SMS BASED PERSON'S LOCATION CHECKING SYSTEM FOR ANDROID MOBILES USING GPS AND GPRS

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Abstract - Purpose to develop the system is to keep track of your family members and close person's location using smart phone by just sending simple SMS(Short Message Services).Locating of the mobile device uses two technologies via General Packet Radio Service (GPRS) and Global Positioning System (GPS). The person's location can be tracked using a mobile phone which is equipped with an internal GPS receiver or mobile internet connectivity which is useful for finding out the location of device. System is developed for android mobile devices and using android sdk, Google Play service, Google MAP API and sqlite database to log necessary required information. System is serve as requestor - capable to request for other device's location and as a provider - capable to provide location of device to pre-synchronized number using SMS(Short Massage Services). Google Map is used for mapping the device's location which is serves via SMS by provider. Log of last received location information of provider's device is maintained. System rendered with facility like any other number which is not part of synchronized number list cant access the device's location.Basic utility like modified and delete the information of requestor as well as provider.

Index Term – Google MAP , GPS, GPRS,SMS base application , Synchronization

I INTRODUCTION

Smart mobile device can either using GPS (Global Positioning system) or GPRS(General Packet Radio Service) for finding the current location of device, [1] GPS system which is a satellite based service which is available 24X7 everywhere in the whole world. GPS system can be used to get location which includes details like latitude, longitude's values .So, tracking of human . GPRS system is track location with the help of service provider network with nominal coast using Mobile phones equipped with GPS receiver or using GPRS and service provider network rather than handheld GPS receiver is cost effective and easy.

In Today's fast life everyone always wants to know that their kids, retired parents and

dear ones are safe. So it's become easy with the help of mobile device to keep in track of location of family members. Every smart phone having SMS and GPS facility.

The main purpose of develop the system is to keep track of location of your dear once as well as provide your location to your family member and dear one who request for a it , by just sending one SMS service. GPS is combined with one of the basic service of a smart phone which is GSM, more specifically SMS, in one system. System holding facility to work as a requestor which will allow requestor to send a request to get the location information of other person and show that on Google Map. System also holding facility to work as a provider which accept the request of requestor and pass on the current latitude and longitude value of device to the requestor. . On the other hand, the system at the provider's side uses GPS or GPRS service provider network to get person's location information using phone device.[4]Information such as GPS coordinates a sent to the requestor smart phone that's preregistered on the application via SMS. The communication between the two devices is done using Short Message Service (SMS). SMS offers the system unique features, which makes system to work without the need of internet connection thus allows the application to be implemented on smart phones that don't support continuous GPRS, 2G or 3G internet connectivity. The system sends the location of provider's device to requestor's device when requestor send request to check location of provider. So, the System is facilitated with functioning of requestor as well as location provider , that is it can send the request for get location of person as well as provides the location to the synchronized requestor. At the security aspect of system, location information like longitude and latitude value of current device's position only provided to when request is coming from synchronized number, So any other non-synchronized number not able to check the device/person's location. In case of finding latitude and longitude values GPS off GPRS service provider network, WIFI sensor is utilized. For open the location at Google Map only internet connectivity is required, and location information is logged by system, which will be useful to show the location on Google Map whenever internet connection available on device. System is rendered with basic utility of update and deletes the provider and requestor detail.

II RELETED WORK

[1] Existing human tracking system ,The architecture of the system is based on client server approach. at mobile device's application side that is client side GPS receiver fetches the GPS location, after calculating the exact location it further creates a GPRS packet along with the location details a running on the Android based Mobile sends this GPRS packet to the server. Server stores packet information and at server computer displays the map along with location to track the human. Limitation of system is that in order for the system to work there must be continuous internet connectivity required at mobile device.

