

# EMERGENCY MOBILE CONTACTS USING ANDROID APPLICATION SYSTEM

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UNIVERSITI TEKNIKAL MALAYSIA MELAKA  
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PROJEK SARJANA MUDA II

Tajuk Projek : EMERGENCY MOBILE CONTACTS USING ANDROID  
APPLICATION SYSTEM

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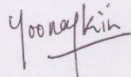
  
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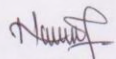
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*Dedicated to my beloved family, for your love and supports.  
To my friends, for your wits, intelligence and guidance in life*

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## ABSTRACT

Any normal human being in distress or in emergency cases will try to contact any necessary emergency and rescue services to get help from rescue services. Currently, any normal human would use their phone to call for help. However, the constraints of using the conventional method exists when they are in shock and they cannot communicate effectively to explain their position and condition. Thus, mobile applications are developed due to the fact that it can help people who are in emergency cases. This application can help any individual to immediately contact the police station, hospital, and added online by acting properly and get their contact detail. In order to alert the message coming, the led and buzzer is used and to make the output function, Arduino Uno is introduced as microcontroller. Furthermore, another new application is create to link the Arduino and send back a message to the user. Thus, the android applications and alert system is developed.

## ABSTRAK

Semasa dalam kesusahan atau dalam kes-kes kecemasan akan cuba menghubungi mana-mana perkhidmatan kecemasan dan menyelamatkan perlu untuk mendapat bantuan daripada perkhidmatan kacemasan. Pada masa ini, mana-mana manusia biasa akan menggunakan telefon mereka untuk meminta bantuan. Walau bagaimanapun, kekangan menggunakan kaedah konvensional apabila mereka berada dalam kejutan,, mereka tidak boleh berkomunikasi dengan berkesan untuk menjelaskan kedudukan dan keadaan mereka. Oleh itu, aplikasi mudah alih direkakan disebabkan oleh hakikat bahawa ia boleh membantu orang-orang dalam kes-kes kecemasan. Permohonan ini boleh membantu mana-mana individu untuk segera menghubungi balai polis, hospital, bomba dan menambah talian bertindak dengan betul dan mendapatkan butiran kenalan mereka. Selain, untuk memberi amaran kepada mesej yang akan datang, LED dan buzzer digunakan sebagai fungsi output, Arduino Uno diperkenalkan sebagai pengawal mikro. Tambahan pula, satu lagi permohonan baru diwujudkan mengaitkan Arduino dan menghantar kembali mesej kepada pengguna. Oleh itu, aplikasi android dan sistem amaran direkakan.



## TABLE OF CONTENTS

CHAPTER	CONTENT	PAGE
	<b>TITLE</b>	<b>i</b>
	<b>STATUS VERIFICATION FORM</b>	<b>ii</b>
	<b>STUDENT DECLARATION</b>	<b>iii</b>
	<b>SUPERVISOR DECLARATION</b>	<b>iv</b>
	<b>DEDICATION</b>	<b>v</b>
	<b>ACKNOWLEDGMENT</b>	<b>vi</b>
	<b>ABSTRACT</b>	<b>vii</b>
	<b>ABSTRAK</b>	<b>viii</b>
	<b>LIST OF TABLES</b>	<b>xii</b>
	<b>LIST OF FIGURES</b>	<b>xiii</b>
	<b>LIST OF ABBREVIATIONS</b>	<b>xv</b>
<b>I</b>	<b>INTRODUCTION</b>	
	1.1 Project Introduction	1
	1.2 Problem Statement	2
	1.3 Project Objectives	3
	1.4 Project Scope	3
	1.5 Contribution of This Work	3
	1.6 Report Organization	3

## II LITERATURE REVIEW

2.1	Introduction	5
2.2	Overview	6
	2.2.1 Android Architecture	7
	2.2.2 Android Development Environment	9
2.3	Eclipse Software	10
2.4	MIT App Inventor	11
2.5	Arduino Uno	13
2.6	HC-05 Bluetooth Module	14
2.7	Related Works	14
	2.7.1 Emergency Management System using Android Android Application	15
	2.7.2 Enabling Mobile Location Based Services for Emergency Cases	15
	2.7.3 Democratizing Mobile Application Development for Disaster Management	16
	2.7.4 Mobile Platforms and Development Environment E-Contact	17
2.8	Conclusion	19

