

**GEOFENCING-BASED AUTO-SILENT MODE APPLICATION FOR
ANDROID**

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Special dedication to my beloved family, my kind hearted supervisor Mohd Shahril Izuan Bin Mohd Zin and to all my dearest friends.

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ABSTRACT

The project is planned to be developed for an engineering approach that can ease users to utilize their smartphone ringtone while in an area or are at an important event that needs no disturbance. Usually, some users often forget to switch their smartphone into silent mode in a silent zone area such as the mosques, cinemas, libraries and places that needed silent. Although smartphone need to alert user of the incoming calls or messages by ringing, in some places, it can bring interference to people around. Geo-fencing Based Auto Silent Mode Application is ideally develop to ease user to automatically turn their smartphone into silent mode using geo-fence abilities. The project primarily focuses on the developing an Android application for smartphones. To write the source code of the application, the project is developed by using Android Studio software. The expected outcome of this project is that the smartphone will automatically switch into silent mode when it enters the geo-fence area and when exits the geo-fence area, it will automatically switch back to normal mode. Each activities of the application will notify user in the notification section on their smartphone. For future work on this project, the application can upgrade the function of using geo-fence and apply it on a small-scale area.

ABSTRAK

Projek ini dibangunkan bermotifkan untuk menggunakan pendekatan kejuruteraan yang boleh memudahkan pengguna untuk menggunakan nada dering telefon pintar mereka di kawasan atau berada di satu acara penting yang tidak perlu gangguan. Biasanya, sesetengah pengguna sering lupa untuk menukar telefon pintar mereka dari mod biasa ke dalam mod senyap di kawasan zon senyap seperti masjid, panggung wayang, perpustakaan. Walaupun keperluan telefon pintar untuk memberi peringatan kepada pengguna apabila panggilan atau mesej masuk dengan nada, di beberapa tempat, ia boleh membawa gangguan kepada orang di sekeliling. „Geo-fencing Based Auto Silent Mode Application“ ini bertujuan untuk memudahkan pengguna untuk menukarkan nada dering telefon pintar mereka secara automatik ke dalam mod senyap menggunakan teknik „geo-fence“. Projek ini memberi tumpuan kepada pembinaan aplikasi Android untuk telefon pintar. Untuk menulis kod sumber aplikasi ini, projek ini dibina dengan menggunakan perisian Android Studio. Hasil jangkaan projek ini adalah bahawa telefon pintar secara automatik akan menukar ke mod senyap apabila ia memasuki kawasan „geo-fence“ dan apabila keluar daripada kawasan „geo-fence“, secara automatik akan beralih semula ke mod biasa. Setiap aktiviti aplikasi ini akan memberitahu pengguna dalam bahagian pemberitahuan pada telefon pintar mereka. Untuk kajian masa depan dalam projek ini, aplikasi ini boleh mempelbagaikan penggunaan fungsi „geo-fence“ dan mengaplikasikan pada kawasan yang kecil.

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LIST OF ABBREVIATION

SDK	-	Software Development Kit
API	-	Application Programming Interface
EDGE	-	Enhanced Data rates for GSM Evolution
3G	-	Third Generation
WiFi	-	Wireless Fidelity
GPS	-	Global Positioning System
OS	-	Operating System
NFC	-	Near Field Communication
Apps	-	Applications
U.S.	-	United States
SS	-	Satellites Segment
CS	-	Control Segment
US	-	User Segment
SV	-	Satellite Vehicle
UHF	-	Ultra High Frequency
I.D.	-	Identity Document / Identification

WAAS	-	Wide Area Augmentation System
A-GPS	-	Assisted Global Positioning System
LBS	-	Location-based Service
RFID	-	Radio-Frequency Identification
DBMS	-	Database Management System
UTeM	-	Universiti Teknikal Malaysia Melaka
RM	-	Ringgit Malaysia
UI	-	User Interface

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CHAPTER 1

INTRODUCTION

1.0 BACKGROUND

Smartphones are becoming a prior belonging due to its multifunction use and complicated features. It is a device that can handle of all of your handheld computing and communication needs in a single, small package. It is not so much a distinct class of products as it is a different set of standards for cell phones to live up to. Unlike many standard cell phones, smartphones gives individual users to install, configure, and run applications of their choosing. A smartphone offers the ability to confirm the device to your particular way of doing things. The most standard cell phone software offers only limited choices for re-configuration, forcing you to adapt to the way it is set up. On a standard phone, whether or not you like the built-in calendar application, you are stuck with it except for a few minor tweaks.

