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The Wireless Network Identify of Human Positioning Accuracy and Mobile Tracking System

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Abstract: Location based Services provided in Mobile by using mobile sensor called GPS (Global positioning system).It has enabled a number of geographical applications over many years. However, still suffer from considerable positioning errors of GPS (usually 1 to 20 m in practice). In this project, we design and implement to identify high-accuracy global positioning using Wireless network and sensors in our mobile device. Our key observation is that reckoning supports accurate but local coordinates of users orbits, while GPS provides global but inconsistent coordinates. Existing approaches such as GPS and Wi-Fi triangulation are insufficient to meet the requirements of accuracy and flexibility. Here the project implements to find the exact location of the individuals within a certain distance, unlike triangulation which seeks to precisely define position. In contrast, Bluetooth, which is commonly available on most smart phones, provides a compelling alternative for GPS estimation. This demonstrate through experimental studies the efficiency of Bluetooth for this exact purpose. We propose a propinquity inference model to determine the distance based on the RSSI (Received Signal Strength Indication) values of Bluetooth and light sensor data in different environments. This project present several real world scenarios and explore Bluetooth propinquity inference on Android with respect to accuracy and power consumption. In this project is going to propose the real time identification of individual using location sensor and Bluetooth and also shows the current mobile status is visible to another device based on wireless networks. This can implement real time environment when we go out with group and find individual in certain distance and also for other purposes.

Keywords: Wireless Network, Mobile Tracking, GPS RSSI.

INTRODUCTION

Global Positioning System

The Global Positioning System (GPS)is a space-based on system that provides location and time information in all weather conditions, anywhere on or near the Earth where there is an unobstructed line of sight to four or more GPS satellites. The system provides critical capabilities to military, civil, and commercial users around the world. The United States government created the system, maintains it, and makes it freely accessible to anyone with a GPS receiver. The GPS concept is based on time and the known position of specialized satellites. The satellites carry very stable atomic clocks that are synchronized to each other and to ground clocks. Any drift from true time maintained on the ground is corrected daily. Likewise, the satellite locations are known with great precision. GPS receivers have clocks as well; however, they are not synchronized with true time, and are less stable. GPS satellites continuously transmit their current time and position. A GPS receiver monitors multiple satellites and solves equations to determine the exact position of the receiver and its deviation from true time.

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At a minimum, four satellites must be in view of the receiver for it to compute four unknown quantities (three position coordinates and clock deviation from satellite time).

Problem Definition

ZigBee technology is widely used in wireless sensor network to provide radio proximity estimation in the environment where GPS is inoperative. Proximity can also be reported by sounds, and past work has shown audio to be effective for delivering peripheral cues. However, it is untenable to expect the use of smartphones to reduce the unobtrusiveness of cues or increase comprehension. For the purposes of this paper, we are interested in techniques that are based on commonly available technologies in smartphones, i.e., GPS, Cell, Wi-Fi and Bluetooth. Particularly, we are interested in techniques that can be applied at the smartphone itself without significant changes to the infrastructure.

There are some proximity detection works using Bluetooth signal. From a specific work perspective, the works are highly relevant to the paper. In those studies, the authors use the ability to detect Bluetooth signals as indicators for people nearby within the Bluetooth range(around 10 m). However, such indication does not meet the requirement of face-to-face proximity detection. In class, a student may discuss with others sitting beside him/her, but face-to-face talk is difficult with the students on the other side of the classroom even they are still in the Bluetooth range. Different from the above proximity detection method our work is a fine grain Bluetooth-based proximity detection method which can provide adequate accuracy for face-to-face proximity estimation without environment limitations.

SYSTEM ANALYSIS

Existing System

GLOBAL positioning technology has enabled a great number of yet-unimagined applications and attracted millions of civil users worldwide. Among all positioning techniques, global positioning system (GPS) is widely adopted from industries such as aviation, nautical navigation, and land surveying, to personal applications such as driving navigation, object and individual tracking, and location sharing. Along with the popularity of mobile phones with built-in GPS, location information is available in more people's pockets.

Burgeoning markets of mobile phone applications such as location-based social networks, geo-caching, and geo-tagging, etc., are telling a true success story of the integration of GPS and mobile phones. Although GPS has proven its availability and dependability over many years, many location-based services still suffer from considerable errors of GPS. Albeit the officially reported accuracy with high-quality GPS receivers can achieve 3 meters, the actual accuracy users attain from commodity smart phones ranges from 1 m to up to 20 m, which limits the uses of numerous applications, leaving room for various augmented technologies. Generally, GPS accuracy is affected by a number of unavoidable factors, including satellite positions, atmospheric conditions, and the blockage to the satellite signals caused by mountains and buildings, etc.

