

  
Shinta Esri Wahyuningrum, S.Si., M.Cs  
NPP : 058.1.2007.272

3.)

  
Hironimus Leong, S.Kom., M.Kom  
NPP : 058.1.2007.273

Dean of Faculty of Computer Science,

  
Erdhi Widiyanto Nugroho, ST, MT  
NPP : 058.1.2002.254

## STATEMENT OF ORIGINALITY

I, the undersigned:

Name : Samuel Wisnu Tede Lelang Ayaq

ID : 12.02.0081

Certify that this project was made by myself and not copy or plagiarize from other people, except that in writing expressed to the other article. If it is proven that this project was plagiarizes or copy the other, I am ready to accept a sanction.

Semarang, November, 16<sup>th</sup> 2016



Samuel Wisnu Tede Lelang Ayaq

12.02.0081

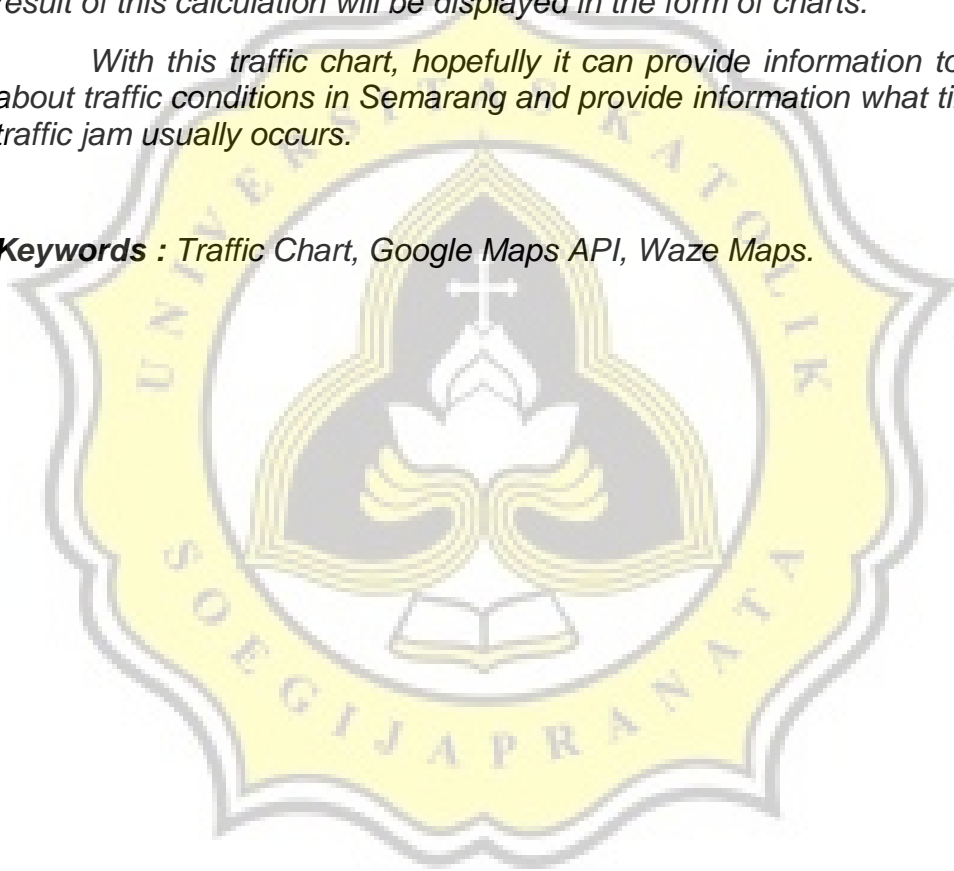
## ABSTRACT

*On this day, traffic congestion has become a major problem in big cities like Semarang, Indonesia. This final project discusses how to observe traffic, get traffic data and display the average speed of traffic on Semarang.*

*The problem will be solved using Google Maps API and Waze Maps. Google Maps API is used to observe the traffic and get the traffic data. Speed data that is used is the traffic speed data shown on Waze Maps. This speed data that will be calculated to obtain the average speed of traffic. The result of this calculation will be displayed in the form of charts.*

*With this traffic chart, hopefully it can provide information to users about traffic conditions in Semarang and provide information what time the traffic jam usually occurs.*