[3]Existing system for woman tracking using GPS and GPRS , use client-server type of architecture, in which after the registration on server and getting password. When user

one the app in emergency from mobile device, GPS start to trace the phone & find the location of user with help of device, and keep sending to server using GPRS service after certain time-slab continuously. At other side Administrator's computer generates and updates the MAP for received updated location information. Location information store in database and server send the same location information via message to its family members continuously after specified time-slab. Limitation of system is there must be internet connectivity required to mobile device to continuous sending location data . Also administrator side computer required internet connectivity to receive latest location information receives from client side device.

[4] System for child tracking aimed to help locating missing or lost children. GPS is combined with one of the basic service of a smart phone which is GSM, more specifically SMS, in one system. System having two parts, parent and child application. An application at the parent side allowed parents to send a location request to a child side then retrieve the location from the request reply and shows it on a map. On the other hand, the application at the child's side gathers the necessary information of the smart phone that will be used to locate the smart phone. Information such as GPS coordinates and time are gathered and sent to the parent smart phone that's preregistered on the application. The communication between the parent and the child applications is done using Short Message Service (SMS) and application to be implemented on smart phones that don't support

GPRS, 2G or 3G internet connectivity. Limitation of system is device having a child side application cannot requests for location of other person.

III Application development

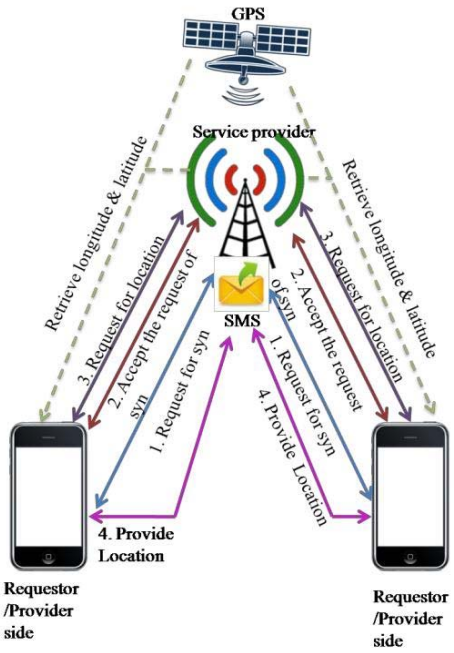
A. Requirement for the system

This system use basic SMS service and GPS service which is commonly available in every smart phones. Mainly used by family member especially parents who want to keep track of their child's location which can be provide as an when it is demanded. This system is developed using tool eclipse for android developer and android sdk.[5] Application use SQLite database to store information about the location and synchronization detail. For display the map system uses Google play service and MAP key for accessing Google MAP.[6]

B. System Architecture

Fig[1] shows the overall architecture of the system it can work as requestor as well as can work as a location provider . As requestor system can first t send request for synchronization to the provider side using SMS. At provider side system maintain the log of coming requests of synchronization and if request is accepted then requestor will get SMS of acceptance of request this way system make . Synchronization between requestor and provider for communication about the location information so SMS from other than synchonised acquire number cant d the after location information r successful synchronization, system grants requestor for requesting provider's device location via SMS. At provider side using GPS or network service which ever available system acquire the current longitude and latitude of the provider's device and send to requestor via

in SMS. At requestor side after receiving of SMS of about location information notification of location information is generated to rendered a facility to open a location in map by single click on notification whenever internet connectivity available on requestor's device . Provider's location information logged by requestor's system to facilitates to locate last known location of provider's device on Google map.



Fig[1]. System Architecture

C. Algorithm of system

1) Send request for synchronizes the number for checking location of receiver/provider using SMS. for the permission to get other device location.

2) At Receiver/provider side generate notification for synchronization, after approval of the request, send SMS of approval to requestor side.

At requestor side after getting approval SMS can request for check location of provider's device using SMS to provider' number

3) At receiver/provider side , check in database of incoming request mobile number with synchronized number. If incoming request coming from synchronized number then using GPS service or GPRS provider network service , fetch current latitude and longitude of device and send it using SMS service to same mobile number from which number request coming from using SMS service.

