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## DESIGN OF AN ANDROID APPLICATION TO PROVIDE LOCATION BASED SERVICES AND COMMUNICATION

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**Abstract:** Location based Services (LBS) offer many advantages to the mobile users to retrieve the information about their current location and process that data to get more useful information near to their location. Location based Services can be implemented on Android based smart phones to provide these value-added services: advising clients of current traffic conditions, providing routing information, helping them find nearby facilities, finding friends etc. One such location based service is location tracking which allow people to know each other's location. This location tracking can be achieved on an android phone using GPS functionality. Location Tracking can be very useful in many cases such as tracking a lost phone or a vehicle or dear one. An employer can track his employees working on field or an employee on reaching a certain work place may send his location to employer or other employees. Such location tracking applications exist in market which allow employee working on field to track employee near them and in the situation when they need help they may interact using text messages. This paper has a purpose to introduce a proposed system which will be an android based application which will allow the employee working on field to know other employees location. He may be able to locate employee nearest to him and take his help if required. The location of the employee will also be visible to the administrator and the employee can even take help from the administrator. The employee may take help of each other by using video chat facility within this application. The video chat is believed to be a fantastic tool under the right circumstances. Communication through a visual medium is often much more clear than communication only through text or audio. The proposed system will therefore try to make an improvement over existing system.

**Keywords:** Android Application, Communication

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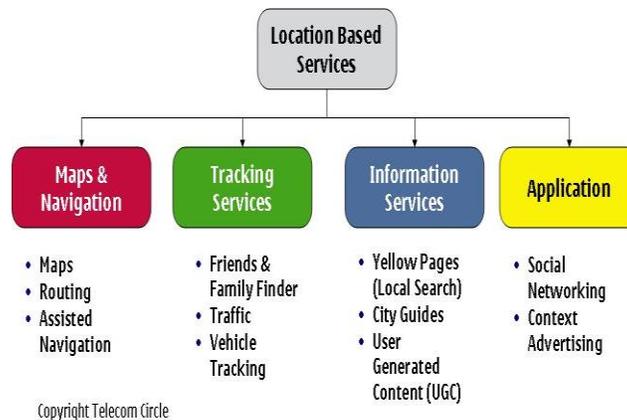
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## INTRODUCTION

A location-based service (LBS) is a mobile application that is dependent on the location of a mobile device, like mobile phone. Location based service can be defined as, "Information services accessible with mobile devices through the mobile network and utilizing the ability to make use of the location of the mobile device.[1].Another definition of Location based service says that it is "A wireless-IP service that uses geographic information to serve a mobile user, any application service that exploits the position of a mobile terminal."[2].

A Location Based Service (LBS) is an information and entertainment service, accessible with mobile devices through the mobile network and utilizing the ability to make use of geographical position of the mobile device. A LBS services can be used in a variety of contexts, such as health, work, personal life, etc. LBS include services to identify the location of a person or object, such as discovering the nearest banking cash machine or the where about of a friend or employee. LBS services include parcel tracking and vehicle tracking services. LBS have two major actions, that is:

1. Obtaining the location of user
2. Utilizing this information to provide a service [3].



LBS services can be categorized as triggered LBS services (push services) and user-requested LBS services (pull services) [4]. In a triggered (push) LBS service, the location of user's mobile device is retrieved when a condition set in advance is fulfilled. For example, a call to emergency center can automatically trigger a location request [4]. Advertisement messages can be delivered to users who enter a specific area in a shopping mall, and warning messages can be delivered to users who are in the area where weather conditions will change (e.g. hurricane, rain).In a user-requested (pull) LBS service, the user decides whether and when to retrieve the location of

his/her mobile device and use it in the service. User-requested LBS service can involve personal location (i.e. finding the current location of the user) or services location (i.e. finding the location of the nearest restaurant or bank). Navigation and direction system is an example of pull LBS services[4].

The Global Positioning System (GPS) uses a constellation of 24 satellites which are in orbit of the earth. GPS is a process that can be used to find position at any point on the globe. It can be used to determine following values at any point on the earth.

- One's exact location (latitude, longitude, height).
- The precise time (Universal time coordinated).



The speed and direction of travel can be calculated from these coordinates and time.

Location-based services use mobile device's GPS functionality to connect the user to people and places in your immediate area.

**Android** is a mobile operating system (OS) based on the Linux kernel and currently developed by Google. With a user interface based on direct manipulation, Android is designed primarily for touch screen mobile devices such as Smartphone and tablet computers, with specialized user interfaces for televisions (Android TV), cars (Android Auto), and wrist watches (Android Wear). The OS uses touch inputs that loosely correspond to real-world actions, like swiping, tapping, pinching, and reverse pinching to manipulate on-screen objects, and a virtual keyboard. Despite being primarily designed for touch screen input, it also has been used in game consoles, digital cameras, regular PCs.