**Keywords :** Traffic Chart, Google Maps API, Waze Maps.

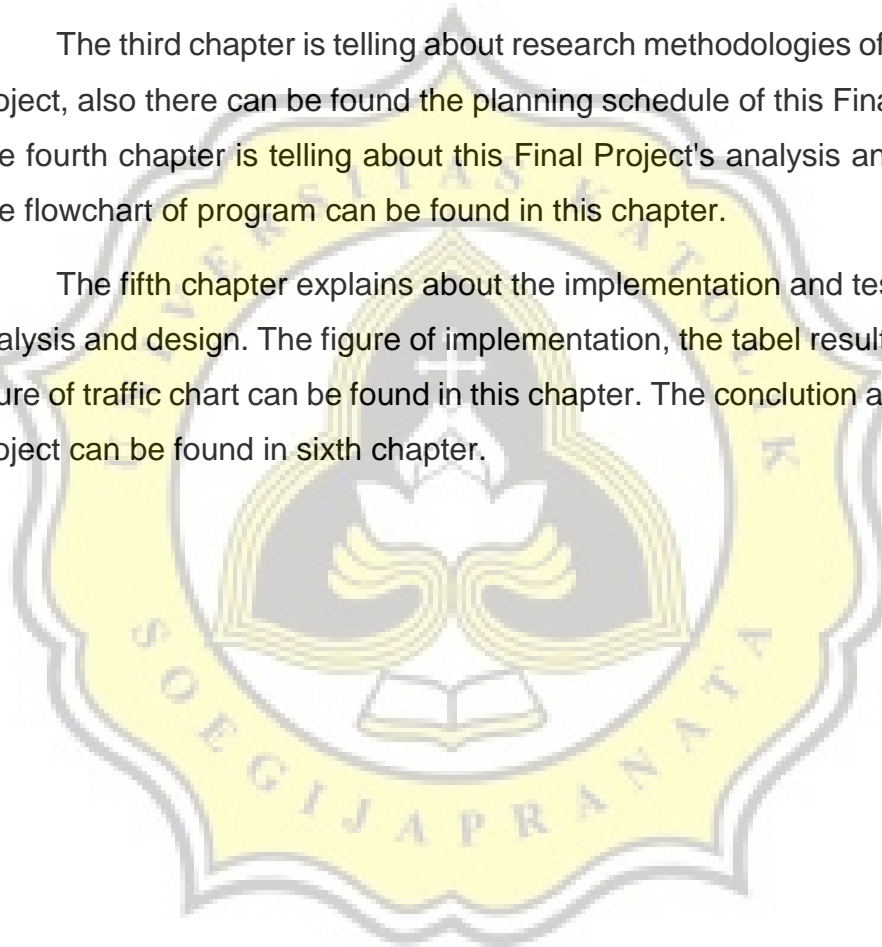


## PREFACE

This Final Project is splitted into 6 chapters. The first chapter describes about the background, scope, and objectives of Final Project. The second chapter is telling about literature study. The literatue study will telling about Google Maps API, Waze Maps and CanvasJS.

The third chapter is telling about research methodologies of this Final Project, also there can be found the planning schedule of this Final Project. The fourth chapter is telling about this Final Project's analysis and design. The flowchart of program can be found in this chapter.

The fifth chapter explains about the implementation and testing from analysis and design. The figure of implementation, the tabel results and the figure of traffic chart can be found in this chapter. The conclusion and further Project can be found in sixth chapter.