4) At the requestor's side after getting longitude and latitude location SMS , Generate notification and on click on notification opens Google map to locate the area. And store last receive location values for later on locate location on Google Map .

5) Other Utility like edit or delete provider and request or detail like name and synchronized SIM number stored in device is provided by system.

6) Other Facility of maintain logs for all pending synchronization requests handled by system.

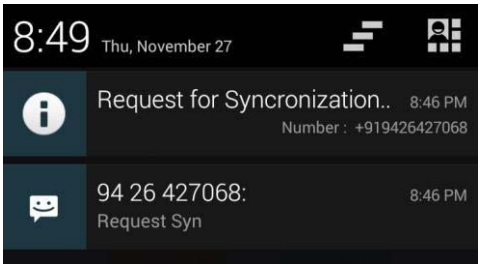
D. *Application Specification*

Fig[2] having main page of system to shows the basic functionality of system requestor side as well as provider side. Button for synchronize is for sending request for synchronize for start communication for checking and getting number. Location button for sending request for check

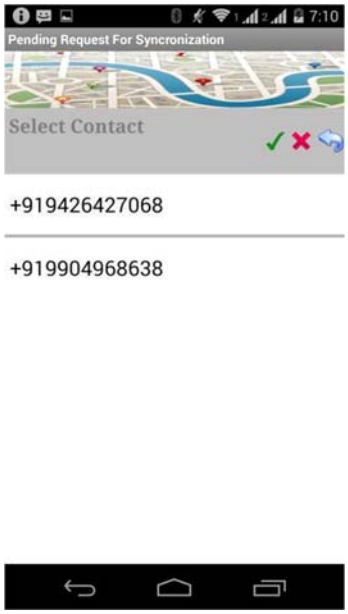
location of synchronized number and locate on map. Location Provider button opens the list of available person's and allowed to update/delete details whom location is allowed to check . Pending button list out all coming request for synchronization. Requestor List button shows and update/delete the requestor number which can access device location. Fig[3] shows how Requestor can send request for the synchronization to other SIM number where application is installed on other device. In Fig[4] At receiver side where system is installed and gets SMS and notification is generated so on click of notification it open pending list waiting for the synchronization. Fig[5] shows the list of pending requests awaiting for the synchronization for permission to check the location of device. Fig[6 shows the list of provider to whom request to check his/her device location can be retrieved . In Fig[7] system send request via SMS for getting location of selected contact . Fig[8] requestor get the latitude and longitude values via SMS and generate the notification Fig[9] on click of notification about location values , Map is open and locate the retrieved person's location on Google Map. Fig[10] Displays list of provider for update the detail. Fig[11] displays list of requestor for update the detail. Fig[12] allowed to update the selected requestor or provider detailed and update database

