FLOOD WATER LEVEL DETECTION FOR STUDENT NOTIFICATION

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SUPERVISOR'S DECLARATION

I hereby declare that I have checked this project and in my opinion, this project is adequate in terms of scope and quality for the award of the degree of Bachelor of Computer Science in Computer System & Networking.

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STUDENT'S DECLARATION

I hereby declare that the work in this project is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at Universiti Malaysia Pahang or any other institutions.

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ABSTRAK

Sistem Pengesanan Tahap Air Banjir untuk Pemberitahuan Pelajar adalah salah satu sistem yang diwujudkan untuk membantu orang terutama Pelajar UMP yang tinggal di kawasan banjir. Pengguna jalan raya terutamanya pelajar dan kakitangan UMP biasanya mendapatkan maklumat lewat tentang keadaan jalan yang mereka mahu gunakan dan kadang-kadang mereka akan terperangkap dan perlu kembali dan menggunakan jalan lain. Objektif sistem ini adalah untuk mencadangkan kaedah baru untuk mengumpul data dan membangunkan sistem pemantauan aplikasi mudah alih dan sistem pemantauan paras air untuk mengiktiraf dan merekodkan paras air dengan menggunakan sistem Arduino Uno dan sensor. Dengan menggunakan Rapid Application Development (RAD) sistem ini akan menghasilkan pelan perisian yang sesuai dengan sistem yang mempunyai empat fasa. Projek ini dapat membantu pelajar UMP mengurus cara mereka dan mengelakkan mereka daripada keadaan berbahaya dengan mencari cara lain. Bukan itu sahaja, ia dapat memberikan maklumat yang lebih cepat tentang keadaan kawasan banjir. Saya berharap sistem ini akan membantu pelajar UMP mendapatkan maklumat dan menjadi salah satu cara alternatif untuk mengelakkan dari keadaan banjir atau kawasan banjir

ABSTRACT

Flood Water Level Detection for Student Notification is the one of the system that be created to help people especially UMP Students who is lived in flooding area. The road user especially UMP student and staff usually get late information about the road situation that they want to use and sometime they will be stuck and need to turn back and used another road. This objective of this system is to propose new method to collect the data and develop web mobile application and water level monitoring system to acknowledge and record the water level by using Arduino Uno and sensor system. By using the Rapid Application Development (RAD) this system will be produce a suitable software plan with the system that have four phases. This project can help people to manage their way and avoid them from dangerous situation by find another way out. Not only that, it can give more fast information about the flooding area situation. I hope this system will help people to get information and be one of the alternative way to avoided from flood situation or area.

