Survey of Automation of Services on Android Platform

Prathamesh Thakar[1] Nimish Parab[2] Ankit Yadav[3] Prof. Ranjit Mane[4]
[4]Assistant Professor
[1,2,3,4]Department of Computer Engineering
[1,2,3,4]Bharati Vidyapeeth College of Engineering, Kharghar

Abstract— In this modern and chaotic world, people tend to forget the simple, yet essential things that could later lead to be a significant mistake. Often do we find ourselves realizing such mistakes yet repeating it again. To overcome these difficulties, this Android application would help you to get a reminder or do the work itself. With the collective assistance of the Global Positioning System(GPS) receiver which is integrated into our smartphones and free-to-use service of Google Maps, this application will detect the location of your Android smartphone or tablet and trigger the user-specified notification provided you are present near or at that specific location. Along with location based triggers, this application will also assist the users in enabling the triggers which are time-specific and text-specific i.e. reminding the user or performing actions at a specific time and/or when a user-specific text is received on your smartphone. Various tasks can be automated when a trigger is enabled. Such tasks include sending a message to a contact, displaying notifications, text-to-speech action, setting sound mode, etc.
Key words: GPS, GNSS, LBS

I. INTRODUCTION

Automation of services refers to the tasks that are executed by the machine automatically with help of predefined knowledge. This knowledge is input by the user that he/she would want the machine to do. To automate any service, a certain trigger needs to be executed. The triggers could be of any type viz. location-based, text-based, time-based etc. The triggers get executed when the conditions specified in the application matches with the inputs given by the user. In order to use the services, an application needs assistance of several hardware as well as software components of a smartphone. Different triggers will make use of various components to automate the services. Also, free to use services of Google Maps can also be used for further assistance.

Location based triggers help in automating the services based on the location of a smartphone. Text based triggers will execute the services based on the text received on a smartphone and time based triggers use the time specified in the smartphone.

II. LITERATURE SURVEY

Global Positioning System (GPS) is the widely used technology for detecting the location of a smartphone. Global Positioning System tracking enables us to know where a particular location is. A GPS tracking system may be placed in a vehicle, integrated in a cell phone, or on special GPS devices, which can either be a fixed or portable unit. GPS works by providing information on exact location. It can also track the movement of a vehicle or person. A GPS tracking system uses the Global Navigation Satellite System (GNSS) network. This network incorporates a range of satellites that use microwave signals that are transmitted to GPS devices to give information on location, vehicle speed, time and direction. So, a GPS tracking system can potentially give both real-time and historic navigation data on any kind of journey. GPS provides special satellite signals, which are processed by a receiver. These GPS receivers not only track the exact location but can also compute velocity and time. Other technologies like WiFi or Cell-id information lacks the accuracy in tagging a location than GPS. [4]

Many applications have been designed that perform time-based reminder service. It is simply an alarm service that is provided in every smartphone. There are a number of applications that provide location based triggering. These applications have different methods of implementing the task. Some of them are listed below:

[1] designed 'Smart Location Reminder', a location based reminder application. It reminds a user of a task whenever he/she reaches to the specified location by notifying or setting an alarm of the same. In this application, Google Maps has been used to tag a location. This location which is stored in the database serves as an important parameter in setting off a trigger. It also provides nearby locations for ease. The application performs the tasks by comparing the information stored in the database with the data received from the hardware such as GPS. It searches for the detected location in the database (stored in SQLite) and perform the task if it matches with any of the information stored. The application provides an efficient method to use location based reminder service, but it has some limitations. The application can service only location-based triggers. i.e. It doesn't have any more functionalities like text-based triggers. It sends a notification or sets off an alarm, but many more services can also be provided like sending a message to a certain contact number.

[2] designed RemindMe, another Android-based location based reminding application which is enhanced with several geo locating options with different APIs. In this application, the user can create reminders using several APIs like Google Maps, Foursquare or via the embedded sensors of the smartphone (GPS). It also allows the user to define the radius of the location, providing more flexibility to the users. As it uses Foursquare, this application can also use the location of a user's friend to create a reminder. It uses a combination of both, location and time information to remind the users of a task. This provides the users time filtering option to get reminded of the tasks. To save the required information in the database, it uses SQLite. The author has classified the application into three major components namely Location Tagging Manager Component, Notification Manager Component and Reminder Manager Component. Location Tagging Manager saves the obtained location information into the SQLite database. Reminder Manager manages the features of the reminder i.e. time, content etc and saving it into the SQLite database. Notification Manager

checks whether the conditions to alert occur or not. The limitations for this application remain the same as for [1].

[3] created an application that not only uses GPS but also makes use of IEEE 802.11 WLAN (WiFi) infrastructure. Using this enables the users to tag the locations that cannot be sensed by the Global Positioning System sensor. When using Wifi, the application first selects the WiFi AP to be used and then saves the co-ordinates into the database. The author has classified the locations into two tables, indoor table and outdoor table. When WiFi AP is used, the locations are saved into the indoor table while the others are stored in the outdoor table. This application uses a efficient method of using WiFi Access Point for location based service (LBS). The limitations, again, remain the same as for [1] and [2].

III. CONCLUSION

The study of various research papers show the efficient manner of using the location based service (LBS) along with time based services. This paper mentions different features and methodologies used by the authors in creating their applications.

Furthermore, the paper also specifies a few limitations that could be considered as work of future scope in this field.

REFERENCES

[1] Pradnya Battin, Dr. S.D.Markande,"Location Based Reminder Android Application Using Google Maps API", 2016 International Conference on Automatic Control and Dynamic Optimization Techniques (ICACDOT)

[2] Ali Mert Ertugrul, Itir Onal," RemindMe: An Enhanced Mobile Location-Based Reminder Application", 2014 International Conference on Future Internet of Things and Cloud

[3] Chi-Yi Lin, Ming-Tze Hung, and Wei-Hsun Huang,"A Location-based Personal Task Management Application for Indoor and Outdoor Environments", 15th International Conference on Network-Based Information Systems, 2012

[4] https://www.eetimes.com/document.asp?doc_id=1278363