## TABLE OF CONTENTS

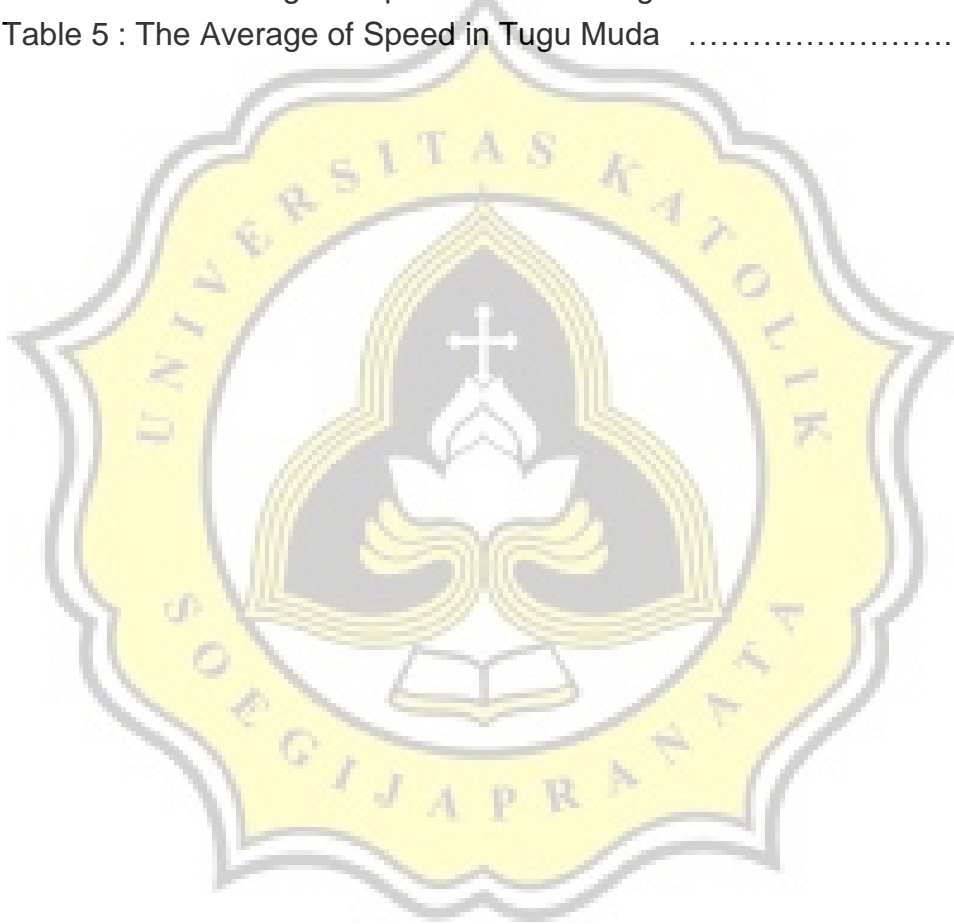
APPROVAL AND RATIFICATION PAGE .....	ii
STATEMENT OF ORIGINALITY .....	iii
ABSTRACT .....	iv
PREFACE .....	v
CHAPTER I INTRODUCTION .....	1
1.1. Background .....	1
1.2. Scope .....	2
1.3. Objective .....	2
CHAPTER II LITERATURE STUDY .....	3
2.1. Google Maps API .....	3
2.1.1. Traffic Layer .....	3
2.2. Waze Maps .....	4
2.3. CanvasJS .....	7
CHAPTER III RESEARCH METHODOLOGY .....	8
CHAPTER IV ANALYSIS DAN DESIGN .....	9
4.1. Analysis .....	9
4.2. Design .....	10
4.2.1. Flowchart Program .....	10
4.2.2. Flowchart Data Processing .....	11
CHAPTER V IMPLEMENTATION AND TESTING .....	13
5.1. Implementation .....	13
5.1.1. Google Maps API and Data Storage .....	13
5.1.2. Chart .....	15
5.2. Testing .....	15
5.2.1. Result in Simpang Lima .....	17
5.2.2. Result in Toll Gate Banyumanik .....	19
5.2.3. Result in Bundaran Bubakan .....	20
5.2.4. Result in PLN Jatingaleh .....	22

5.2.5. Result in Tugu Muda .....	24
CHAPTER VI CONCLUSION .....	26
6.1. Conclusion .....	26
6.2. Further Research .....	26
REFERENCES	



## TABLE OF TABLES

Table 1 : The Average of Speed in Simpang Lima .....	17
Table 2 : The Average of Speed in Toll Gate Banyumanik .....	19
Table 3 : The Average of Speed in Bundaran Bubakan .....	20
Table 4 : The Average of Speed in PLN Jatingaleh .....	22
Table 5 : The Average of Speed in Tugu Muda .....	24





## TABLE OF FIGURES

Figure 1 : Traffic Color on Google Maps .....	4
Figure 2 : Orange Color and Traffic Speed on Waze.com .....	5
Figure 3 : Dark Red Color and Traffick Speed on Waze.com .....	6
Figure 4 : Red Color and Traffic Speed on Waze.com .....	6
Figure 5 : Waze App on Android .....	6
Figure 6 : Flowchart Program .....	10
Figure 7 : Flowcahrt Data Processing .....	11
Figure 8 : Array Data Illistration .....	12
Figure 9 : Example of Google Maps API key .....	13
Figure 10 : Javascript Maps App .....	13
Figure 11 : Data Storage Source Code .....	14
Figure 12 : CanvasJS Source Code .....	15
Figure 13 : Interface .....	16
Figure 14 : Working on Interface .....	16
Figure 15 : Traffic Chart in Simpang Lima on Sunday .....	18
Figure 16 : Traffic Chart in Banyumanik on Wednesday .....	19
Figure 17 : Traffic Chart in Bundaran Bubakan on Saturday .....	21
Figure 18 : Traffic Chart in Jatingaleh on Friday .....	22
Figure 19 : Traffic Chart in Tugu Muda on Monday .....	24