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GPS Based Application For Virtual Connection And Human Safety

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ABSTRACT

This is the "GPS Based Application for Virtual Connection & Human Safety" project which is based on Android application. This project is based on GPS technology and will be used for finding the exact location of another user. The additional feature of Human Safety is provided. In this feature, when the user will fall in the dangerous situation then he/she can use this feature to notify to trusted users about his/her exact location. User will create the account to use application. The main purpose of account is to identify and authenticate the user. User will provide his/her name, email id, primary mobile number, password, and finally profile picture. User will be authenticated by using their mobile number. Or email id and password. All information of user will be stored in encrypted format for security. After creating an account user will be prompted for initial setup in mobile. This setup includes Wi-Fi Connection, GPS Connection & Data Connection. The data connection is mandatory for further use of application. Wi-Fi and GPS connection will increase the accuracy of location. If user ignores this settings then the previously captured or offline location will be used in application. If user enables Wi-Fi and GPS then current location will be detected and used in application. The friend list will show users who are in the contact list of user as well as installed this application. User can enable location sharing for customized users or none. User can save the specific location for quick use in future. After connecting to data, the queued notification will be pushed on user's application. So user can see who are sharing location with them. User can send notification by sharing location with other users. When user will fall in dangerous situation this application will help to broadcast exact location to all customized users. This work will be done by tapping at a time in application. This application will provide button as a widget on home screen of mobile, will be easy to access at any time. When user will tap this button, his/her current location will be sent to all users listed in 'Shared Location' list of user.

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I. INTRODUCTION

GPS Based Application for Virtual Connection and Human Safety is an android based application that will be useful to calculate the exact location from particular source to destination. The said application will be developed through three phases.

Phase 1

The first phase will be account creation phase. In this phase the user will create the valid account by providing his/her email id, name, primary mobile number, and finally his/her profile picture. The mobile number as email id will be verified after getting the input from user. After verification completes, user will have his/her session for further use of the application.

Phase 2

In the second phase user will be prompted for Wi-Fi Connection, GPS Connection, and Data Connection. The data connection is compulsory for the session. And Wi-Fi and GPS are necessary for position accuracy. If user does not turn on the Wi-Fi Connection and GPS then the default (Recently saved) location will be considered as current location of the user. After tracing of users current location the application will check the users who are sharing the location with the operating user. If such user detected then the current locations of those users are shown on the map.

Phase 3

The third phase consists of mechanism of location sharing. In this phase user will open up the list of all users who are in his/her contact list as well as whom has this application

installed on his/her Smartphone. After loading the list of those users (known as friends in application) user can turn on the location sharing for custom user by just tapping or swapping the checkbox, right floated in each user in list. After the location sharing turned on, the operating users' location will be shared with the selected user.

Phase 4

The fourth phase has the facility to save the location in the favorite places. The location saving can be done by using two differentmethods. In the first method , when user hold the tap on one place in map then the longitude and latitude of that place will be fetched and user will be prompted to give the customized name tothat location. And thesecond approach, when the user goes in the menu named 'Saved Location'. After selection that option user can give the name as well as latitude and longitude by selecting the location on map manually. The location will be saved for to redirect to a specific user towards specific location.

Phase 5

This phase will have the interface of Panic Alert System User will have the button for panic alert. This service will help the user, when user falls in dangerous situation. When user taps the button then the reverse counter will be started from 10 to 1. User can stop the process or wait until 1 comes. Once 1 came, the current location of user will be sent to all his/her friends by SMS and Email.

I. LITERATURE SURVEY

I. Smartphone monitoring System :
In this paper, application can update the data to Server database. Only all call details of employee are updated on the server. Others details like SMS history, Browsing history, data usage are not get stored on the server. But in proposed system all details are get updated on server without interfacing of any person.

II. Location tracking of the employee is implemented using Global Positioning System :
GPS is designed of orbitals. GPS finds the user location by calculating differences in the signals. It is calculated by time required to reach signal from satellite to receiver. After that GPS signals are decoded to find location. In this system user have to provide some input to the system and after that it gives location. But in proposed system there is no requirement of user input. The user's location can be obtained by using Global positioning System.

II. EXISTING SYSTEM

A. Existing System:
GPS based location tracking system using smart phone.

B. Drawbacks of Existing System:

- Sometimes the GPS may fail due to certain reasons and in that case you need to carry a backup map and directions.
- If you are using GPS on a battery operated device, there may be a battery failure and you may need an external power supply which is not always possible.
- Sometimes the GPS signals are not accurate due to some obstacles to the signals such as buildings, trees and sometimes by extreme atmospheric conditions such as geomagnetic storms.

