SAFETY ALARM BY USING GPS IN ANDROID

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Abstract- The proposed idea of this work Safety Alarm by using GPS in Android avails to frequent travelers at various places, this application helps to find the particular location on which they are currently stand and also introduce of preserving the current location data details. The location information is preserved for every second and its stored in the database. This is because, if the person is disoriented or not found, then utilizing the stored location information, the person can be easily identified. Here we also present options for emergency system. In current system, alarms are set for particular time. Many times there are situations where the alarm/reminder is predicated on your current location and not predicated on time. The Mobile application installed on the mobile can give a alarm predicated on a particular location.

Keywords- *Alarm, Global Positioning System, Android*

I. INTRODUCTION

Android is a software stack for mobile devices that includes an operating system, middleware and key applications. Google Inc. purchased the initial developer of the software, Android Inc., in 2005.Android's mobile operating system is based on the Linux kernel. Google and other members of the Open Handset Alliance collaborated on Android's development and release.

The Android Open Source Project (AOSP) is tasked with the maintenance and further development of Android. The Android operating system is the world's best-selling Smartphone platform.

The Global Positioning System (GPS) is a space-based satellite navigation system that provides location and time information in all weather, anywhere on or near the Earth, where there is an unobstructed line of sight to four or more GPS satellites. It is maintained by the United States government and is freely accessible by anyone with a GPS receiver.The Global Positioning System (GPS) is a satellite-based navigation system made up of a network of 24 satellites placed into orbit by the U.S. Department of Defense. GPS was originally intended for military applications, but in the 1980s, the government made the system available for civilian use. GPS works in any weather conditions, anywhere in the world, 24 hours a day. There are no subscription fees or setup charges to use GPS.

Finding a ROUTE or branch near to us is possible through GIS. A geographic information system is a system designed to capture, store, manipulate, analyze, manage, and present all types of geographically referenced data. The locator to find the services you require - simply enter your postcode, town or city and click on 'Search' to see all ROUTEs in your area. GIS is the merging of cartography, statistical analysis, and database technology. In a general sense, the term describes any information system that integrates, stores, edits, analyzes, shares, and displays geographic information for informing decision making.

GIS is a more complex mapping technology that is connected to a particular database. Because it's generic, it is a broader term than the GPS in its technical sense. Thus, GIS is a computer program or application that is utilized to view and handle data about geographic locations and spatial correlations among others. It simply gives the user a framework to obtain information.

Identifies location & navigates you to the nearest Place or ROUTE. Get turn-by-turn directions to the nearest Place or ROUTE. The Global Positioning System (GPS) is a space-based satellite navigation system that provides location and time information in all weather, anywhere on or near the Earth, where there is an unobstructed line of sight to four or more GPS satellites. It is maintained by the United States government and is freely accessible by anyone with a GPS receiver.

II. SYSTEM MODEL

A system architecture or systems architecture is the conceptual model that defines the structure, behavior, and more views of a system. An architecture description is a formal description and representation of a system, organized in a way that supports reasoning about the structures and behaviors of the system.

As shown in the figure 2.1, the user have many options.

- User can set the alarm ,
- can select the location,
- activate and deactivates the alarm.
- users can also edit the alarms which were already saved.

Android:

Android [4] is a Linux-based operating system designed primarily for touch screen mobile devices such as smart phones. The Android SDK is available for Windows, Linux and Mac OS X, free of charge. Developers can use popular Java development tools like original Java SE packages have been removed. These have been replaced by GUI packages that are more suited for the reduced screen sizes used by mobile devices. Eclipse and Ant. Existing Java SE based code can also be ported to Android with relative ease, as long as it does not interface with any of the packages that have been removed.

