CHAPTER 1
INTRODUCTION

This chapter explains the background, problem formulation, objectives, problem limitation, research methodology and writing systematics along with the completion milestones of this thesis.

1.1 Background

Indonesia is one of few countries with the highest population in the world with population of around 267 million. From such a large population, in 2017 it is estimated that the number of vehicles in Indonesia is 138 million based on data from Badan Pusat Statistik Indonesia [1]. Around 80% of the vehicles is Motorcycle, it is in line with police report every year which says that motorcycle is the vehicle with the highest accident rate. In the future, it is expected that the number of vehicles will keep increasing as population keep increasing uncontrollably. Infrastructure and traffic regulations are two important things in transportation. The growth in the number of vehicles that are increasingly booming has diminished space on the streets that other street users, such as pedestrians, should be able to use.

Reduced space on the streets encourages vehicle users to commit violations such as crossing the boundary line at traffic lights and using sidewalks as road for vehicles. That kind of violations must be dealt with according to regulations by responsible party, namely the traffic police. In daily life, the police were overwhelmed to take action for violation as there are many vehicle users commit violation. This condition also caused vehicle user to commit violations more frequently. Amans is the solution for the police to take action against violators of the law without the need to deal directly with the violators and it directly facilitate the work of traffic police.

Amans is a mini IoT device equipped with a camera that serves to detect vehicle plates. If the device detects any violation, it will automatically record the vehicle plate number then send it to the database. Violation can be recognized if vehicle users passes the parameters specified in Amans device configuration. As the vehicle plate number sent to the database, it will be matched with data in the database inputted by the authorities. In case, the vehicle plate number matches the data, database will automatically add the number of violations of that vehicle users.

When vehicle users have committed three violations, they will received a notification and warning email. This Final Project is expected to develop the database so that it will work as it should be.

1.2 Problem Formulation

Based on the background, the problem formulation for this Final Project is the technologies that already implemented to reduce traffic violations have not been able to provide sufficient effect for violators to obey the traffic rules. Although technologies such as CCTV are already implemented in several traffic lights, it still does not fulfil its maximum potential to do anything other than monitor the traffic lights. This thesis aim to complete the thesis of writer's partner by creating a database of violation data and linking it to a website to display the data.

1.3 Objectives and Benefits

The objectives of this thesis are as follows:

1. Manages output data that comes from Amans device.

2. Creates a database for violation data from Amans device that will be updated and synchronized every time there is new data from Amans device.

3. Connects the database created with the website so that the vehicle users are able to self-check their own data.

The benefits of this thesis are as follows:

1. Reduces traffic violations by vehicle users and creates a culture of obeying the traffic regulations.

2. Provides convenience for traffic police or other authorities to take actions against vehicle violations.

3. Increases the efficiency of existing surveillance cameras as its function is not only to monitor but also to detects violations.

4. Provide convenience for vehicle users to self-check their own violation data as the user also get a warning email when the amount of violations has reach three times.

1.4   Limitation of Problem

As the material related to database and website have broad scope, in order to make this thesis more oriented, this undergraduate thesis only focuses on:

1. Work system of Database and Website.

2. Application and Programming Language used in the making of this thesis.

3. Database used is for storing vehicle identification and user contacts data.

4. Only authorities are able to input vehicle data to the database as the vehicle users only allowed to view their own violation data through the website.

1.5   Method of Research

The stages of research methodology carried out on this thesis are as follows:

1. Study of Literature
   At this stage, writer learn basic concepts and theories related to this thesis such as database and website from various references i.e books, journals, trusted internet articles, and conferences.

2. System Planning & Experimentation
   At this stage, writer carry out system design and configuration by sorting required software, applications, and programming language to be used and test it.

3. System Implementation & Data Collection
   At this stage, writer implement the system by testing it and try to use all the features of the system that has been made.

4. Analysis & Conclusion
   At this stage, writer analyze the data collected from the implementation and make the conclusion for the thesis.

5. Report Writing
   The last stage of the research methodology is writing the thesis including the implementation documentation. The report format follows the correct writing rules and complies with the regulations set by the institution.

1.6   Writing Systematics

The rest of this thesis is organized as follows:

CHAPTER II BASIC CONCEPT
This chapter contain basic concepts and theories used in the working process of this thesis that sourced from books, journals, articles, and conferences.

CHAPTER III SYSTEM DESIGN
This chapter contain steps taken in system design and its implementation.

CHAPTER IV RESULT AND ANALYSIS
In this chapter, testing process is carried out and the performance results data will be collected by specified parameters which then will be analyzed.

CHAPTER V CONCLUSION AND SUGGESTION
This chapter contain the conclusion obtained from the result data analysis.

Table 1.1 Undergraduate Thesis Implementation Schedule.

No.	Stage Description	Duration	Completion Date	Milestone
1.	Database and Website System Design	3 Weeks	28 January 2020	Design database system that is going to be implemented
2.	Database & Website Parameter Check and Simulation	1 Month	18 February 2020	Checking the parameters and simulate the database and website
3.	Design Implementation	1 Month	18 March 2020	Complete the design implementation
4.	Undergraduate Thesis Report Arrangement	1 Month	18 April 2020	Complete the Undergraduate Thesis report
5.	Revision of the Undergraduate Thesis Report	2 Weeks	2 May 2020	Complete the revision of the Undergraduate Thesis report