III. PROPOSED SYSTEM

- GPS Based Application for Virtual Connection and Human Safety as its name suggest is an application used for finding the shortest path between two users and showing the path virtually using map & GPS technology.
- Location saving & location sharing facility are available.
- Navigate one user towards another user via driving virtual directions on map.
- Privacy will be maintained by asking the user to allow detection of current location.
- Real time location of the user will updated every 5 sec on Google map as it uses memory space of the processer.

➢ SYSTEM ARCHITECTURE:

- Detailed design is the process of defining the architecture, components, modules, interfaces, and data for a system to satisfy specified requirements. Systems design could be seen as the application of systems theory to product development. There is some overlap with the disciplines of systems analysis, systems architecture and systems engineering

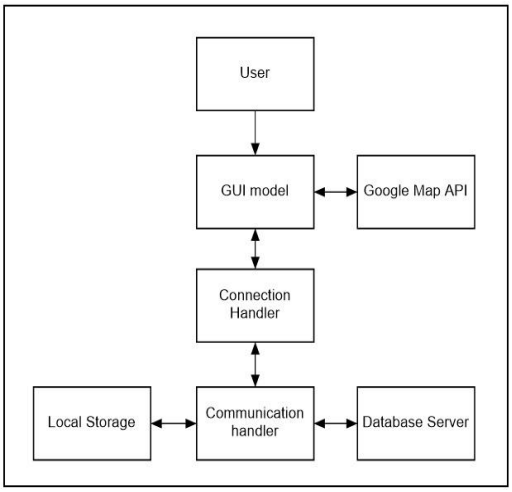

Fig. 1 SYSTEM ARCHITECTURE

- **User-**user is the communicating person with the mobile phone device. Its input decides the further operation. GUI module is responsible for the Graphical User Interface of the Application.

- **Communication Handler-** Communication Handler helps to managing proper communication between different modules of the application.

- **Google map API -**This module returns the current location of the device, which will be helpful for tracking purpose.

- **Connection Handler-**Connection Handler helps to manage connections (GPS, Wi-Fi, data connection) for application.

- **Database-**Database stores the predefined touch points and images. The user's touch inputs will compare with the data stored in database.

IV. ALGORITHM

A. AES Algorithm:
AES is based on a design principle known as a substitution permutation network, and is fast in both software and hardware. It has a fixed block size of 128 bits, and a key size of 128, 192, or 256 bits. .
AES operates on a 4×4 column major order matrix of bytes, termed the state. The key size used for an AES cipher specifies the number of repetitions of transformation rounds that convert the input, called the plaintext, into the final output, called the cipher text. The number of cycles of repetition is as follows:

- 10 cycles of repetition for 128-bit keys.
- 12 cycles of repetition for 192-bit keys.
- 14 cycles of repetition for 256-bit keys.

Each round consists of several processing steps, each containing four similar but different stages, including one that depends on the encryption key itself. A set of reverse rounds are applied to transform cipher text back into the original plaintext using the same encryption key.

- **Features**

The best and the most-used database in the world for online applications

- Available and affordable for all
- Easy to use
- Continuously improved while remaining fast, secure and reliable
- Fun to use and improve
- Free from bugs

V. CONCLUSION

In traditional maps navigation to the destination is from one side i.e. our side, but our Project named as GPS Based Application for Virtual Connection and Human Safety is capable of locating the other users of this application on the map. Also provided the human security feature by which one can send his/her current location to the trusted persons in the dangerous situation.

REFERENCE

1. GPS/GSM Enabled Person Tracking System
Amol Chaudhari 1, Shabbir Bohra 2, Harshada Karma 3, Ashwini Dhupadale
2 .Trading off Accuracy, Timeliness, and Uplink Usage in Online GPS Tracking
A.B.M. Musa, James Biagioni, and Jakob ErikssonAtsushi Ito, Yoshiaki Kakuda, Tomoyuki Ohta and Shinji Inoue, 'Smartphone monitoring System' IEICE Transactions on Communications, vol.E94-B, no.1, 2011.
3. A Nonlinear Code Tracking Filter
For GPS-Based Navigation Donald E. Gustafson, John R. Dowdle, John M. Elwell, and Karl W. Flueckiger