TABLE OF CONTENT

DECLARATION

TITLE PAGE

ACKNOWLEDGEMENTS ii

ABSTRAK iii

ABSTRACT iv

TABLE OF CONTENT v

LIST OF TABLES viii

LIST OF FIGURES ix

CHAPTER 1 INTRODUCTION 1

1.1 INTRODUCTION 1

1.2 PROBLEM STATEMENT 3

1.3 OBJECTIVES 3

1.4 SCOPE 3

1.5 THESIS ORGANIZATION 4

CHAPTER 2 LITERATURE REVIEW 5

2.1 INTRODUCTION 5

2.2 WATER LEVEL DETECTION FOR STUDENT NOTIFICATION 5

2.2.1 Application in Water Level Detection 5

2.3 OVERVIEW OF ARDUINO 6

2.3.1 Implementation of Arduino 7

2.4 COMPARISON OF HARDWARE 8

2.5 COMPARISON BETWEEN HYBRID APPS, NATIVE APPS AND MOBILE WEB APPS 9

2.6 REVIEW OF THE EXISTING SYSTEM 11

2.6.1 Wireless Automatic Water Level control using Radio Frequency Communication 11

2.6.2 Automatic Water Level Indicator 12

2.6.3 Water Level Indicator Alarm 13

2.7 COMPARISON OF THREE EXISTING SYSTEM & PROPOSED SYSTEM 14

2.8 SUMMARY 14

CHAPTER 3 METHODOLOGY 16

3.1 INTRODUCTION 16

3.2 METHODOLOGY 16

3.2.1 Phase 1: Requirement Planning 17

3.2.2 Phase 2: System Design 18

3.2.2.1 Context Diagram 18

3.2.2.2 Use Case Diagram 19

3.2.2.3 Flow Chart Diagram 19

3.2.2.4 Dialog Diagram 20

3.2.2.5 System Architecture 21

3.2.2.6 User Interface 22

3.2.2.7 Database Table 25

3.2.3 Phase 3: Construction Phase 25

3.2.4 Phase 4: Cutover Phase 26

3.3 HARDWARE AND SOFTWARE 26

3.3.1 Hardware Requirement 26
3.3.2 Software Requirement 27
3.4 GANTT CHART 28
3.5 IMPLEMENTATION 30
3.6 SUMMARY 30

CHAPTER 4 IMPLEMENTATION 31

4.1 INTRODUCTION 31
4.2 DEVELOPMENT ENVIRONMENT 31
4.2.1 Hardware Setup 32
4.3 TESTING AND RESULT DISCUSSION 35
4.3.1 ARDUINO UNO RESULT 35
4.4 USER ACCEPTANCE TEST (UAT) 39

CHAPTER 5 CONCLUSION 44

5.1 INTRODUCTION 44
5.2 PROJECT CONSTRAINT 45
5.3 FUTURE WORK 45
REFERENCES 47

LIST OF TABLES

Table 2.1	Features of Arduino Uno	7
Table 2.2	Comparison between Arduino Uno, Raspberry Pi and Beaglebone.	9
Table 2.3	Comparison between Hybrid Apps, native Apps and Mobile Web Apps.	10
Table 2.4	Comparison between three existing systems	14
Table 3.1	Register entity	25
Table 3.2	Hardware Requirement	27
Table 3.3	Software Requirement	28
Table 4.1	User acceptance test	40

LIST OF FIGURES

Figure 2.1	Arduino Uno	8
Figure 2.2	Wireless Automatic Water Level control Using Radio Frequency Communication	12
Figure 2.3	Automatic Water Level Indicator	13
Figure 2.4	Water Level Indicator Alarm	13
Figure 3.1	Rapid Application Development (RAD)	17
Figure 3.2	Context Diagram	18
Figure 3.3	Use Case Diagram	19
Figure 3.4	Flow Chart Diagram	20
Figure 3.5	Dialog Diagram	21
Figure 3.6	System Architecture of Water Level Detection for Student Notification	21
Figure 3.7	Register Page for Flood Water Detection for Student Notification	22
Figure 3.8	The Login page	23
Figure 3.9	The Result Page	24
Figure 3.10	Database in Firebase Online	25
Figure 4.1	Shows front view of Arduino Uno, LED, GSM and Ultrasonic sensor	32
Figure 4.2	Shows the connection between sensor and GSM	33
Figure 4.3	Shows the connection between sensor, Arduino Uno and GSM	34
Figure 4.4	Java code in Android Studio	35
Figure 4.5	Show the result of the distance that read from the Sensor	36
Figure 4.6	Show the result of the distance	36
Figure 4.7	Show the result of LED	37
Figure 4.8	Show the message	38
Figure 4.9	Final Project	39
Figure 4.10	user acceptance test question 1	41
Figure 4.11	user acceptance test question 2	41
Figure 4.12	user acceptance test question 3	42
Figure 4.13	user acceptance test question 4	42
Figure 4.14	user acceptance test question 5	43

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

Flood Water Level Detection for Student Notification (FWLDFSN) is the one of the system that be created to help people especially UMP student and staffs who is lived at Gambang Damai which one of the place that possibly involved in flooding situation. It will give a lot of easier to user to get the information about the water level in without go to the flood area by using the detecting system and the student will get the better quality information and safety. Detecting system refers to the system that quickly identify a developing of water level before damage occurs.

Generally, Flood Water Level Detection for Student Notification (FWLDFSN) created to give information to the UMP students and staffs from involved or stuck in flooding area by sending message. For example, by using this system, user can check whether the road that they want to use are involved as a flooding area or not. Although, they can plan their trip with another way.