Disadvantages

- There is no accuracy in the captured image.
- The moving object cannot be detected correctly.
- SMS alert about the motion detection to the user.
- Image cannot be retrieve at the time of motion detection.

Proposed Systems

To evaluate our design, we implement a prototype on Android OS using Google Nexus S phones and conduct comprehensive experiments in both crowded urban and spacious suburban areas. The evaluation results suggest that GloCal can reduce 30 percent of global positioning errors of GPS with only negligible extra energy consumption, which demonstrates the feasibility of Global in real world deployment

We demonstrate the viability of using Bluetooth for the purposes of opposite propinquity inference and propose a propinquity interference model with appropriate smoothing and consideration of a wide variety of typical environments. We study the relationship between the value of Bluetooth RSSI and distance based on empirical measurements and compares the results with the theoretical results using the radio propagation model.

We explore the energy efficiency and accuracy of Bluetooth compared with Wi-Fi and GPS via real-life measurements Based on the data collection platform, we are able to use the proximity estimation model across several real-world cases to provide high accurate determination of opposite interaction distance

Advantages

- High accuracy in image capturing
- Send an SMS alert to user's mobile whenever a Moving object is detected
- Image can be stored in the server and can be view at the time of motion detection.
- User can view the image, via his Android mobile itself.

Data base Design

Table- monitor

S.no	Field Name	Data Type	Constraints
1	Id	Integer	primary key
2	User	Text	not null
3	Dev name	Text	not null
4	Rssi	Text	not null
5	Name	Text	not null
6	Mac	Text	not null
7	Lat	Text	not null
8	Lng	Text	not null
9	Time	Datetime	not null
10	Battery	Text	not null
11	Power	Text	not null

Table- User

S.no	Field Name	Data Type	Constraints
1	Id	Integer	primary key
2	Username	Varchar	not null
3	Password	Varchar	not null

SYSTEM IMPLEMENTATION

Implementation is the process of converting a new or revised system design into operational one. There are three types of implementation:

- Implementation of a computer system to replace a manual system. The problems encountered are converting files, training users, and verifying printouts for integrity.
- Implementation of a new computer system to replace an existing one. This is usually a difficult conversion. If not properly planned there can be many problems.
- Implementation of a modified application to replace an existing one using the same computer. This type of conversion is relatively easy to handle, provided there are no major changes in the files.

Implementation in Generic tool project is done in all modules. In the first module User level identification is done. In this module every user is identified whether they are genuine one or not to access the database and also generates the session for the user. Illegal use of any form is strictly avoided.

In Table creation module, the tables are created with user specified fields and user can create many tables at a time. They may specify conditions, constraints and calculations in creation of tables.

In Reporting module user can get the reports from the database in 2Dimentional or 3Dimensional view. User has to select the table and specify the condition then the report will be generated for the user.

The stages of implementation are as follows:

- Blue tooth data collection System
- GPS Data Collection System
- Battery usage and Light Sensor
- Data Collection System
- Map View

SOFTWARE DESCRIPTION

Android

Android is a software stack for mobile devices that includes an operating system, middleware and key applications. Google Inc. purchased the initial developer of the software, Android Inc., in 2005.

The Android Open Source Project (AOSP) is tasked with the maintenance and further development of Android. The Android operating system is the world's best-selling Smartphone platform.

The Android SDK provides the tools and APIs necessary to begin developing applications Android platform using the Java programming language. Android has a large community of developers writing applications ("apps") that extend the functionality of the devices. There are currently over 250,000 apps available for Android Features.

- **Application framework** enabling reuse and replacement of components
- **Dalvik virtual machine** optimized for mobile devices
- **Integrated browser** based on the open source WebKit engine
- **Optimized graphics** powered by a custom 2D graphics library; 3D graphics based on the OpenGL ES 1.0 specification (hardware acceleration optional)
- **SQLite** for structured data storage
- **Media support** for common audio, video, and still image formats (MPEG4, H.264, MP3, AAC, AMR, JPG, PNG, GIF)
- profiling, and a plugin for the Eclipse IDE

