

**THE DEVELOPMENT OF COMMUNITY REPORTING
SYSTEM: APPLICATION FOR ROAD VIOLATION**

BY

MOHAMAD RIDZUAN BIN ROSLAN

**A dissertation submitted in fulfillment of the requirement for
the degree of Master of Science (Communication
Engineering)**

**Kulliyyah of Engineering
International Islamic University of Malaysia**


OCTOBER 2020

ABSTRACT

The community reporting system is a system that allows the user to report any misconduct to the relevant authority, easily and hustle free. In this thesis, the focus is on a road violation reporting system android app. In Malaysia, there are two types of reporting system, a manual reporting system and a website based reporting system. These systems are fully authorized by the government body called JPJ (Jabatan Pengangkutan Jalanraya) or RTD (Road Transport Department). The problem with the existing manual system is time-consuming and to many platforms, thus, the report database will not be organized and well-managed. The system makes the users unwilling to make reports to the authority due to any road violation that they have seen. The objective of this project is to design a road violation reporting system using an android system. It is cost-effective, easy to use and more portable than the current reporting system. Also, to provide more services and implement the reporting system app in real time. The scope of this project is on application layer based on the design and the implementation of the reporting system. As the outcome, this community reporting app provides a user with a secure reporting system app and also the authority can manage the report quickly. The reporting app also provides more services than the current system and able to work on real-time. The development of the system is expected to enhance the reporting system and betterment for the community as well as the authority as a whole.

APPROVAL PAGE

I certify that I have supervised and read this study and that in my opinion, it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Master of Science (Communication Engineering).


.....
Suriza Ahmad Zabidi
Supervisor

.....
Malik Arman
Co-Supervisor

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Master of Science (Communication Engineering).

.....
Hasmah Mansor
Internal Examiner

.....
Khaizuran Abdullah
Internal Examiner

This dissertation was submitted to the Department of Electrical and Computer Engineering and is accepted as a fulfilment of the requirement for the degree of Master of Science (Communication Engineering).

.....
Mohamed Hadi Habaebi
Head, Department of Electrical
and Computer Engineering

This dissertation was submitted to the Kulliyah of Engineering and is accepted as a fulfilment of the requirement for the degree of Master of Science (Communication Engineering).

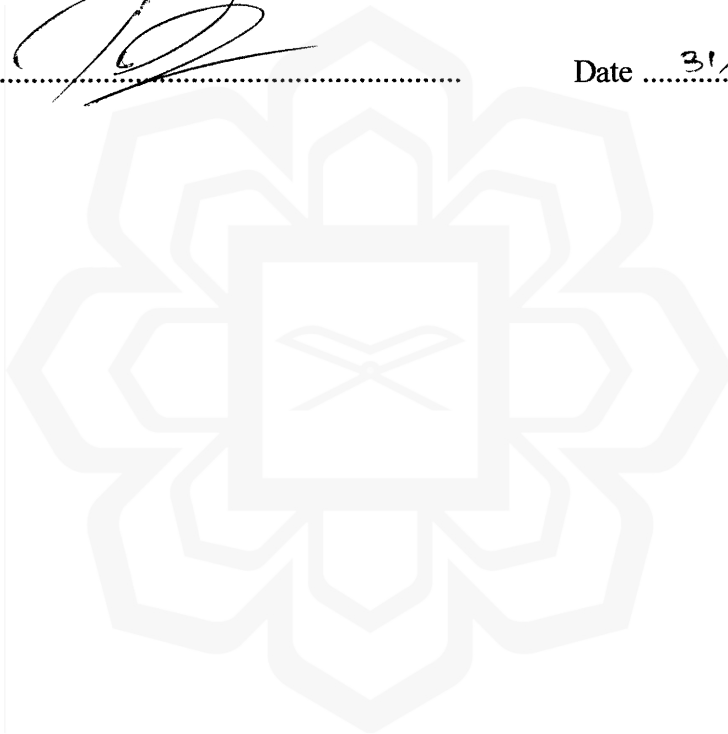
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DECLARATION

I hereby declare that this dissertation is the result of my own investigations, except where otherwise stated. I also declare that it has not been previously or concurrently submitted as a whole for any other degrees at IIUM or other institutions.

