

**Universiti Teknologi MARA**

**The most factor that influence the road  
accidents by using fuzzy logic method**

**Nuramira Binti Omar Yahya**

**Report submitted in fulfillment of the requirements for  
Bachelor of Science (Hons.) Management Mathematics  
Faculty of Computer and Mathematical Sciences**

**July 2020**

## **STUDENT'S DECLARATION**

I certify that this report and the research to which it refers are the product of my own work and that any ideas or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline.

*amirayahya*

**NURAMIRA BINTI OMAR YAHYA**

**2017922245**

**JUNE 25, 2020**

## **ABSTRACT**

Accidents are nightmares for anyone who has experienced that before, no matter how bad the injury was and there is no one in this world willing to be involved in any accidents. However, changes of attitudes towards road users are an often advocated condition for improving road safety. Although various safety campaigns have been carried out in Malaysia, the attitude of reckless road users can still lead to accidents to be happened. There are factors that cause accidents and this study investigated the factor that influences the most in fatal road accidents. The factors chosen in this study are environmental error, human error, and health factor, which are gained from literature review. To perform this study well, the data were collected through an online survey, which consists of 298 respondents who have and have not experienced an accident before. An expert system has been developed by using a fuzzy logic approach to determine which one of the chosen factors is most influencing in road accidents. The results perform in the MATLAB software shows that health factor is the most influential in road accidents. Findings from this study would assist the people all around the world to stay healthy and to take care of themselves since accidents can happen anywhere.

# TABLE OF CONTENTS

<b>CONTENTS</b>	<b>PAGE</b>
<b>SUPERVISOR'S APPROVAL</b>	ii
<b>DECLARATION</b>	iii
<b>ACKNOWLEDGEMENT</b>	iv
<b>ABSTRACT</b>	v
<b>TABLE OF CONTENTS</b>	vi
<b>LIST OF FIGURES</b>	viii
<b>LIST OF TABLES</b>	ix
<b>LIST OF ABBREVIATIONS</b>	x
<b>CHAPTER ONE: INTRODUCTION</b>	
1.1    Background of the Study	1
1.2    Problem Statement	1
1.3    Objective of the Study	1
1.4    Scope of the Study	2
1.5    Significance of the Study	3
<b>CHAPTER TWO: LITERATURE REVIEW</b>	
2.1    Scenario of Accidents	4
2.2    Factors of Accidents	4
2.3    Types of Vehicles	6
2.3.1    Medium types of vehicles	6
2.3.2    Large type of vehicles	6
2.4    Comparison with other methods	7

2.5	Accidents in Fuzzy Logic	7
2.6	Summary	8

### **CHAPTER THREE: RESEARCH METHODOLOGY**

3.1	Method of Data Collection	9
3.2	Method of Data Analysis	9
3.3	Design of Fuzzy System	9
	3.3.1 Fuzzification	11
	3.3.2 Fuzzy Inference	14
	3.3.3 De-Fuzzification	15
3.4	Summary	16

### **CHAPTER FOUR: RESULTS AND DISCUSSIONS**

4.1	Results from the extracted rules base	19
4.2	Results evaluated from the each factors	22
4.3	Summary	24

### **CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS**

5.1	Conclusions	25
5.2	Recommendations	26

<b>REFERENCES</b>	27
-------------------	----

<b>APPENDICES</b>	28
-------------------	----

<b>APPENDIX A: TITLE APPENDIX A</b>	28
-------------------------------------	----