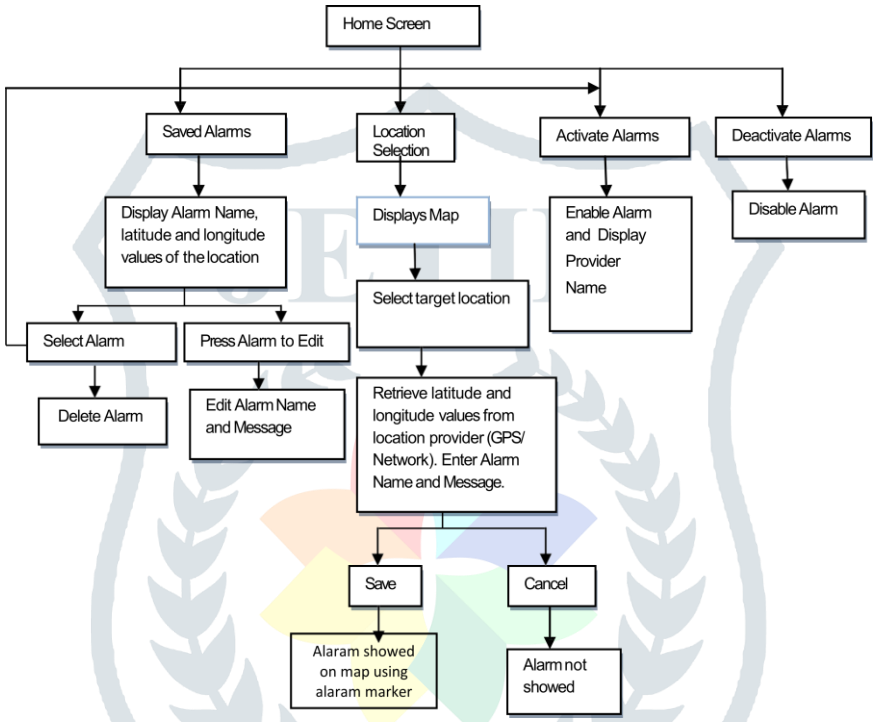

Fig 2.1: System architecture

With the Android platform recently becoming very popular, this application will reach a lot of users who are using vehicle for transportation. The user interactive design is simple and intuitive so that most users can easily use it for the first time. The combination of GSM mobile and satellite-based GPS in one innovative unit gives users the ability to initiate an alarm calls whenever and wherever they need or want to do so.

The advantages of using Android[6] is as follows:

Multitasking: Android phones can run many applications, i.e., the user can browse facebook while listening to the song.

Ease of Notification: Any SMS, email, or missed call there will always be a notification on the home screen android phone, so the user will not miss a single SMS, Email or even Misscall.

Easy access to thousands of applications via the Google Android Android App Market: Thousands of applications and games are ready to be downloaded on Android phones.

Can install a modified ROM: There are many custom ROM that can be used in mobile phones Android.

Widget: With the widgets on the home screen, the user can easily access a variety of settings quickly and easily.

Google Maniac: Android phone has integrated with Google services, so the user can quickly check e-mail from Gmail.

SQLite:

Android provides several ways to store user and application data. SQLite is one way of storing user data. SQLite is a very light weight database which comes with Android OS. The android.database and android.database.sqlite packages offer a higher-performance alternative where source compatibility is not an issue.

XML:

Extensible Markup Language (XML) is a markup language that defines a set of rules for encoding documents in a format that is both human-readable and machine-readable.XML is used for the creation of UI layouts in Android. Android provides a straightforward XML vocabulary that corresponds to the View classes and subclasses, such as those for widgets and layouts.

The advantage to declaring UI in XML is that it enables the user to separate the presentation of the application from the code that controls its behavior. UI descriptions are external to the application code, which means that the user can modify or adapt it without having to modify the source code and recompile. For example, XML layouts can be created for different screen orientations, different device screen sizes, and different languages. Additionally, declaring the layout in XML makes it easier to visualize the structure of the UI, so it's easier to debug problems [8] [9].