Mohamad Ridzuan bin Roslan

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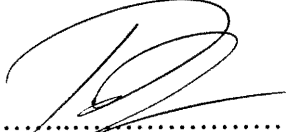
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ACKNOWLEDGMENTS

“In the name of Allah, the Most Gracious and the Most Merciful”

Alhamdulillah, praise be upon Allah S.W.T for giving me the health and strength throughout the completion of my degree of masters. Without His blessings to help me through ups and downs during my time of need, this degree would be very impossible.

First and foremost, I would like to express my special gratitude to my supervisor, Dr. Suriza Ahmad Zabidi for her never ending support, courage, motivation and words of wisdom throughout my masters' journey. No words can describe how blissful I am to be working under her supervision. It was a great pleasure to be able to work hand in hand with her, for which I learnt a lot what it means to be in a research line. Her valuable assistance has guided me in the right direction when I was in the dark road and for that, I will forever grateful.

I would also like to extend my appreciation towards my co-supervisor, Dr. Malik Arman for his time and guidance regarding the masters' project and report. Not to forget, a special thanks to my wife Wan Nurul Firdaus Wan Mat and friends, Amira Aziera Abdullah and Asyraf Zulkhairi who always motivate me to be a strong and never give up easily.

Last but not least, special thanks for my mother, Rosnah Maarof and my father Roslan Suradi as well as my siblings for their endless prayers and support to achieve the goal and dedicate towards completing my degree of masters. May Allah reward all of them the good in this Dunya and the Hereafter for their uncountable kindness and morale support.

TABLE OF CONTENTS

Abstract	ii
Abstract in Arabic	iii
Approval Page	iv
Declaration	v
Copyright Page.....	vi
Acknowledgements	vvii
List of Tables	x
List of Figures	xi
List of Symbols	xixi
List of Abbreviations	xiv
CHAPTER ONE: INTRODUCTION	1
1.1 Background of the Study	1
1.2 Problem Statement.....	2
1.3 Research Objectives.....	2
1.4 Research Methodology	2
1.5 Scope of Research.....	4
1.6 Significance of the Study	5
1.7 Limitations of the Study	6
1.8 Thesis Organization	6
CHAPTER TWO: LITERATURE REVIEW	7
2.1 Introduction.....	7
2.2 Fundamental Reporting System.....	7
2.3 Technological Review	9
2.3.1 Eclipse.....	9
2.3.2 JAVA	10
2.3.3 Android Software Development Kit (SDK).....	11
2.3.4 Android Development Tool (ADT)	12
2.3.5 MySQL Database.....	13
2.3.6 MySQL Workbench.....	14
2.3.7 PHP	15
2.3.8 JavaScript Object Notation (JSON)	16
2.3.9 XAMPP.....	16
2.3.10 XML.....	17
2.3.11 GPS	17
2.3.12 Google Maps Android API	17
2.3.13 Sending Message.....	17
2.3.14 FIREBASE.....	18
2.3.14.1 Real-time Database.....	19
2.3.14.2 Authentication	19
2.3.14.3 Cloud Storage	19
2.3.14.4 Analytics.....	19
2.4 Driver Behaviour in Malaysia	20
2.5 Fatalities Due to Road Violation	24

2.6 Current Reporting System	25
2.6.1 Direct Report at JPJ Office	25
2.6.2 Report via Website.....	26
2.6.3 Report via E-mail.....	28
2.6.4 Report via WhatsApp.....	29
2.7 Related Works	30
2.8 Chapter Summary	40
CHAPTER THREE: RESEARCH METHODOLOGY	41
3.1 Introduction.....	41
3.2 Flowchart of Research	43
3.3 Public Survey	44
3.4 Requirement of Tools	44
3.5 Coding Platform	45
3.6 Simulation: Android Studio Software	46
3.6.1 Design of the Reporting System App	46
3.6.2 Modules of the Reporting System App.....	48
3.6.2.1 User Module	49
3.6.2.2 Admin Module.....	51
3.6.3 App Flowchart.....	52
3.6.4 Layout Design	56
3.7 Simulation: Google Firebase	59
3.7.1 Integrating App with Database	59
3.7.2 App Performance Analysis	62
3.8 System Implementation	63
3.9 Chapter Summary	64
CHAPTER FOUR: RESULTS AND DISCUSSIONS.....	65
4.1 Introduction.....	65
4.2 Survey Results	66
4.3 Simulation Results of Android Studio.....	71
4.3.1 Layout Design Results	71
4.4 Simulation and Implementation Results by Google Firebase	78
4.4.1 Results of Integration between Firebase with Reporting App	78
4.5 Chapter Summary	85
CHAPTER FIVE: DISCUSSION AND CONCLUSION.....	86
5.1 Introduction.....	86
5.2 Recommendations.....	88
REFERENCES.....	89
LIST OF PUBLICATIONS	92
APPENDIX A: PUBLIC SURVEY QUESTIONAIRES.....	93

