GPS Based Automatic Meeting Organization on Smart Phones

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***Abstract*— Due to GPS era in Smart Phones, users expertise many varieties of location-based services. The need of using the smart phones is to deliver the important services except for the basic communication. The different features which would be analyzed are GPS, Google maps, services, latitude , longitude, With this paper, we propose the implementation of LBS (Location Based Services) with the help of GPS in smart phones in which the manager of the meeting can find out the locations of the other members involved in meeting through the GPS device. The details of the members are made confidential. The equivalent distance between the members is found out by centralized location algorithms and a location is decided which is appropriate for all. Our projected protocol satisfies the need of region privateness con to outsiders, the semi-trusted meeting location dedication server.**

***Index Terms*—GPS, Maps, Meeting Location, Smart Phones, Android Application Development.**

I. INTRODUCTION

The need of using the smart phones is to deliver the important services except for the basic communication that had been started in the 1990s.In location based mobile applications; it is quite a challenging task. Now a day's smart phones are fully equipped with location system by which users can use various LBS (Location Based Services).With Location Based Services APIs and maps, user can easily build location-based android applications which include services based on location sharing like a navigation system. Nowadays, location sharing based service is becoming more popular because it is more accurate and trustable and has demonstrated many applications, e.g., optimal meeting location determination or cab sharing application. In this paper, we are addressing the problems of finding the optimized and centralized location for the meeting of several members before which was done manually in the existing system. With help of GPS (Global Positioning System) making the existing system (location for meeting is manually decided by a manager) more reliable and location selected for the official or casual meetings can become centralized and feasible for everyone that are present in the group. It finds the least distance and travel cost to reach the decided location of the meeting.

II. PROBLEM DEFINATION

The GPS-based Automatic Meeting Organization on Smart Phones will find the equivalent distance between the other members involved in the meeting. The GPS will take the location (latitude and longitude coordinates) and will find the centralized coordinates using centralized location algorithm.

In this paper, we are proposing to make the existing system(which uses manual location) more reliable and location selected for the official or casual meetings can become centralized and feasible for everyone present in the group.

III. RELATED WORK

The majority of recent research on meeting organization are done only on web apps using calendars for scheduling the meetings e.g., vyte.in. which are good in all aspects but they are not able keep track of the location of the person or has used manual locations of the users which are manually entered in database but they have nothing to do with the travel cost by which the finalized location for the meeting is not feasible or trustable for everyone as it may possible one has to travel much more distance than the other member for attending the scheduled meeting. The efficiency of such systems are very low for travel cost and are not accurate and trustable at all.

Due to GPS in mobile phones, a lot of research have been done in the field of tracking location domain. With GPS it becomes very easy to retrieve the latitude and longitude coordinates and tell the exact location of the device on the map. Our proposed system handles this in a way that it first stores the location of all the members and using Google Maps API and Centralized Location Algorithm. It automatically calculates a location which is most feasible and give least travel cost to all to reach the final meeting location.

Drawbacks of Existing System:

- Non – trustable and Non-feasible system.

- The database for the final meeting location and location of each member in the meeting group is created manually by the manager.

The rest of the paper consists of IV. System Architecture , V. Proposed System , VI. Modules , VII. Conclusion and Future Work.

