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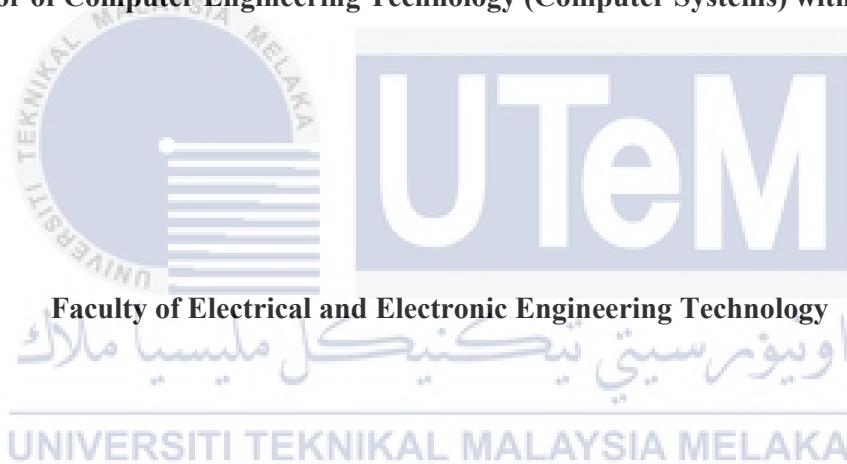
**Bachelor of Computer Engineering Technology (Computer Systems) with Honours**

**2021**

**DEVELOPMENT OF MOBILE BASED FLOOD VICTIM MANAGEMENT  
SYSTEM**

**AMIRUL IKMAL BIN MUSA**

**A project report submitted  
in partial fulfillment of the requirements for the degree of  
Bachelor of Computer Engineering Technology (Computer Systems) with Honours**



**UNIVERSITI TEKNIKAL MALAYSIA MELAKA**

**2021**

BORANG PENGESAHAN STATUS LAPORAN  
PROJEK SARJANA MUDA II

Tajuk Projek : DEVELOPMENT OF MOBILE BASED FLOOD VICTIM  
MANAGEMENT SYSTEM  
Sesi Pengajian : SEMESTER 1 2021 / 2022

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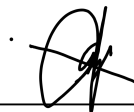
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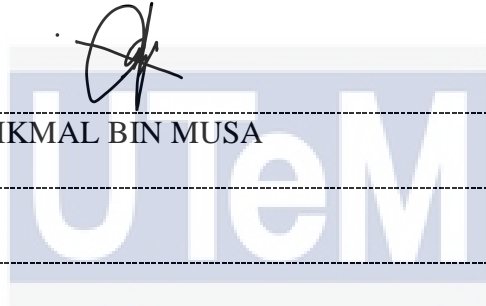
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## DEDICATION

*To my beloved mother, Shabani Binti Sharif, and father, Musa Bin Ismail,  
My sister , Natasya Nadjwa Binti Musa  
and  
To closest friend, Ahmad Syamir and  
My special friend, Dayang Adilah.*



## ABSTRACT

Flood is the most destructive natural calamity that Malaysia has ever had. There are 189 river basins in Malaysia, including Sabah and Sarawak (89 are in Peninsula Malaysia, 78 in Sabah, and 22 in Sarawak), with the main rivers going straight to the South China Sea, and 85 of them are prone to recurring floods. The estimated area vulnerable to flood disaster is approximately 29,800 km<sup>2</sup> or 9% of the total Malaysia area, and is affecting almost 4.82 million people which is around 22% of the total population of the country. Floods give many affects to humans in various aspects. The worst effect brought about by floods is human health where infectious diseases are easily spread during and after the flood. In addition, hospital services during the flood season is also limited. This is due to constraints such as transport and manpower and the process of documenting flood victims' health reports. The main objective of this project is to help flood victims from the health aspect. With the information provided, it will facilitate the process such as getting treatment, recording the patient's health problems online and also inform the hospital directly if there are patients who need to be taken to the hospital. This software development is developed using the Android Studio platform as user interface medium and also Google Firebase as a information data storage.