LIST OF TABLES

Table 2.1	Respondents' characteristics and their Frequency and Percentage (Nawawi et. al, 2018)	21
Table 2.2	Results of Cluster Analysis (Nawawi et. al, 2018)	22
Table 2.3	Driving Error Descriptive Statistics (Nawawi et. al , 2018)	22
Table 2.4	Driving Lapses Descriptive Statistics (Nawawi et. al, 2018)	23
Table 2.5	Road Violation Descriptive Statistics (Nawawi et. al, 2018)	23
Table 2.6	Summary of Related Works Focusing on Reporting System	37
Table 4.1	Details of Provided Services	73
Table 4.2	Input Result from User Report	80
Table 4.3	Input Result from User Registration	81
Table 4.4	Comparison between Current and Proposed Reporting System in terms of Provided Services	85

LIST OF FIGURES

Figure 1.1	Flowchart of the Study	3
Figure 2.1	Crowdsourcing diagram (Aswini .G et.al, 2017)	8
Figure 2.2	Eclipse Software Interface (Eclipse, 2019)	10
Figure 2.3	Integrating Java File into Eclipse (Eclipse, 2019)	11
Figure 2.4	SDK Tools Installation (Eclipse, 2019)	12
Figure 2.5	Android Studio; One of the Tools for Android Development (Sydney Stone, 2018)	13
Figure 2.6	Interface of MySQL Database	14
Figure 2.7	MySQL Workbench Home (MySQL, 2019)	15
Figure 2.8	Firebase Features	18
Figure 2.9	Road Violation Reporting System SISPA Website (SISPAA, 2019)	27
Figure 2.10	How to Report a Traffic Offence (Bernama, 2019)	28
Figure 3.1	Proposed steps for road violation reporting system development	41
Figure 3.2	Research Flowchart	43
Figure 3.3	Firebase features for app developer and admin	45
Figure 3.4	Android Studio 3.5.1 Software	46
Figure 3.5	General Block Diagram	47
Figure 3.6	Proposed Method for Obtaining Data from Users	47
Figure 3.7	User Use Case Diagram	50
Figure 3.8	Admin Use Case Diagram	51
Figure 3.9	Home Activity Flowchart	53
Figure 3.10	Report Activity Flowchart	54
Figure 3.11	Admin Activity Flowchart	55
Figure 3.12	Screenshot of Main Activity.java by Using Android Studio	56
Figure 3.13	Login Page Layout Design by Using Android Studio	57
Figure 3.14	Sign Up Page Layout Design by Using Android Studio	58
Figure 3.15	Aligning the Activity for Registration Process	58
Figure 3.16	First and Second Step of Using Firebase	59