## III METHODOLOGY

3.1	Introduction	20
3.2	Project Flow	21
3.3	System Design	22
3.4	Software Design	24
	3.4.1 Android Application	24

3.4.2	MIT App Inventor for Development of Emergency Mobile Contact Application	25
3.4.3	MIT App Inventor for Development of Resend Message Application	32
3.4.4	The Arduino IDE Software	33
3.5	Hardware Design	35
3.6	Exposing Process	37
3.7	Developing Process	37
3.8	Etching Process	38
3.9	Conclusion	39

#### **IV RESULTS AND DISCUSSIONS**

4.1	Introduction	40
4.2	Software Design	41
4.2.1	Emergency Mobile Contacts Using Android Application	41
4.2.2	Resend Message Application	44
4.2.3	Arduino Uno code	45
4.3	Hardware Design Result	46
4.4	Overview Result	48
4.5	Conclusion	49

#### **V CONCLUSION AND RECOMMENDATION**

5.1	Conclusion	50
5.2	Recommendation	51
	Bibliography	52
	APPENDIX A : GANTT CHART FOR FYP 1 AND 2	54

**LIST OF TABLE**

<b>TABLE NO</b>	<b>TITLE</b>	<b>PAGE</b>
3.4.2.1	Component Use for GUI of EMC Application	25
3.4.3.1	Component Use for GUI of EMC Application	32

## LIST OF FIGURE

FIGURE NO	TITLE	PAGE
2.2	Timeline of Android API	6
2.2.1	Android Architecture	7
2.2.2	Flowchart of Android Development	9
2.2.2.1	Example of Tablet and Mobile Device	10
2.3	Eclipse Software's Logo	10
2.4	Component Designer	12
2.4.1	Blocks Editor	12
2.5	Arduino Uno	13
2.6	HC-05 Bluetooth Module	14
2.7.1	Architecture of EMS	15
2.7.2	Call Flow for The Emergency Call Management in Malaysia	16
2.7.3	Two Semantic Web Enabled Mobile Apps For Disaster Response Situations	17
2.7.4	Application Layout	18
2.7.4.1	System architecture	18
3.2	Application Develops Flow Chart	21
3.3	Project System Design	22
3.3.1	Flow Chart of The System Application	23
3.4.1	Stream Work of The MIT Application Innovator	24

3.4.2.1	Block Code of Next Button and Accelerometer Sensor	28
3.4.2.2	Block Code of Location Detection and Maps Location	28
3.4.2.3	Block Code of Camera	29
3.4.2.4	Block Code of Phone Contact	30
3.4.2.5	Block Code of Emergency Services	31
3.4.3.1	Block Code of Bluetooth Button	33
3.4.3.2	Block Code of Resend Message and Message Received	33
3.4.4	Arduino IDE Software	34
3.4.4.1	Example Coding to Activate The Output	35
3.5	Connection between Arduino Uno and Bluetooth Module	36
3.5.1	ProteusCircuit Layout	36
3.6	Ultra Violet Light Machine	37
3.8	Etching Process	38
3.8.1	Output Circuit of The Hardware Design	39
4.2.1	Screen 1	41
4.2.1.1	Screen 2	42
4.2.1.2	Maps location	43
4.2.1.3	Pop Up Message	43
4.2.1.4	Components in Screen 2	44
4.2.2	Resend Message Application's Layout	44
4.2.1.1	Component in Resend Message Application's Layout	45
4.2.3	Alert System's Code	46
4.3	Connection Between Arduino Uno and HC-05 Bluetooth Module	47
4.3.1	Led and Buzzer Circuit Function	47
4.4	Overview Result	48

## LIST OF ABBREVIATIONS

SPP	Serial Port Protocol
EDR	Enhanced Data Rate
AFH	Adaptive Recurrence Hopping Feature
IDE	Integrated Development Environment
GUI	Graphical Interface
LED	Light Emitting Diode
TV	Television
SMS	Short Message Services
Dex	Dalvik executable
EMS	Emergency Management System

## **CHAPTER I**

### **INTRODUCTION**

#### **1.1 Project Introduction**

The latest technological advances in the development of Android applications have grown rapidly and are widely used as an operating system for smartphones and tablet devices. It became a phenomenon and trend for people in more than 190 countries worldwide. Android development is not only focusing on education, health care, entertainment applications such as games, video and music, but it also focuses on in case of emergency.



At present, many cases of emergency such as a house is on fire, car accident, accident, robbery cases and other disorders. Any normal human being when in distress or deal with emergency cases, they will try to contact rescue services necessary to help them. They want to let their contacts know about their location, so that they might be of help. Currently, any normal human would use their phone to call for help. However, the constraints of using the conventional method exists when they are in shock and they cannot communicate effectively to explain their position and condition. Thus, mobile applications is developed due to the fact that it can help people who are in emergency cases. This application can help any individual to immediately contact the police station, hospital, and added online by acting properly and get their contact details.