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## ***ABSTRAK***

Banjir adalah bencana alam yang paling memusnahkan di Malaysia dan terdapat 189 lembangan sungai di Malaysia, termasuk Sabah dan Sarawak (89 di Semenanjung Malaysia, 78 di Sabah, dan 22 di Sarawak), dengan sungai-sungai utama terus mengalir menuju ke Laut China Selatan, dan 85 daripadanya terdedah kepada banjir yang berlaku berulang kali . Kawasan yang dianggarkan terdedah kepada bencana banjir adalah sekitar 29.800 kilometer persegi atau 9% dari keseluruhan kawasan Malaysia, dan mempengaruhi hampir 4.82 juta orang ataupun sekitar 22% dari jumlah penduduk negara ini. Banjir memberikan banyak kesan kepada manusia dalam pelbagai aspek. Kesan yang paling buruk dibawa oleh banjir adalah kesihatan manusia di mana kejadian penyakit berjangkit mudah dijangkiti semasa dan selepas banjir. Selain itu, perkhidmatan hospital ketika musim banjir juga terhad. Ini kerana kekangan seperti pengangkutan dan tenaga kerja dan proses dokumentasi laporan kesihatan mangsa. Tujuan utama projek ini adalah untuk membantu mangsa banjir dari aspek kesihatan. Dengan maklumat yang diberikan, ia akan memudahkan proses seperti mendapatkan rawatan , merekodkan masalah kesihatan pesakit secara atas talian dan juga memaklumkan pihak hospital secara terus jika terdapat pesakit yang perlu dibawa ke hospital. Pembangunan perisian ini dibangunkan dengan menggunakan platform Android Studio sebagai medium reka bentuk antara muka pengguna dan juga Google Firebase sebagai stor penyimpanan maklumat.



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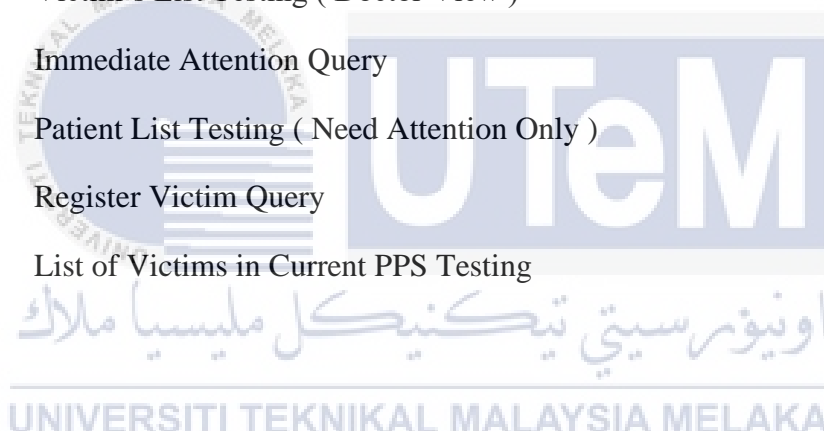
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## LIST OF SYMBOLS





## LIST OF ABBREVIATIONS

*PPS* - Pusat Penempatan Sementara



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# CHAPTER 1

## INTRODUCTION

### 1.1 Background

Floods are natural events that often occur in Malaysia. Floods occur almost every year, especially during the change of monsoon season. However, in some places, floods occurred at different times and experienced rainfall of the same intensity. In short, floods may occur in places with different rainfall characteristics (ie depth, duration, intensity). In addition, floods may happen again at the same location with the same intensity of rainfall. Floods have wide-ranging effects on humans, including the risk of injury or death, power supply interruption, and forced closure of businesses. In addition, services such as hospitals and schools may be stopped, and transportation networks may be disrupted, such as bridges, trains and roads damaged by floods. The main impact of the flood on the population is that houses and properties may be submerged by the flood, forcing residents to evacuate until the damage caused by the flood is repaired.

Mobile applications generally provide users with the same services as those available on PCs. However, research shows that users prefer mobile applications to mobile websites. This is a compelling argument for developing a mobile app to connect new (and current) users. Therefore, the mobile age has arrived. Today, there are more mobile device users than desktop users. Mobile applications can facilitate users with a more attractive interface. Mobile applications can also send notifications more easily. There are two types of notifications which is push notifications and in-app notifications. Both are interesting

alternatives for communicating with application users in a less intrusive way. A well-designed mobile application can perform operations faster than a website.

This system will focus on the process of obtaining health information from patients and making appointments with doctors at a temporary placement centre, receiving treatment and recording information such as the care provided and if the patient needs to be sent to the hospital. Mobile applications, generally called applications, are software that runs on mobile devices such as smartphones or tablets.

## 1.2 Problem Statement

Many organizations rely on paperwork for every job transaction such as invoicing as well as the collection of various data information. A manual paper data management requires a lot of transparency in managing a growing number of documents. There are some disadvantages why manual documentation must be change into digital management documentation. Firstly, paper documentation may can take up a lot of space that should be usable for other needs as well as documents are increasing day by day. In addition, paper documents should be nearby to make it easier to retrieve them.