Figure 3.17	Connecting the reporting system app with Firebase authentication	60
Figure 3.18	Firebase Authentication Sign-in Method	61
Figure 3.19	Third to Fifth Step of Using Firebase	61
Figure 3.20	Uploading Files to Firebase Cloud Storage	62
Figure 3.21	The performance of the reporting system app	63
Figure 4.1	Survey Result (Respondent's Gender)	66
Figure 4.2	Survey Result (Respondent's Age)	67
Figure 4.3	Survey Result (Respondent's Occupation)	67
Figure 4.4	Survey Result (Respondent's Driving Duration)	68
Figure 4.5	Percentage of Road Violation That Happen	68
Figure 4.6	Survey Result (Respondent Complaint)	69
Figure 4.7	Percentage of Road Violation That Happen	70
Figure 4.8	Percentage of Disadvantage of Current Reporting System)	70
Figure 4.9	Layout a) Login Page b) Sign Up Page	71
Figure 4.10	Registration Page Layout a) Empty Space b) Registration Demo	72
Figure 4.11	Profile Page Layout	74
Figure 4.12	Home Page Layout	74
Figure 4.13	Add Report Page Layout a) Empty Space b) Add Report Demo	75
Figure 4.14	My Report Page Layout	76
Figure 4.15	View FAQs Layout	76
Figure 4.16	Personal Message Layout a) JPJ WhatsApp b) WhatsApp Interface	77
Figure 4.17	View FAQs Layout	78
Figure 4.18	Assigning a Unique ID for All Reports	79
Figure 4.19	Firebase Authentication a) Managing User b) Sign-in Providers	80
Figure 4.20	Managing user database by Firebase database	81
Figure 4.21	Managing Files by Firebase Storage (Proof Images)	82
Figure 4.22	Screenshot of Firebase Stream View	83
Figure 4.23	Screenshot of Firebase Events	83
Figure 4.24	Screenshot of Firebase dashboard	84
Figure 4.25	Monitoring user loyalty toward the reporting system app	84

LIST OF SYMBOLS

r	Pearson Correlation Coefficient
n	Number of Respondents
σ	Standard Deviation of Descriptive Statistics
μ	Mean of Descriptive Statistics



LIST OF ABBREVIATIONS

PDRM	Electric vehicle
RTD	Road Transport Depart
JPJ	Jabatan Pengangkutan Jalanraya
IBM	International Business Machines
UI	User Interface
SDK	Software Development Kit
ADT	Android Development Tool
XML	Extensible Mark-up Language
SQL	Structured Query Language
PHP	Hypertext Preprocessor
CLI	Command-Line Interface
CGI	Common Gateway Interface
JSON	JavaScript Object Notation
GPS	Global Positioning System
API	Application Programming Interface
JKJR	Jabatan Keselamatan Jalan Raya
SPSS	Statistical Package for Social Sciences
SAC	Senior Assistant Commander
SISPAA	Sistem Pengurusan Aduan Awam
MyEG	Malaysian Electronic Government Services

TMB	Telekom Malaysia Berhad
TNB	Tenaga Nasional Berhad
DBKL	Dewan Bandaraya Kuala Lumpur
OS	Operating System
JRE	Java Runtime Environment
IDE	Integrated Development Environment
FAQs	Frequently Asked Questions



CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Facebook, Twitter, Instagram, WhatsApp has been a place for some users to report a misconduct and road violation cases and some of it went viral everywhere. The viralism trend is a good thing because people can know where the place with a high rate of road violations, such as illegal racing. Thus, the authority can trace the offender based on people's postings on social media. There are also many misuses of the social network because not all of the reports and contents posted over there is accurate. Thus, this may cause problem to the authority to trace the offender thus action may be taken on wrong people.

Some social media users may sum up anything to make their story becomes compelling. Some of them also want to take the opportunity to become famous and gain more followers. To sum up, the social network has too many fake accounts to hide people's identity from the authorities. In this case, authorities such as Polis Diraja Malaysia (PDRM) and Road Transport Department (RTD) or Jabatan Pengangkutan Jalan (JPJ) will have difficulties to trace the reported criminals or offenders. One of the solutions to encounter this problem is to develop a portable mobile application for community reporting services. Firstly, this system will require people to enter their valid details before sending their complaints. By having this application, the reporting process will become easier because citizens can make their reports anywhere and anytime they want via smartphone. Moreover, the authority also can manage the reports easily because they come from the registered user.

1.2 PROBLEM STATEMENT

Malaysia is a country that shows the increment number of case of road violations year by year. One of the problems is that Malaysian have little concern and most of the times, people do not report about the road violation to the authority such as RTD. This issue occurs because of the difficulty of the existing system where the road user needs to open the website or go to the RTD office, which will take a lot of time. Thus, people will ignore any road violation they have seen, and this will be resulting in increasing the number of road violation cases. Moreover, road users also can report any violation of RTD through the WhatsApp application. However, this will give a hard time for RTD to trace any fake report due to the absence of the user database. One way to prevent these problems is by using a secured database combining with an android app called Community Reporting System for Road Transport Department.