Fig [2] Main page

FIG[3] REQUEST FOR SYNCHRONISATION

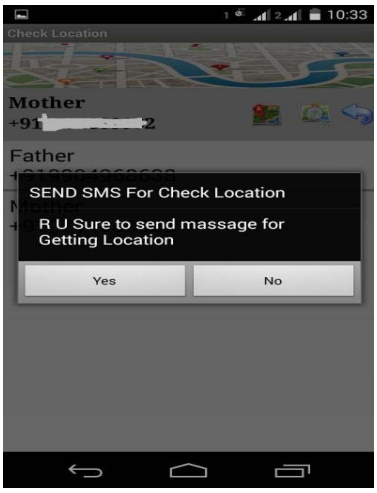


FIG[4]RECIEVER SIDE SMS RECEIVE AND NOTIFICATION GENERATE

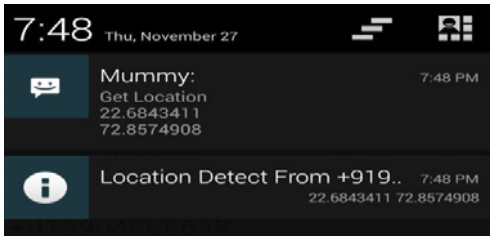


FIG[5] LIST OF PENDING REQUEST WAITING FOR SYNCHRONISATION

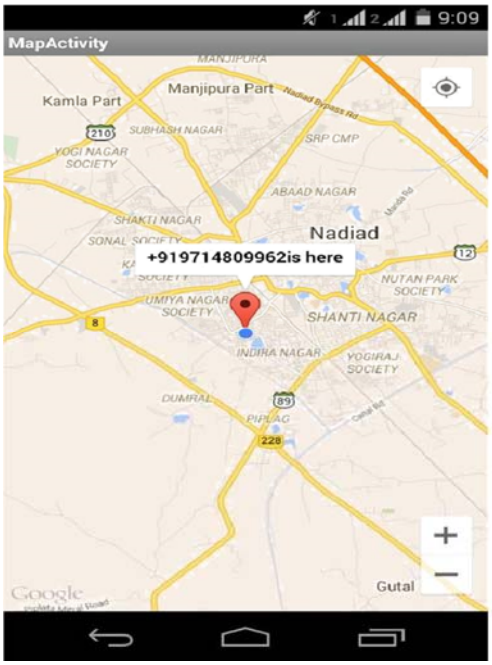
FIG[6]list of location provider for display last known location or send request for current location



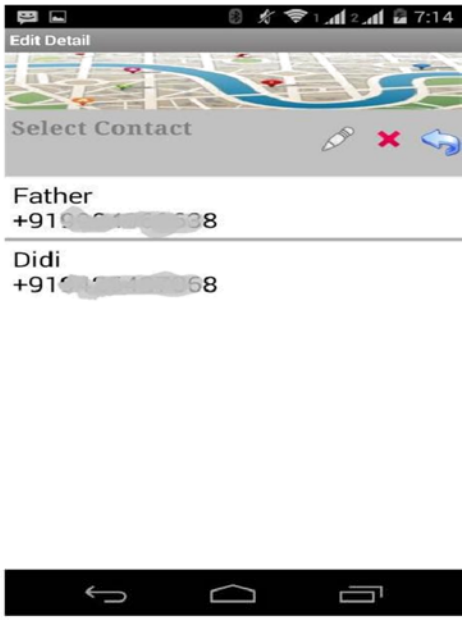
FIG[7]sending sms to selected contact for his/her current location of device



FIG[8]at requester side get sms of longitude and latitude value and notification generate notification

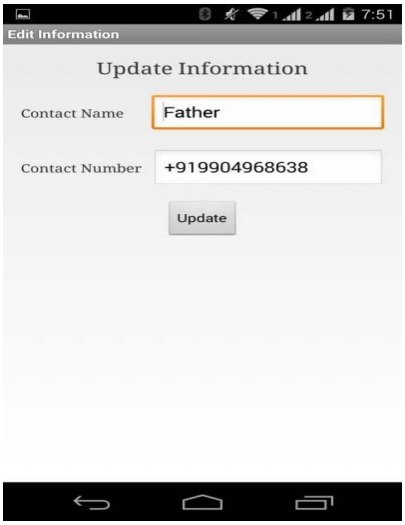


FIG[9]at requester side open map for receive latitude and longitude value



FIG[10]list of provider for edit detail

FIG[11]list of requester for edit/delete detail



FIG[12] Update selected requester/provider detail

IV CONCLUSION AND FUTURE ENHANCEMENT

The ystem can work on basis of SMS service. So without internet network also communication for the device location between two people is made possible. System maintain the log of last know location information, used to locate on map later on whenever required. Only for display location on Google map it requires internet connectivity .Log for pending synchronization request also maintained. As security aspect only entitled synchronized number can do location request so threat of accessing device location by other than entitled synchronized number not possible. Mobile device's EMI number is also use for locate the device. System should be synchronize with sim number as well as EMI number in future enhancement. Sending location information of device to synchronized number as an alert when SIM number in particular device is changed would be the future enhancement for the system.

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