According to the National Oceanic and Atmospheric Administration (NOAA), for the past 30 years since 1994-2013, the most common deaths occurred due to floods. In 2014, floods become one of the most common causes of death associated with the weather. Not only that, Centers of Disease Control and Prevention, more than half vehicles drowned during floods.

Next, the disadvantage of the flooding situation is destruction of properties. Floods can drown the houses and damage other items such as electrical items, cars and so on. This can bring huge losses to the population. Besides, flood also cause loss of life especially in

low areas and near rivers. Not only that, flooding also can give impact to the government which is damage the public property such as roads, buildings, telephones, electricity and cause various diseases. All of this will be borne by the government to fix the damage and pay for medical equipment.

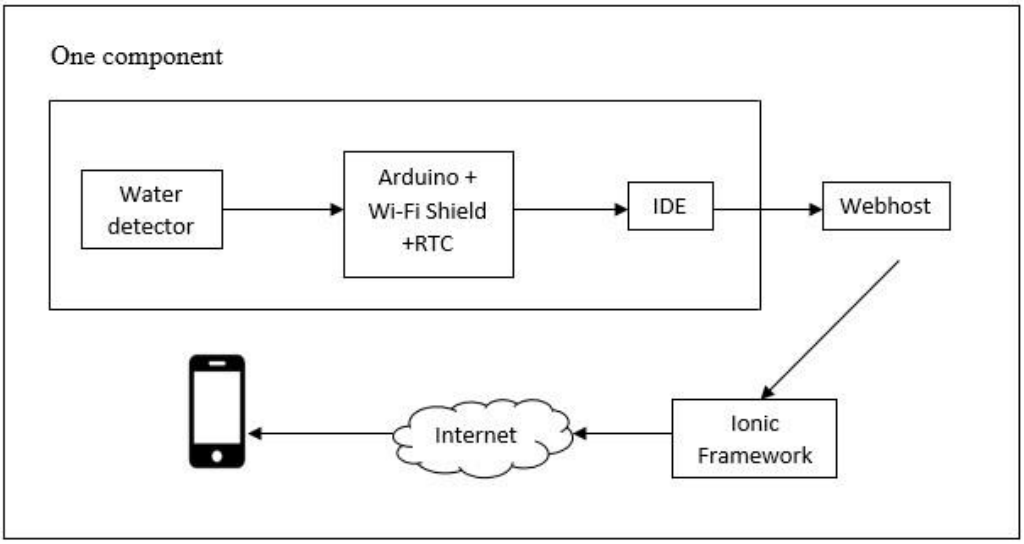

Figure 1.1 : Flood Water Level Detection for Student Notification

Figure 1.1 shown the step how the Water Level Detecting System work. The water detector hardware which is Ultrasonic Sensor will connect with Arduino Uno. The data from Arduino Uno will be sending to the student that used the mobile application by using GSM 900A. The data will be collected and save in Firebase which is similar to phpmyadmin but the Firebase be able to use it by online. Android Studio will be function as a mobile application platform to build a mobile application that will display the data to the users.

In conclusion, Flood Water Level Detection for Student Notification will help student to plan their way more efficient and can avoid them from become a victim of the flooding situation with the new detecting system. They also can get the notification by message about the latest result of water level.

1.2 PROBLEM STATEMENT

i. Department of Irrigation and Drainage need to be located at the site to check the water level manually and can cause long time to know the water level in some place.
ii. The UMP Students and Staffs usually get late information about the road situation that they want to use and sometime they will be stuck and need to turn back and used another road.
iii. Collecting the data manually would cause some data lost and not recorded systematically.

1.3 OBJECTIVES

The objective of this project are:

i. To investigate a system to detecting the water level for flooding situation
ii. To propose new method to collect the data
iii. To develop mobile application and water level monitoring system to acknowledge and record the water level by using Arduino Uno and sensor system.

1.4 SCOPE

The scope of this project are:

i. Build the system for UMP Students especially who live in Gambang Damai area to check the water level in their area with mobile application.
ii. This system is suitable for the moderate level flooding area
iii. This system also can be used in area that can be connected with Wi-Fi connection.

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