1.3 RESEARCH OBJECTIVES

The objectives of this study are:

1. To develop an android application for road violation reporting system and improve the current system design to become a cost-efficient, portable and user friendly application.
2. To achieve and implement the road violation reporting system in real-time service with add on services in a single mobile app.

1.4 RESEARCH METHODOLOGY

The methodology is first to analyze any specific methods used in designing the community reporting system to get the data or information from the civilian. The technique used by this project is a simulation. Before the development process, a public

survey need to be done regarding the absence of this reporting app in public. There is four primary processes, which are app tools, app design, app testing, and implementation. The general flowchart of this study is shown in Figure 1.1.

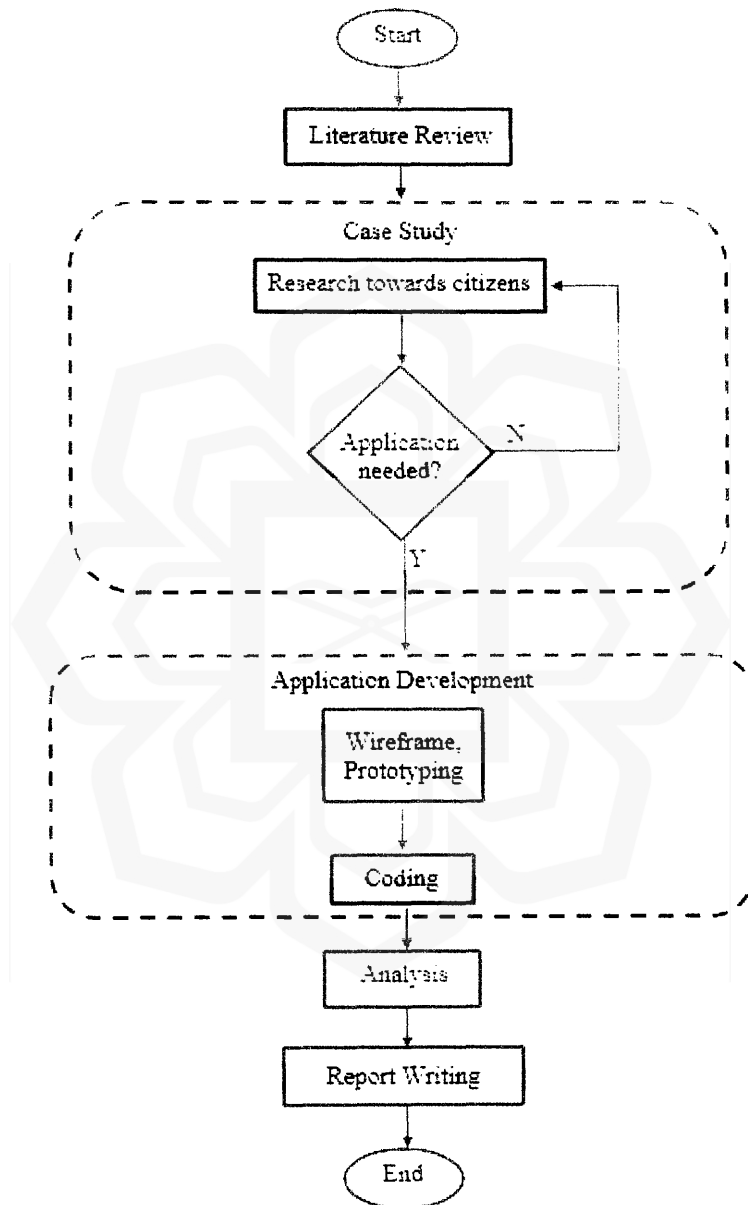


Figure 1.1: Flowchart of the Study

1.5 SCOPE OF RESEARCH

While lots of open issues are related to the improvement reporting system, the focus of this research will be based only on the followings:

- I. Application layer
- II. The reporting system is only for Android users.
- III. Improving current system in terms of portability and service provided.



1.6 SIGNIFICANCE OF THE STUDY

With the early study of the architecture and structure of the reporting system app and the current reporting system, it will lead to a contribution in designing an efficient and user-friendly reporting system. The reporting system app also will give benefit to the road authority RTD because, with the help of the proposed design, the database will be in a well-managed algorithm and stored in a cloud. This project designed an Android app for road violation reporting system.

