

Parent Aid Mobile Application

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Abstract— Every day thousands of children are reported missing. Of which, many are never found. According to National Human Rights Commission on an average 44000 children are reported missing every year. Of these, as many as 11,000 remain untraced. The safety of children is the major concern for every parent. This project deals with the development and implementation of an Android application that traces the location of a child. It provides the parent with real time positioning of their child with finest accuracy. Application uses OpenGTS (Open Source GPS Tracking System) which is an open source project designed specifically to provide web-based GPS tracking services. It takes data input from a GPS device and performs evaluation and provides comprehensive reporting. The application is developed using Hibernate; it provides a framework for mapping java classes to database tables. Hibernate makes work with relational databases easy, it helps our project to work independent of database used at back-end.

Keywords- Component Android, GPS, Hibernate, OpenGTS

I. INTRODUCTION

The security of a child is very important for every parent. This project provides parents the opportunity to trace location of their children; Parents can log into their account from their mobile device to actively track where their child is and also find the speed with which the child is travelling. It can also be used to send a message to parents if the speed of vehicle in which the child is travelling violates a particular speed. Also if the child enters an area that is unauthorized a notification is sent to the parent immediately. Parents can also view the information related to their child and also edit it if it is incorrect. This project provides very extensive and beneficial features. It aims to provide ease to teachers by providing them with facilities which reduces their work. It provides facilities to teachers to send notifications and circulars to all parents rapidly and free of cost. And also gives an opportunity to parents to communicate with the teachers in an effective way. It is a must buy product for every parent.

II. EXISTING SYSTEM

The existing systems involve GPS tracking to find location of the vehicles. In real time, the location of vehicles can be traced using Vehicle Tracking System. An electronic device is installed into a vehicle, which collects the vehicle information and transfers it from its current location to the field of operation. It gives the complete information of the routes and drivers to the concerned owner which helps him to choose the optimum solution. This information can also be saved into the system repository which can be used for further

analysis. The most important component for this operation is GPS. It provides the co-ordinates of the vehicle which helps to display location of the vehicle. GPS has proved beneficial in areas such as automobile, airline safety, agriculture and farming, law enforcement, sports. GPS tracking systems do not provide exact location of the device, our system will try to provide a solution to this problem as we are using OpenGTS, and it provides the exact location by taking multiple maps of the location and providing the user with the latest information. OpenGTS is intended to provide a generic back-end web-based service for querying and viewing GPS related data. Our project is implemented using the concept of hibernate. It does the mapping from Java classes to database and also provides data query and retrieval facilities.

III. PROPOSED SYSTEM

This project aims to provide security to children by showing their location at a particular time. Parents whose numbers are registered in the school database can use this application in their mobile phones. This feature provides security to the child as the authentication is done before the application starts running. The application facilitates teachers to send necessary notifications and circulars such as holiday, report day, meeting, etc. all free of cost. The notifications are sent using GCM (Google Cloud Messaging). GCM pushes messages to the target android device. Thus, the application does not make a request for notifications every time, they are automatically sent using GCM technology. It helps parents to view his child profile and also edit it. The student information is taken from the school database at the time of registration and stored

in local database of device (SQLite). When the student profile is viewed the information along with the student photograph are loaded. When student profile is edited, the changes are made to local database as well as school database. It also allows a parent to send a message to the teacher. The message is sent in offline mode, so that teacher can reply to it as soon as possible. The architecture is kept as generic and adaptable as possible. Global Positioning System consists of GPS receivers. These receivers receive signals from the satellites orbiting in space in 6 different planes 20 kilometres away from Earth. The GPS receiver installed in the mobile handsets will receive radio signals from satellites and compare with the local duplication of geo data to calculate its actual location on Earth. To increase the accuracy, data received from three satellites can perform the calculation of two-dimensional location, including