Besides that, security issues are critical for every organization in safeguarding information as well as assets. Paper is a common problem in an organization. This is because paper is more easily lost, mistreated, and even destroyed, but digital data be protected and safely stored on database. Lost, destroyed, misplaced or even stolen manual documents often occur in the workplace. Fires or natural disaster can also cause the loss of important data of an organization. In the absence of a support plan, all data and information will not be recoverable. It will affect many organisations especially victims itself when they must provide same information again while they are in trouble themselves. The next problem is transportation problem. In data management through manual paper, data transportation will

be more difficult, slow and inefficient. If using an application or web based system, all files or information that you want to convey will be easier while using in app notification.

During the floods, all the victims in the temporary accommodation center will have difficulty in receiving medical assistance from the hospital. And also information about their health is difficult to record, doctors find it difficult to record what has been done to patients due to lack of facilities such as writing tools and even documentation. Finally, limitation of collaboration is one of the reason of this project. Collaboration is exceedingly tough when dealing with papers. If multiple user or organization head need to generate a shared information, they have to print many copies or when a change of information is needed, they have to print it again. Users can deal with various parties more easily and quickly if using a digital management system. User may also keep track of all the adjustments that have been done.

### **1.3 Project Objective**

The main aim of this project is to develop mobile based management system on flood victims'. Specifically, the objectives are as follows:

- a) To develop an efficient and friendly user flood victim management app in order to collect all the victim health data.
- b) To facilitates multi-way data transfer in managing flood victims in medical field in a more convenient way.
- c) To facilitate the documentation of patient treatment information in temporary placement centers.

## 1.4 Scope of Project

The project is part of a larger system of managing flood victims. The main scope of this project is to facilitate the collection of data on flood victims in term of health. This is intended to help them especially in terms of health problems. If before, more data is collected manually such as filling out forms. The problems presented by the victims are more difficult to solve due to problems such as loss of victim information forms. These management problems commonly occur when in temporary placement. So with the development of this mobile-based system, flood victims can more easily fill in the required information and also receive medical treatment when the information has been communicated more easily. The scope and the limitation of the system that will be implemented as follow.

Mobile Based Flood Victims Management System's users:

### 1. Admin

- Registration of doctor that been assigned to flood disaster health assistance program.
- Updating details of current doctor and victims.
- See report of victims and doctor.

### 2. Doctor

- Submit full report after victims treatment.
- See history of treatment that has been carried out on victims at PPS

### 3. Victims

- Registration to the system
- Submit appointment with doctor
- See history of treatment that has been carried out at PPS.

## 1.5 Thesis Organization

This project contains 5 different chapters and different importance of the implementation of the work. In chapter 1, the introduction of the project includes an initial overview of this project as well as the problems that caused this project to be built. Also contained in this chapter are work objectives as well as scope of the project also thesis organization itself.

After that, in Chapter 2, literature review takes place where the research for publications that relevant to the project such as books and journal articles. Findings in each article will be recorded for evaluation and comparison as well as what is necessary for renewal and development.

In chapter 3, it is all about the workflow, methodology used, software tools as well as system storyboard. The importance of this chapter 3 is for the experience of the reader or analyst to illustrate how this system is built.

Chapter 4 is the development of the software system is carried out. All information on the results of the study and analysis of the system will be recorded. The software system will be measured in detail in terms of information delivery, user satisfaction and develop coding standards.

Finally, in chapter 5 will show the conclusions and recommendations for the entire system that has been built. This is to discuss the findings of the study, acknowledge limitation and make recommendation for future works

## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 Introduction

Floods are natural events that often occur in Malaysia. Floods occur almost every year, especially during the change of monsoon season. The east coast of Peninsular Malaysia is most prone to flooding, especially during the northeast monsoon season from October to March. Especially from the second monsoon (October) to the beginning of the northeast monsoon (November to December). During the northeast monsoon, strong winds bring heavy rain to Peninsular Malaysia, often causing flooding. According to research on the causes of floods, the results show that the occurrence of floods is due to changes in the depth, duration, and intensity of rainfall. However, in certain places, the floods occurred at different times and experienced rains of the same intensity. In short, floods can occur in places with different rainfall characteristics (i.e., depth, duration, intensity). In addition, another flood occurred in the same place with the same intensity of rain.

Therefore, early response to flood emergencies is very important to keep flood risk and its impact to a minimum. However, coming up with the best flood emergency plan is not easy. Next, it is important to understand the existing research and discussions related to a particular topic or research field. Facilitate the process of developing a suitable system for the project.

#### 2.2 Statement

Early response to flood emergencies is very important to minimize flood risk and its impact. However, it is not easy to develop the best flood emergency plan. Next, it is