Meanwhile, this project has a positive impact on the road violation rate, as well. By using the latest technology, which is a real-time database connected with internet access, road authority RTD will get a fast report regarding the current situation. The fast report will ensure that fast action will be taken by the RTD when the implementation of the new systematic system is in place. It is also can reduce time-consuming and provide cost-efficient service since people just use their smartphone to make a report. Therefore, Malaysian should realize the benefits of implementing a new generation of the reporting systems.

On the other hand, the problem is that some citizens are not willing to make a report regarding the road violation that they have seen. Therefore, this project proposed an easy to use and cost-efficient mobile app where all levels of road users can use it without any problem. Thus, this will help RTD to solve any road violation cases.

Therefore, it is expected that this project will improve the current reporting system by designing an easy to use, real-time and portable mobile app. The project allows the citizen always to get connected with road authority RTD where they can make any report anywhere and anytime.

1.7 LIMITATION OF THE STUDY

A few limitations can be highlighted throughout this project, mainly during a discussion with the RTD officers. Firstly, the government of Malaysia is not ready to implement the new generation of mobile app systems regarding any of their services, especially on the community reporting system. The Malaysian government needs to do plenty of research regarding this issue. Furthermore, the reporting system must be able to handle a massive database, and it must be confidential. So, this project is only meant to be a prototype for future development because a real reporting system needs some professionals, programmers, and software specialists to be developed. Therefore, a lot of bugs and types of errors in this project need to be handled by one person. Secondly, this research will only focus on android platform due to its huge amount of users. Furthermore, developing the reporting system for both platforms consumes a lot of works and time due to their different environments and coding.

1.8 THESIS ORGANIZATION

This report includes five chapters. Chapter 2 enhances the understanding of the reporting system app design by doing the review of other researcher's works. Chapter 3 focuses on the methodology and the design that has been used throughout this research, while the result of the proposed project will be discussed in Chapter 4. Finally, Chapter 5 summarizes this project from the objectives perspective of the study as well as discusses the limitation and suggests some recommendations for future improvement.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

The study aimed to develop an android application for a road violation reporting system. The reporting system app is designed to be cost-efficient and easy to use. This is regarding the background of the reporting system, structure, tools, and techniques of the other reporting system. This chapter comprises of six main parts which are fundamental of the reporting system, technological review, driver behavior in Malaysia, fatalities due to road violation, current reporting system as well as related works on the previous research achievement.

2.2 FUNDAMENTAL OF REPORTING SYSTEM

Community reporting system intended to serve the community so that they can report to the authority or any respected department. For example, they can report directly to the police about any misconduct or violation of the rules and regulations. For the traditional method, the user needs to fill-up the form that required their personal details such as name, identification number and telephone number. Next, the user needs to fill the description on the report or complaint such as location and time. Besides, the user also can provide any proof, such as pictures if they have one. After completing the form, the user can submit it to the authority for further action. Nowadays, this method can be done through email.

Once the authority received all the reports, the report will be arranged based on the date and the type of the report. All the critical and severe cases will be separated

from the others (Jadhav .R, Patel .J, Jain .D, Phadhtare .S, 2014). Next, all the complaint forms will be stored in a particular room before the file will be referred back for immediate action. The traditional method is not efficient since it consumes much time because the user needs to face some procedures.

The online community reporting system is the best way to solve some problems to avoid the current system which is inefficient and time-consuming. The information will be organized well in a big database, and the authority can handle it easily without dealing with a bunch of report papers. Recently, one of the ways to reduce crime incidents among the community is by crowdsourcing. Crowdsourcing was authored in 2005 as a portmanteau of Crowdsourcing (Aswini G., Dhivya N., Jayanthi R. and Ambikapathy R., 2017). Crowdsourcing can produce something bigger such as crime information by connecting online with the public, as shown in Figure 2.1. With crowdsourcing, road violation cases can be reported directly to RTD. People get the required administration from the internet by using crowdsourcing since it is particular sourcing. Outsourcing is a source for crowdsourcing, which originates from public reports or ideas.