IV. SYSTEM ARCHITECTURE

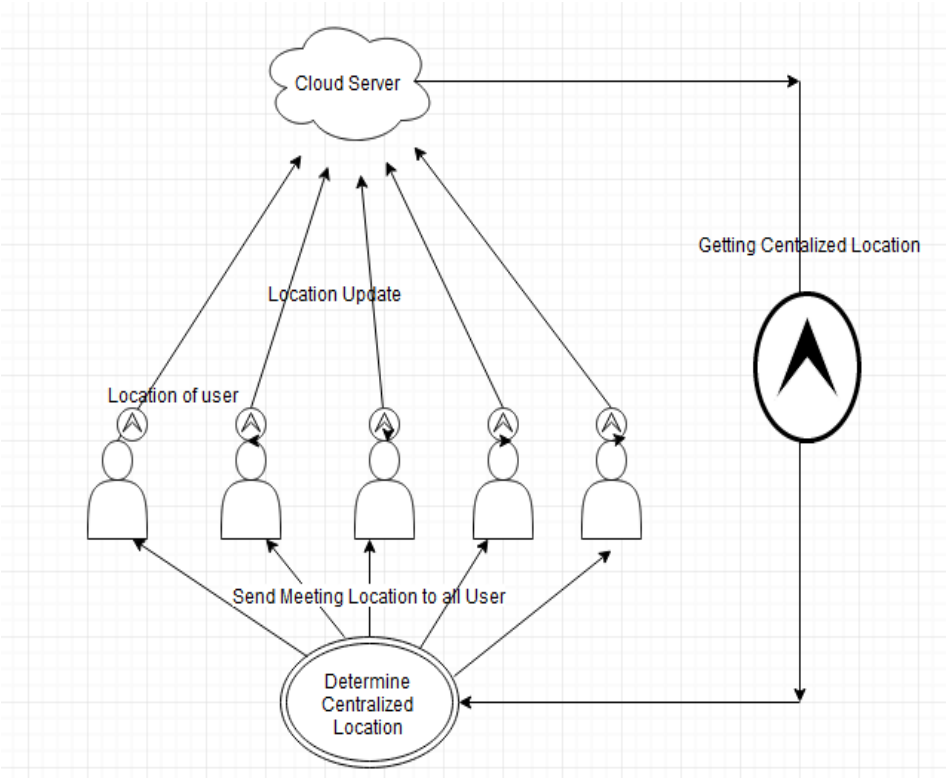

FIGURE 1.

FIGURE 1 shows the architecture of the whole android application system .It associates the concepts of GPS, database, cloud server, Google API and Centralized Location algorithm. The architecture is build in a way that first the locations (latitude and longitude coordinates) of all the members of the group are stored in the database on cloud server using GPS. Once the location of all the members are found a centralized location is calculated using the location of all members using the centralized location algorithm and the notification will be send to the members with the centralized meeting location

V. PROPOSED SYSTEM

Graphical Positioning System is effective and accurate method for tracking the location. So we proposed to use this in our application system to take exact locations of the members and to respond with the centralized location accordingly.

We are presenting a more static analysis approach. We will be using GPS and Google Maps to find and reach the centralized location. Firstly we are creating a database for manager and the members of the application. The manager will add the members in the group. Each member will update their location using GPS and will be stored in the database. Centralized location algorithm will use all the stored locations as input and after all calculations will return a centralized location which will be more trustable and feasible in travel cost for all the members in the group.

Advantages of proposed system:

- More trustable and feasible for calculating travel cost.
- The proposed system is based on centralized location algorithm.
- Based on GPS and Google Maps.

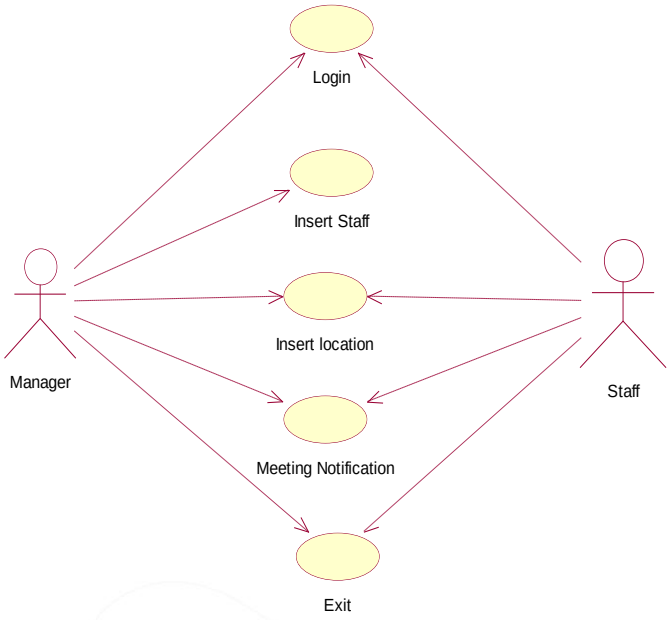

FIGURE 2.