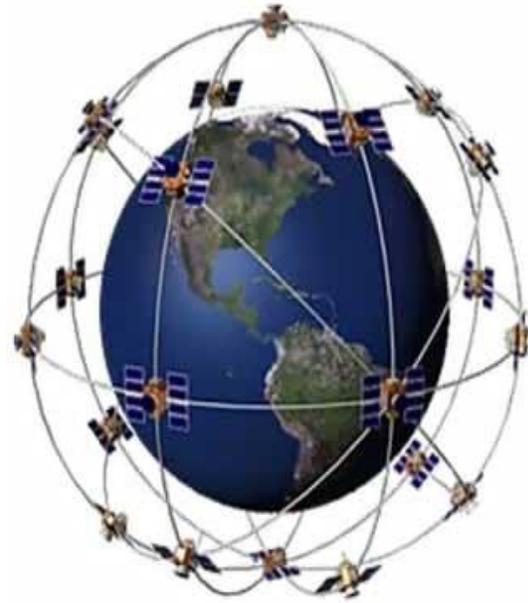


Figure 2. GPS Constellation

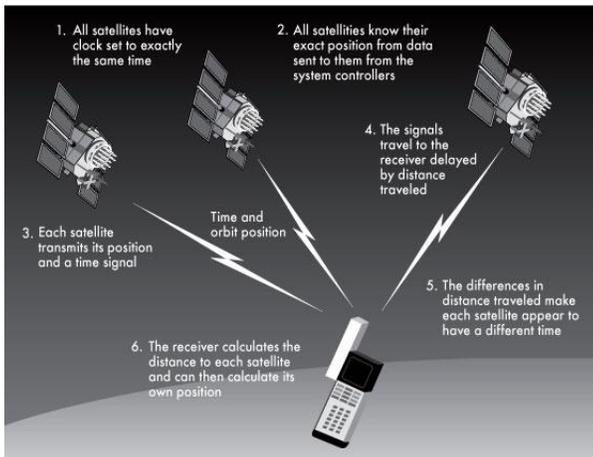


Figure 1. Working of GPS

the longitude and latitude. For three-dimensional location information, consisting longitude, latitude and altitude, data from at least 4 satellites are required. In our project, the GPS device communicates with OpenGTS. Our project uses hibernate, if changes are made to the underlying database schema, it can be expensive to disseminate those changes to the rest of the application. Hibernate is used to fill this gap, providing an easy-to-use and powerful object relational persistence framework for Java applications. The Figure given below describes the high level architecture of hibernate, it shows how hibernate uses the database and configuration data to provide persistence services to an application.

IV. EXPERIMENTAL STUDY

The GPS device can be used in a wide range of applications such as Vehicle Tracking. It is used to track the location of a vehicle and shows it on a digital map. This helps to reduce cost and time of transportation and increases the performance of the vehicle. GPS is composed of satellites and receivers, receivers receive signals from satellites with the help of which they find their current location on Earth [1]. GPS is used for real time tracking of an object, the GPS data is collected and stored in huge GPS databases. This data can be used for developing and testing GPS applications [2]. Hibernate technology provides an efficient way to access huge databases and also focuses on how to implement persistent features in object-oriented system through it. Hibernate provides a rich query language to retrieve objects from the database. Hibernate is a powerful, high-performance, feature-rich and very popular ORM solution for Java. Hibernate is used to make applications independent of databases used at back-end [3].

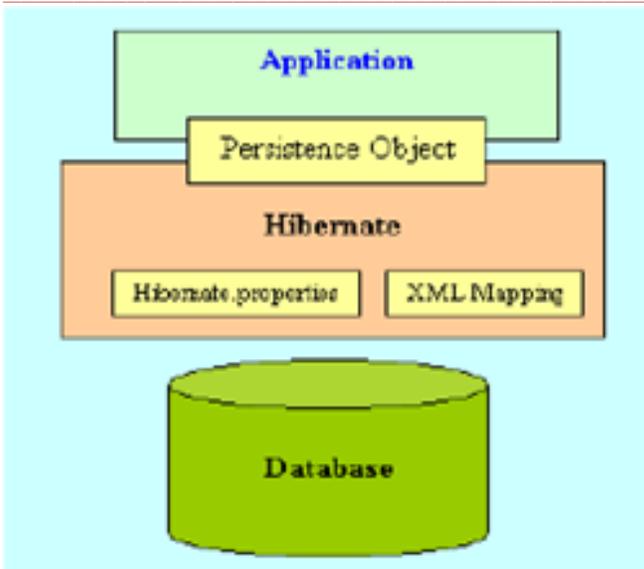


Figure 3.Hibernate Architecture

V. CONCLUSION

This project provides easy tracking and helps to provide some safety to children. It is an efficient device that helps parents to continuously track their children's location. Such an application is very beneficial both for parents and teachers to communicate with each other in a short period. The application is generic and portable, it can be used to track different things such as laptop, pets, vehicles, etc. It improves safety and security, communication medium,

performance monitoring and increases productivity.

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