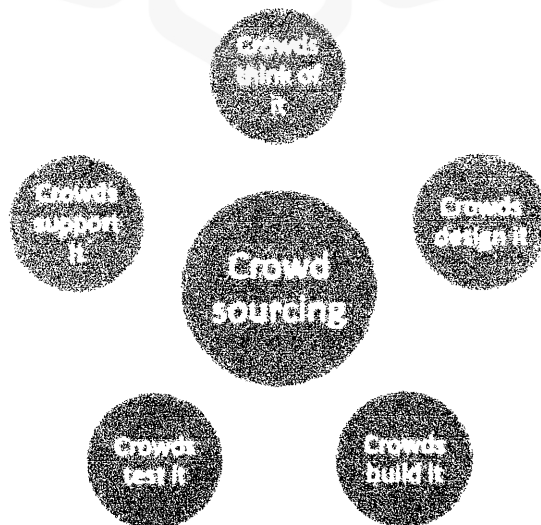


Figure 2.1: Crowdsourcing diagram (Aswini G. et al., 2017)

The primary factor of using crowdsourcing will take care of any characteristics such as speed, cost, versatility, quality, and reliability. Crowdsourcing has been utilized nowadays for non-commercial task and community reporting system.

2.3 TECHNOLOGICAL REVIEW

This section will focus more on the technical part and discuss the technology that will be used in developing the reporting system. This technological review will help and give more ideas in reporting system design and app development.

2.3.1 Eclipse

One of the tools used in programming is known as an eclipse. Android programming also can use this eclipse software since it is very user-friendly. Eclipse Foundation has been created by IBM (International Business Machines) Corporation which can work unassisted as a non-profit organization (Eclipse, 2019). Anyone can use this type of software. By installing the plugins of android, programmers can use this software for android development. These plugins can guide programmers to initiate their android application in comfortable circumstances. It is because this software allows the user to drag and drop any user interface (UI) elements at the same time; it will save time for back end developers. Figure 2.1 shows the interface of the Eclipse software.

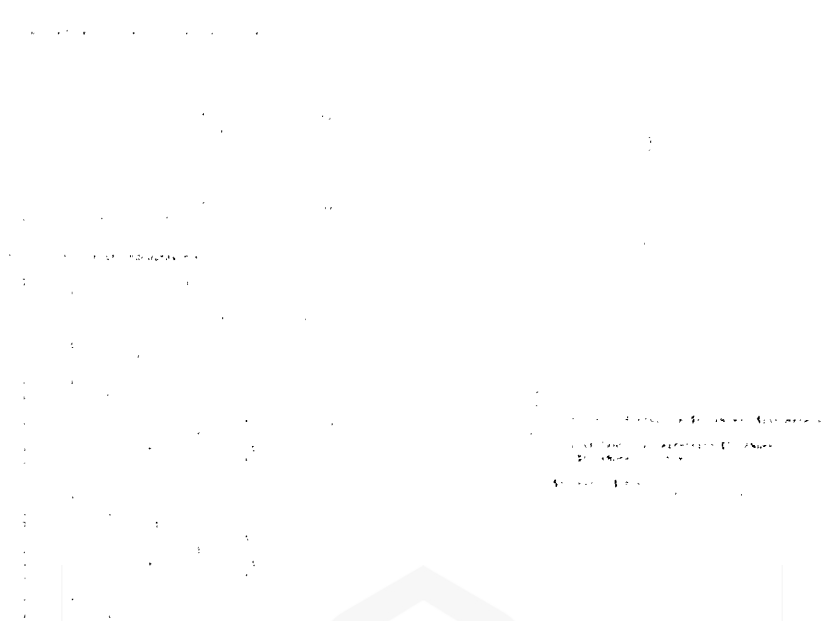


Figure 2.2: Eclipse Software Interface (Eclipse, 2019)

2.3.2 Java

Java is a programming language that is a fundamental piece of the android activity framework. Most of the application that is created for android users use Java as their primary language. Java may be a universally useful machine customizing language that is concurrent, class-based, and object-oriented. Furthermore, it was designed to have some dependencies. Without any recompilation, the compiled code can run successfully on any platform. In 1995, James Gosling designed Java at Sun Microsystems promised that “Write Once, Run Anywhere” (Aaron Benedict and James Gallaher, 2018). Figure 2.3 shows that the java file is integrating with the Eclipse software.