FIGURE 2 shows the use case diagram of the proposed system. It shows the relationship between the manager and the members of the group to decide the procedure of getting the locations of the members through GPS and calculating the meeting location.

VI. MODULES

1. Location of each member is tracked using Geographical Positioning System.

GPS is used to track the location of any smart phone or any other electronic device which is GPS enabled. It tracks the exact latitude and longitude coordinates. In other words GPS is a network of orbiting satellites that send precise details of their position in space back to earth. The signals are obtained by **GPS** receivers, such as navigation devices and are used to calculate the exact position, speed and time at the vehicles location.

In this module location(latitude and longitude coordinates)of each member is recorded at stored it in a database which is used to calculate the centralized meeting location.

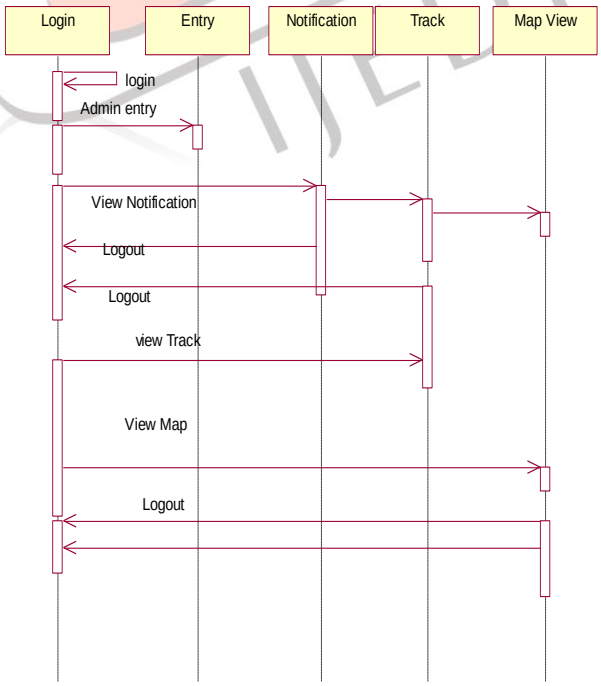

FIGURE 3.

Figure 3.demonstrates the Sequence diagram of our system. It tells about the full procedure , working and shows that how the objects are operating with each other and in the system. It also tells how the objects are operating in what order. It shows the time-sequence arrangement of all the objects used in the system.

2. Calculation of final meeting location is done using location based cost efficient algorithm.

Restrictions: $\mathcal{NB}$, coordinate location $p : V \to \mathbb{R}^2$, identifier function $id : V \to \mathbb{N}$
State Trans. Sys.: $(\{\text{INIT}, \text{GBRG}\}, \{(\text{INIT}, \text{GBRG})\})$
Initialization: All nodes INIT
Local data: Set N of Gabriel graph neighbors and locations, initialized $N := \emptyset$

INIT
Spontaneously
broadcast $(\texttt{ping}, \mathring{id}, \mathring{p})$
become GBRG

GBRG, INIT
Receiving $(\texttt{ping}, i, l)$
let $add := \text{true}$
for all $(i', l') \in N$ do
if $\delta(\mathring{p}, l')^2 + \delta(l', l)^2 < \delta(\mathring{p}, l)^2$ then
set $add := \text{false}$
if $\delta(\mathring{p}, l)^2 + \delta(l', l)^2 < \delta(\mathring{p}, l')^2$ then
set $N := N - \{(i', l')\}$
if $add = \text{true}$ then
set $N := N \cup \{(i, l)\}$

The above cost efficient algorithm is used to calculate the meeting location which will be most centralized and will minimized the traveling cost for every member of the group

3. Notification is sent to each member using centralized meeting location.

After the meeting location is calculated the notification is sent to every member of the group with a mark on a map showing the meeting location.

FIGURE 4.

VII. CONCLUSION AND FUTURE WORK

In this paper, the main concern is using GPS and location based cost efficient algorithm, we find the centralized location which is more feasible and will give less traveling cost lesser than in the existing system.

In the future, we plan to apply an algorithm that after giving the more feasible location and it will search the nearby hotels where the meeting can be done and will be chosen by the manager.

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