Android Based Travel Planner using Haversine Formula

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Abstract:- In common day to day life people are very busy with their work and it is the natural tendency that they might forget their appointments whether it is related to travel or some work related. So a system is proposed that will maintain the list of tasks and appointments and will notify the person not only a day before the scheduled appointment but also an hour before . It is also observed that most people tend to ignore the notification content if it is long or if they are late. So to avoid such problem a text to speech conversion of the task and notification will be there. Moreover it is observed that people have difficulty in tracking their location when they move to an unknown place. So to let them know how far their destination is so that they may get down at their desired place a location reminder is necessary which will notify them about their journey completion in approximately 1km distance.

Keywords:- *destination alert, location tracking, text to speech conversion.*

I. INTRODUCTION

Travelling has become a mandatory activity in one's day to day life. A person finds it all the more challenging when place is unfamiliar. He then usually takes the help of a tour guide or Google Maps but the problem arises when the local language of the place is also unfamiliar.

Though GPS tracking[1] helps in plotting one's current location yet it does not notify us before hand the arrival to the destination. It informs us when either we have reached or are just 200 metres away from our destination. Moreover, we need to continuously check our location and if we exit the navigation then we need to re-enter the details.

GPS tracking and its applications have gained a lot of importance since past few years and it is expected to gain more and more. It is considered as a global trend now a days.

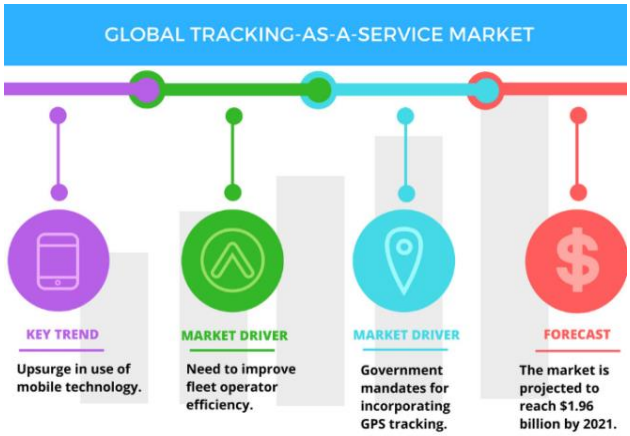

Fig 1:- Global tracking as a service market

II. PROBLEM STATEMENT

In common day to day life people are very busy with their work and it is the natural tendency that they might forget their appointments whether it is related to travel or some work related. Generally we know that if a person has booked a Ticket for travelling then there is no notification about the journey and if a person is pre-occupied with his work then there is a chance of forgetting the appointment. There may be a clash in dates of travel if the person does not remember the exact date.

It is also observed that most people tend to ignore the notification content if it is long or if they are late.

Moreover it is observed that people have difficulty in tracking their location when they move to an unknown place. They might not recognise the destination has arrived and in a hurry to get down they might forget their luggage. Also, in case if the arrival of the destination is post midnight and we fall asleep then there are chances that we might forget to get down at the destination and also we might not recognise the destination in the dark. Google maps gives the shortest route to reach the destination but if one exists the navigation then the person will again have to enter the entire details about the destination to check whether they are about to reach or not. The person will have to check continuously their present location using google maps.

The above mentioned problems are kept in mind in building this application and a solution to resolve them is being proposed.

III. PROPOSED SOLUTION

To overcome the above mentioned problems this android application is proposed which will have the following specifications:

- It will maintain the list of tasks and appointments and will notify the person not only a day before the scheduled appointment but also an hour before .
- There will be a text to speech conversion of the task and notification, Hence preventthe individual's task of reading the entire to-do list.
- The journey completion will be notified within a range of 1km. This will assure that the person reaches the destination and will be pre-informed about the arrival of the destination so that the person does not forget its bags as well.