GPS:

Global Positioning System (GPS) [5] is a satellite based, medium earth orbit (MEO), navigation technology. GPS relies on a constellation of at least 24 satellites to provide location, speed and direction information to its users. It works by using a technique called trilateration combined with atomic clocks in the satellites in order to accurately determine the correct location.GPS finds the user position by calculating differences in the times the signals, from different satellites, take to reach the receiver. GPS signals are decoded, so the smart phone must have in-built GPS receiver.

The accuracy of GPS is relatively high compared to most other techniques, but it requires line of sight to satellites which severely limits its use indoors. In big cities with lots of high buildings and narrow streets GPS will often have very low accuracy because the number of satellites it can see is limited.

The Android emulator allows a file with pre-recorded track points to be installed so that it can emulate a real GPS and make applications believes that it is actually moving. Using this technique, a track was recorded with a real GPS and uploaded to the emulator. To be able to find out if a user is inside or outside the area one must first find a suitable method to define this area. When a GPS is used the area is defined as a circle with radius r and center coordinate (xc; yc). A disadvantage of GPS is that the users will most likely fail if the user wants to specify the center of the circular area in the middle of the user area.

IV.IMPLEMENTATION

The system is developed as three modules which are described in the following sections:

Set Alarm: This module is responsible to get inputs from user about the alarm – name of location, expiry date of alarm, reminder description if any. This module is responsible of converting the location name into actual geo co-ordinates and set the alarm for that location.

Alarm Generator: This module is responsible to ring the alarm if user is near to the location for which alarm is set.

Alarm Viewer: This module is responsible to display the already set alarms. Allows user to edit/delete/update alarms.

Location Selection and Characterization

In this module, for the first time users, the users need to configure the application using various options. The users are given options to configure the application in their mobile, such that options such as emergency numbers with two options, with the name which should be displayed in the messages, the location information, time information, pin information etc. Pin information is given to make the application secure. Such that no one can change the configuration files, to help in emergency. There may be chances of someone to change the configuration files, so as to protect in from these attacks, secure pin methodology is adopted.

Emergency Scenarios

Users having received notification of an emergency are unlikely to maintain normal usage patterns. In particular, users are likely to attempt to contact their friends and/or family soon after learning about such conditions. Here we considered emergency scenarios like Accident, heart attack, lost location and struck to thief. Alert message will be sent immediately to the emergency numbers like friends or relatives number, to whom ever configured initially in first module.

V.EXPERIMENTAL RESULTS

Following figures gives the experimental results:

Fig 5.1 describes that user can enter their name and contact number for whom the message need to be send. And there is also a pin which will be helpful for security purpose.