Android location APIs make it easy to build location-aware applications, without needing to focus on the details of the underlying location technology. This becomes possible with the help of Google Play services, which facilitates adding location awareness to your app with

automated location tracking, geofencing, and activity recognition. Many people use android based mobile phone these days which are available in a reasonable cost. Also android phone can be used to exploit location aware applications.

### THE EXISTING SYSTEM

There exist some android applications that allow the workforce to locate, keep track of each other also share or communicate. If somebody needs help on a project he may send a message to his team and attach a picture or any location if needed. Looking for help while away from the office an employee may see who's available and located closest to his worksite to get the required help of location amongst the employees and communication using text messages. This has no facility for an administrator to track his employee's. Also there are application which allows employers to easily **track employees**, drivers, sales force, etc. from any web enabled device. It provides a way to stay connected with his team and see where they are in real time. Every employee to be tracked will install the app on their mobile, register and accept the Terms and Conditions. An access to web portal will be provided where admin will be able to check the current location of their work force. The app also has a SEND LOCATION button that allows the user to check in at their current location. Simple and easy way to confirm a pickup or delivery. Some examples of such applications available on Google play store are as follows

**A. Trackster™ Employee Tracking App** is the app that can be used to track and manage employees .It allows to manage fleet and see where employees are using the smartphone, iPad, tablet or PC. This also provide facility to reroute employees for priority jobs using a Google Map to see who is closest.

GPS Tracker by Follow Mee converts a smart phone or tablet into a GPS tracking device. Installing this app to a device that is to be tracked, it quietly records its locations (GPS, WiFi, or cellular triangulation) periodically and uploads to a server. To monitor location of a tracked device, it allows to browse this web site in any browser. Using this GPS Tracker app, allows a person to track children's movement daily, follow whereabouts of family members or employees.

Find My Employee is an application that can be used to track and locate your friends, family members, loved ones and employee's .The application lets you see the exact location of the person you want to track on Google map and also shows the route traveled by the person. Find My Employee is a new application from Rare Media

B. The above discussed application allow sharing of location amongst the employees and communication using text messages. This has no facility for an administrator to track his employee's. Also there are application which allows employers to easily **track employees**, drivers, sales force, etc. from any web enabled device. It provides a way to stay connected with his team and see where they are in real time. Every employee to be tracked will install the app on their mobile, register and accept the Terms and Conditions. An access to web portal will be provided where admin will be able to check the current location of their work force. The app also has a SEND LOCATION button that allows the user to check in at their current location. Simple and easy way to confirm a pickup or delivery. Some examples of such applications available on Google play store are as follows

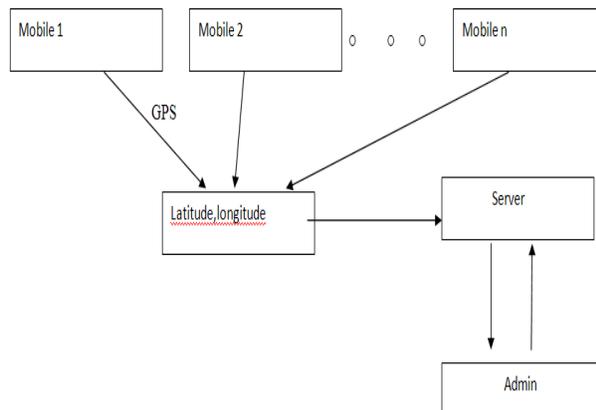
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## PROPOSED SYSTEM

The purpose of this paper is to introduce a proposed system. The proposed system is an android based application that will provide a location based service of location tracking. Location tracking refers to attaining of the current position of a object stationary or moving. This application will allow employees working on field to locate and track the other employee located nearby so that they can take help of each other when in problem. The location of the employee will also be known to the administrator. The employee will not only find location of nearby employee he may also be allowed to search for facilities. The employee will also be allowed to do a video chat with the other employee or with the administrator directly. The video chat is a fantastic tool under the right circumstances. Communication through a visual medium is often much more clear than communication only through text or audio. The server will maintain relevant data of employee and video chat will happen using the internet.

The architecture of proposed system will be as follows



#### D. CONCLUSION

The purpose of this paper is to introduce a new android based application that can help the employee workforce at large. Most of the existing applications allow either a administrator /employer to track employee or the employee to track each other. The proposed system aims to achieve both. Also applications built for helping the employees at wok mostly allow textual communication. The proposed application aims to provide a audio visual communication to employees as a visual medium is often believed to be much more clear than communication only through text or audio.

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