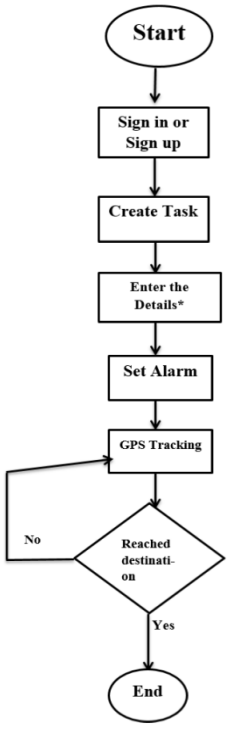

Fig 2:- Proposed Solution

IV. RELATED WORKS

There are several ideas and applications that uses GPS and its technology. Some of them are:

A. *Vehicle Tracking System*

GPS Technology can be to track and maintain a record of the current location of any vehicle. Seokju Lee, Jaerock Kwon, Girma Tewolde[2]proposed a solution which combines the use of smart phone and micro controller. The current global position of vehicle is continuously tracked and is kept in a record in any database. By determining the current location one can estimate the distance and time the vehicle will take to reach the destination.

The communication will be as follows:

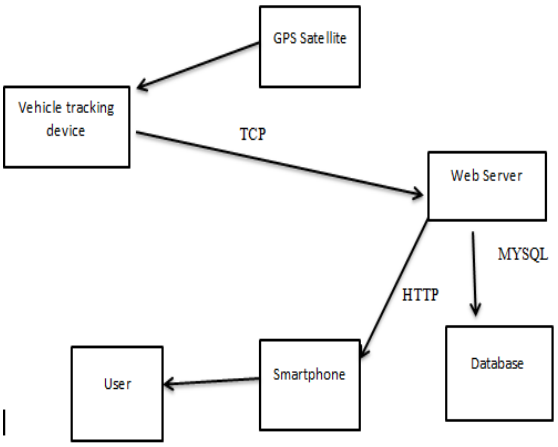

Fig 3:- Vehicle Tracking System

B. *Haversine formula*

Hagar Mahmond, Nadine Akkan[3]gave the formula for calculating the latitude and longitude separation between two points and based on the separation the distance between the two points are found.

For two points on a sphere of radius R with latitudes lat1 and lat2, longitudes lon1 and lon2,

dlon = lon2 - lon1
dlat = lat2 - lat1
a = (sin(dlat/2))^2 + cos(lat1) * cos(lat2) * (sin(dlon/2))^2
c = 2 * atan2(sqrt(a), sqrt(1-a))
d = R * c (where R is the radius of the Earth)

Where, the angles are in radian.

d is the distance between the 2 points.

Use of smart phones is increasing and is becoming more and more prevalent within the overall population than the basic mobile phone users [4]. Due to this their use continues to grow and the applications that run on them becomes more and more used technologies. The applications that work on these devices have resulted in the accelerated growth of smart phone usages.

In our application we use smart phone as a medium to use GPS technology and also to notify the user about the destination when it is 1km away.

Since people may find it difficult to track the location by themselves so this application can be used.

The fleet management systems provide the information about the road traffic and track real-time locations of their fleet on a map [5]

Also we know that most of the vehicle tracking systems are designed using GPS/GSM technology [6]. In

this the location of the vehicle is most important. The latitudes and longitudes of the current location of the vehicle is known by the GPS satellite which determines its position on maps. This location can be anywhere ie. On land, water, air.

Vehicle tracking based on social network services is also popular now a days [7].There is a new feature on watsapp in which location can be shared of the device to any person. This can also be used in our application. Friends/relatives get to know your desired location which can be very helpful.

Location Based Services is an emerging application in mobile data services that uses wireless services and Location positioning technologies [8]. It uses the geographical position of the mobile device.

Navigation and direction system is an example of pull LBS services[9].

Other positioning technologies includes satellite positioning, cellular network positioning, WLAN stations or radio beacons[10].