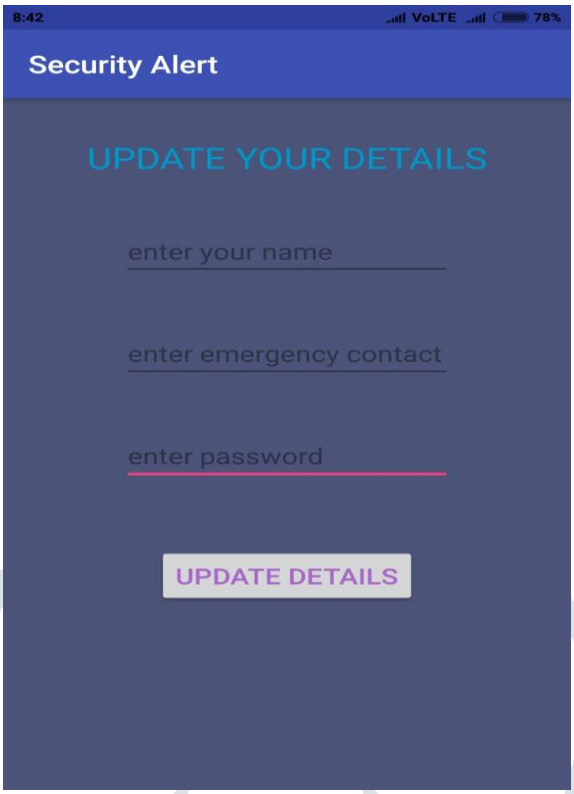

FIG 5.1 : HOME SCREEN

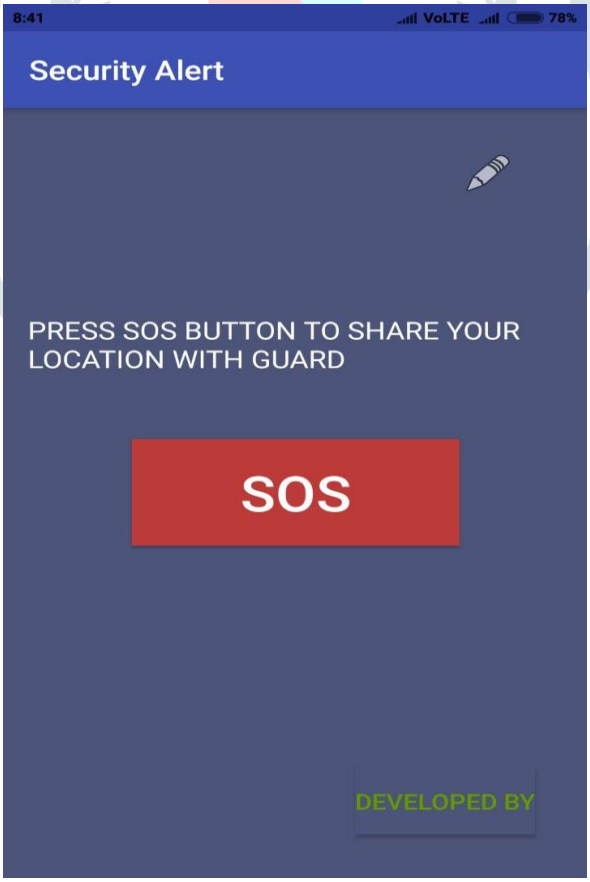

Fig 5.2 : Button To Share Location

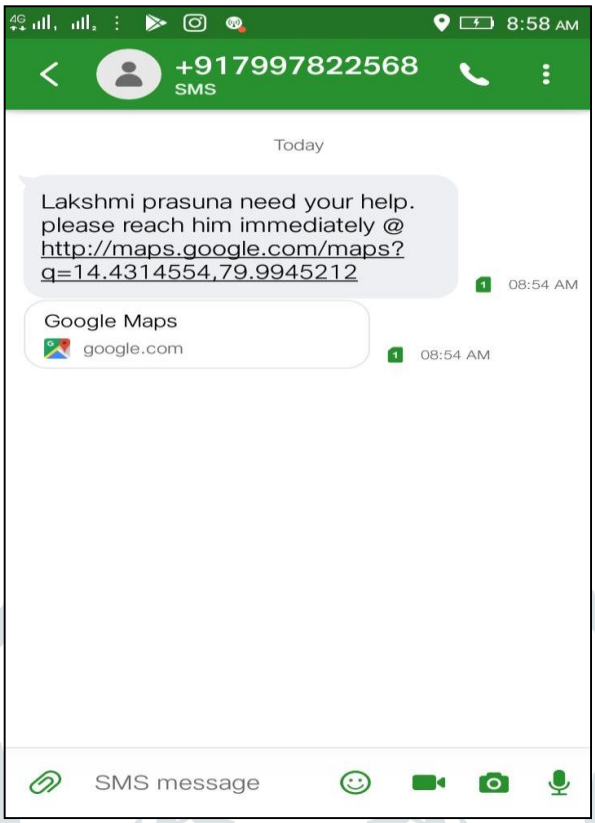

Fig 5.3 : Notification Message

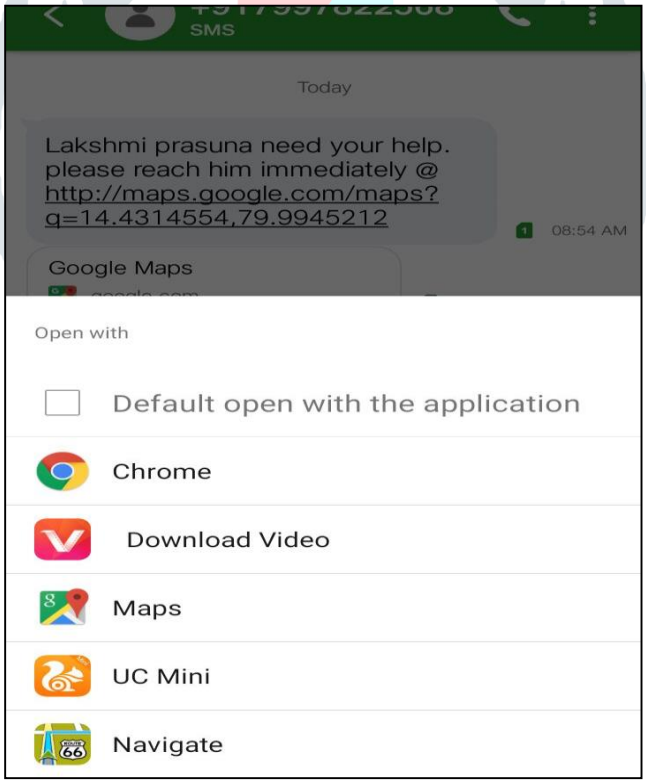

Fig 5.4 : Selection Of Appropriate Application

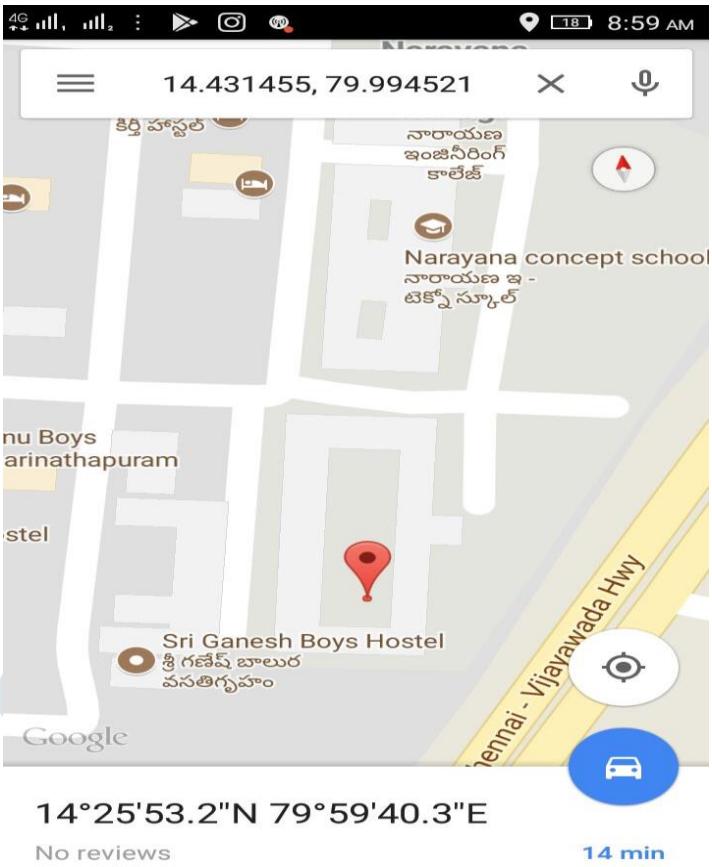

Fig 5.5 : Google Maps

VI. CONCLUSION AND FUTURE SCOPE

This scheme allows user to send the notification message to the given contact number .The contact person gets the geological coordinates by which they will get the user current position . The future scope of this application to add alarm at the user side along with the notification message.

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