In order to alert the message coming, the led and buzzer is used. To make the output function, Arduino Uno is introduced as microcontroller. After that, another new application is create to link the Arduino and send back a message to the user.

## **1.2 Problem Statement**

In emergency cases, any normal human would try to contact rescuers needed for help or he would preferred to let his contacts known about the situation so that they can get in help. In this case, there is a possibility when human are very depressed and are in shock, they cannot communicate effectively to explain their condition and position. In addition, for those who cannot speak, when they are in emergency cases, they also need to seek a help. In order to avoid this situation, this application is proposed which enables any individual to immediately contact the service station such as police station, hospital, ambulance or fire nearest when they are in emergency. Hence, the respected team can get their contact details and act properly.

### **1.3 Project Objectives**

The objectives of this research are:

- To develop a user-friendly and secure android application system for emergency cases
- To design a led and buzzer circuit for alert purpose
- To develop a code of microcontroller using Arduino software

### **1.4 Project Scope**

This project is of creating an android application for emergency cases which can contacts police station, hospital, fire station and plus line. However, the application proposed is only just for android user.

### **1.5 Contribution of This Work**

This project is to design the programming for graphical interface (GUI) for an emergency mobile contacts Android application that can detect the current location (GPS), send all the information to the agency that user choose like police station, ambulance, plus line and fire station. Furthermore, this project includes designing a hardware which contained the LED and buzzer. Therefore, this project contributes hardware and software.

### **1.6 Report Organization**

This thesis comprises of five chapters. Chapter 1 provides the introduction, objectives, problem statement and scope of work, contribution of this work is also involved in accomplishing this chapter. Next, chapter 2 presents a brief discussion of the

previous works in order to gain an overview of this project. In chapter 3, it briefly explains on project planning, methodology and software development. Apart from that, the results of this project were discussed in chapter 4. Last but not least, the conclusion and future work of this report conclude in chapter 5.

## **CHAPTER II**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter includes the related work from previous journals that related to this project which are emergency mobile contacts using android application system. This chapter also includes a discussion on current android development.

## 2.2 Overview

Android is based on Linux, open source mobile operating system developed by the Open Handset Alliance led by Google to develop applications for Android devices. A set of tools which are included in the android SDK will be used in order to get started. When the SDK is downloaded and installed, these tools right from Eclipse IDE, through the ADT plug-in, or from the command line can be accessed. Developing with Eclipse is the preferred method because it can directly invoke the tools that we need when developing applications [1].

The following picture shows the timeline of Android API from November 2007 to June 2012. Androids keep updating the operating system started from Android 1 in November, 2007 until the latest Android update to the date this report was written is Android 4.2 (Jelly Bean) which was announced on November, 2012. The following picture shows a timeline of the Android API from November 2007 until June 2012.