V. RESULTS

A. *Login page*

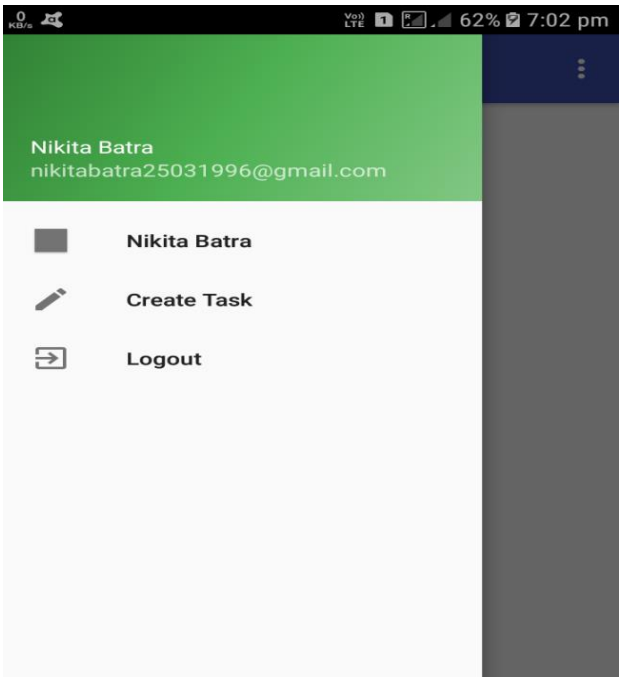

Fig 4:- Sign in page

Sign in page is the second page that has a drag type view and will appear when we will drag towards the left. It has options of sign in, logout and create task. For creating the tasks one must login/ sign-up first.

B. *Task Creation and set alarm page*

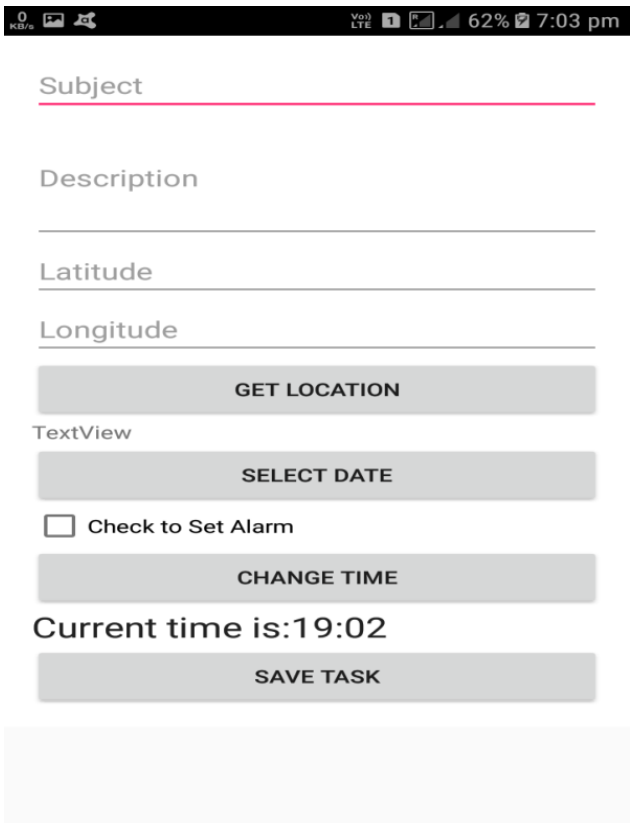

Fig 5:- Creating Task

It is the main task creation page which includes writing the subject of the task, description of the task, setting the date and time of journey. The location is set using google maps by long pressing the desired position.

C. *Setting up the destination location via google maps*

Fig 6:- Google Maps for setting location

Google maps that are used for setting the destination location.

VI. CONCLUSION

This android application will ease the difficulties that people might face in remembering their appointments and travel plans and also assist one in tracking their destination. This android application will maintain the list of tasks and appointments and will notify the person not only a day before the scheduled appointment but also an hour before .There will also be a location reminder which will notify them about their journey completion in approximately 1km distance. Thus the problem of re -entering the details in google maps and also maintaining a continuous check of the location is solved.

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