In smartphones, users can install a variety of applications up to the user. Today's smartphones are one of the tools to someone in to do and solve things. Smartphone provides many entertainments in the form of music and video. They allow one to surf the whole Internet so that they can stay update of the latest news, sports, weather, and more. Smartphone also allows user to send and receive all types of communication so that information can be communicated quickly and accurately. People carry smartphones wherever they go to connect with others. However, not all the right places to hear the ringing of smartphones like the mosque, cinemas, and libraries. In these places, people may forget to turn their smartphone into the silent mode. As a habit that not only brings disturbance to others, but to give effect to the event held.

Android operating system has become the most used operating system in the mobile market. Based on its open source features, anyone can install or develop applications based on Android. Android is important software for mobile devices including android application which will control system in every device in order to handle the tasks need by users. To begin developing applications on the Android platform, it is necessary to use Android Software Development Kit (SDK) which provides the tools and Application Programming Interface (API) using the Java programming language. There are many technologies that use Android operating system for examples smartphones, netbooks, tablet computers, and other devices. There are open source project called Android-x86 project for Android developers. This project supports the developer to create the open source application for x 86 platforms which is the most stable than other platform. There are some features that support the Android-x 86 projects, and Google project uses a special x86 version of Android such as:

- Application framework
- Dalvik virtual machine
- Optimized browser
- Optimized graphics
- Media support
- Bluetooth, EDGE, 3G, and WiFi
- Camera, GPS, compass and accelerometer

By developing this auto silent application software, it will improve the lifestyle of people. The user's smartphone will be automatically turned into silent mode according to the selected schedules such as day, times or places.

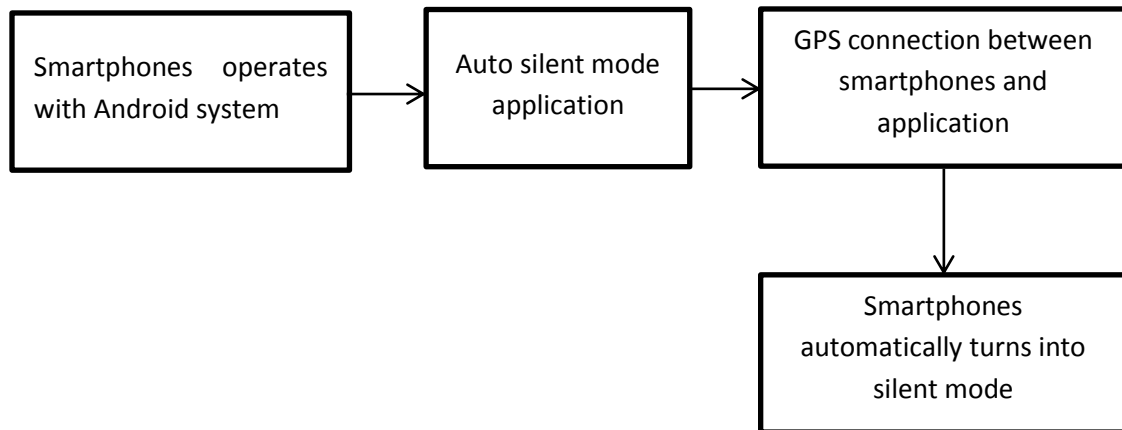


Figure 1.1: Auto Silent Mode

This auto silent application project was developed to automatically turn the user's smartphone into silent mode by connecting with GPS using geo-fencing technique. This project will be developing in the form of software using the Java eclipse to create auto silent mode applications. Thus, the software is user-friendly that the user just turns on the GPS/location that connected with the GPS in turn the smartphone into silent mode.

1.1 PROBLEMS STATEMENT

This project addresses current issues such as:

1. User need to switch manually to silent mode on their smartphone by doing some step in the volume setting.
2. User turn down the volume to low but still not on silent mode.
3. The ringing volume for smartphone can interrupt other people around.

1.2 OBJECTIVES

The objectives of this project are listed as below:

1. To develop an auto silent mode application for Android smartphones using Android Studio Software Development Kit software.
2. To synchronize the developed auto silent application with GPS by using geofencing technique.
3. To evaluate the results and performance of the developed auto silent application.

1.3 SCOPE OF PROJECTS

The scope of the work mainly relates to computer engineering is as follows:

1. Software development including the coding of auto silent mode application that controls the smartphone sound system.
2. Hardware and software synchronization over the GPS communication within the mosque or library area.