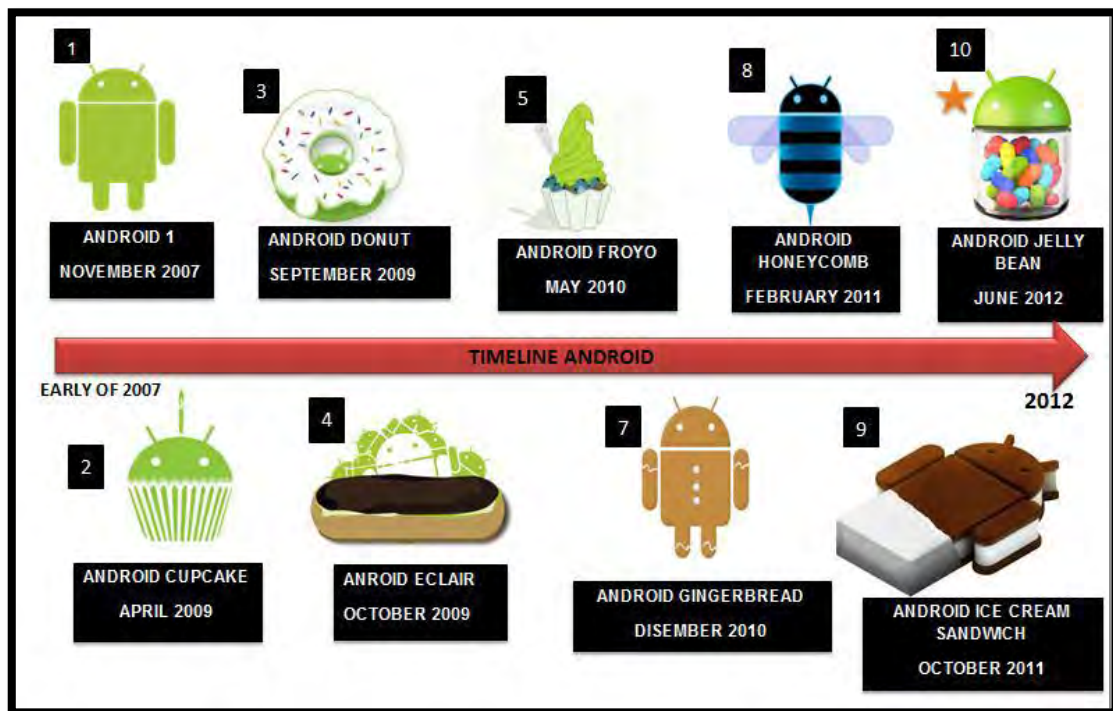


Figure 2.2 Timeline of Android API

Android develop a Google Play, which is a digital application distribution platform. Google is monitoring and maintained the android. Google Play was developed on October 23, 2008 and is known as Android Market. In Google Play, it has several parts such as Play Books, Play Magazines, Play Movies & TV and Applications.

### 2.2.1 Android Architecture

Basically Android has the following layers which are application written in java, executing in Dalvik, framework services and libraries written mostly in java applications and most framework code executes in a virtual machine, native libraries, daemons and services written in C or C++, Linux kernel, which includes drivers for hardware, networking, file system access and inter-process-communication.



Figure 2.2.1 Android Architecture

Android will ship with a set of core applications including an email client, SMS program, calendar, maps, browser, contacts, and others. All applications are written using the Java programming language. Developers can develop their applications using Java [2].

Developers used by the core applications have full access to the same framework APIs. In order to simplify the reuse of components; any application can publish its capabilities and any other application may then make use of those capabilities, the application architecture is used. This same mechanism allows components to be replaced by the user. For example, a developer can use his own contacts application instead of the core contacts application. Underlying all applications is a set of services and systems, including a rich and extensible set of Views; Content Providers that enable applications; a Resource Manager providing access to non-code resources; a Notification Manager that enables all applications to display custom alerts in the status bar and an Activity Manager that manages the life cycle of applications [2].

Android includes a set of C/C++ libraries used by various components of the Android system. These capabilities are exposed to developers through the Android application framework. Some of the core libraries includes System C library, Media Libraries, Surface Manager, LibWebCore, SGL, 3D libraries, FreeType, SQLite [2].

Android includes a set of core libraries that provides most of the functionality available in the core libraries of the Java programming language and every Android application runs in its own process, with its own instance of the Dalvik virtual machine, which relies on the Linux kernel for underlying functionality such as threading and low-level memory management [2].

Android relies on Linux version 2.6 for core system services. The kernel also acts as an abstraction layer between the hardware and the rest of the software stack.

## 2.2.2 Android Development Environment

Java programming is a language use to write an android application. Then the language will be compiled into byte codes which will be converted to a Dalvik executable (Dex) file using the dx converter. Lastly, it will be compiled into android package (apk) file, where that file can be installed on the android devices. Figure 2.2.2 below shows the flowchart of android development while Figure 2.2.2.1 shows the example of tablet and mobile device that used android as an operating system.

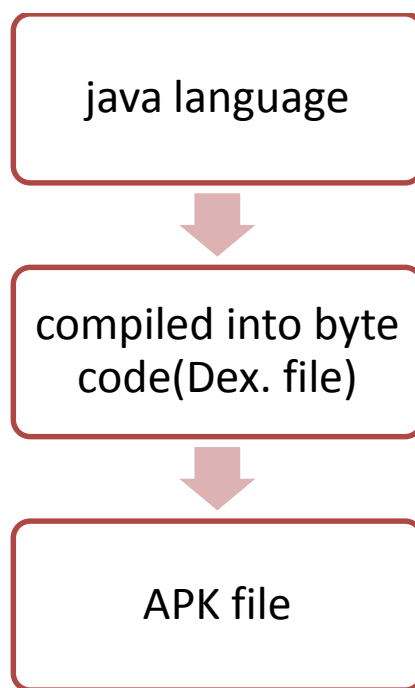


Figure 2.2.2 Flowchart of Android Development