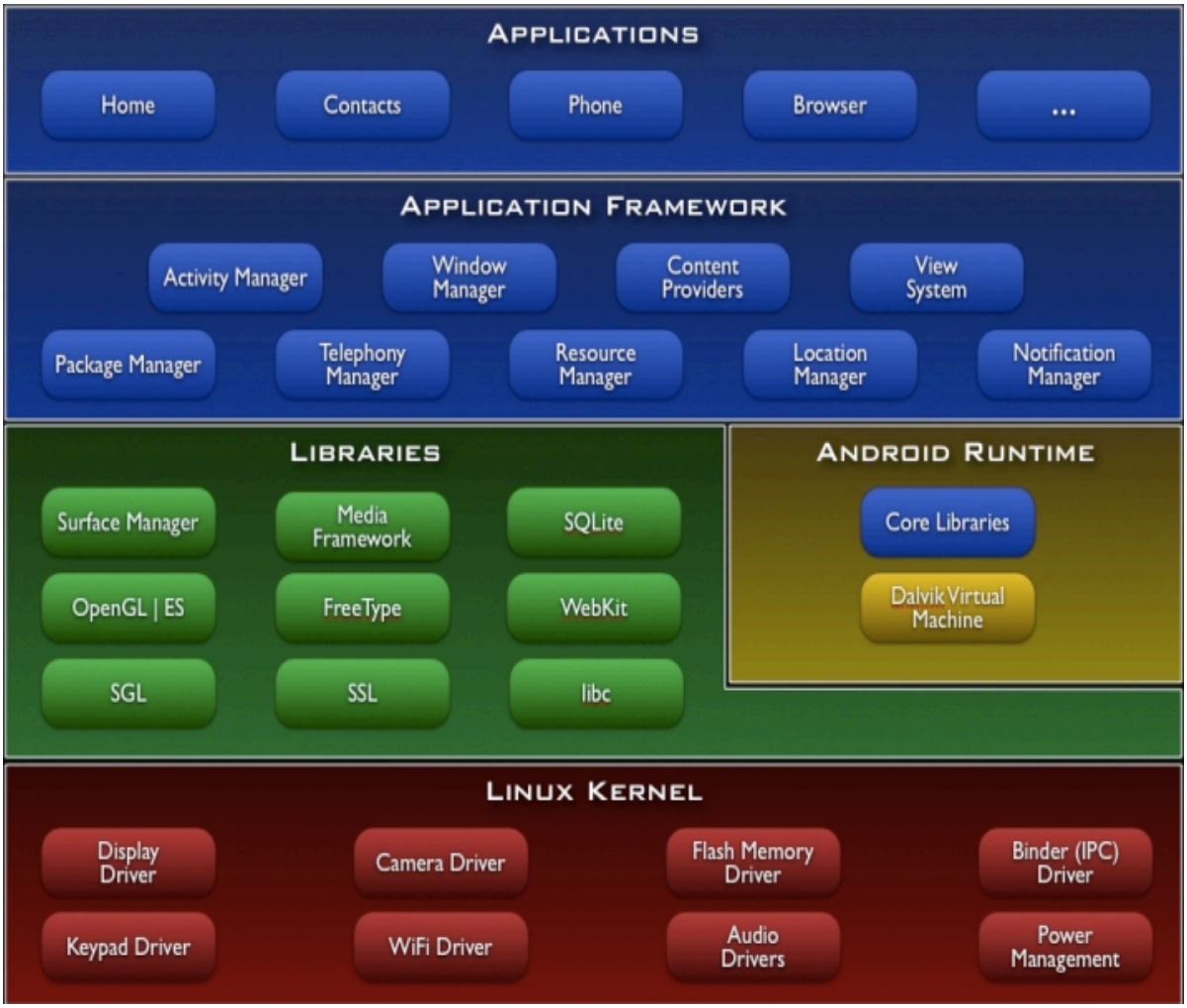
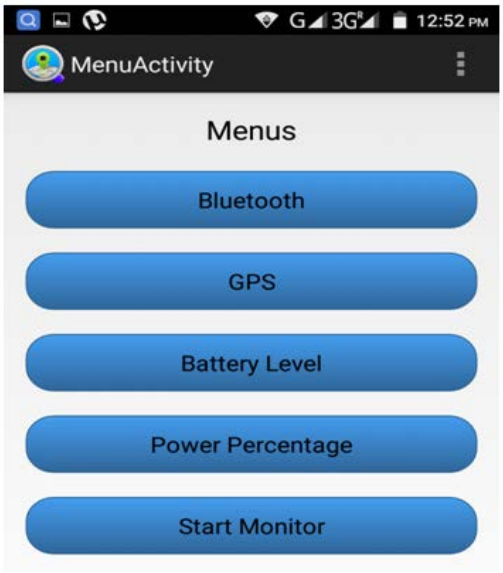


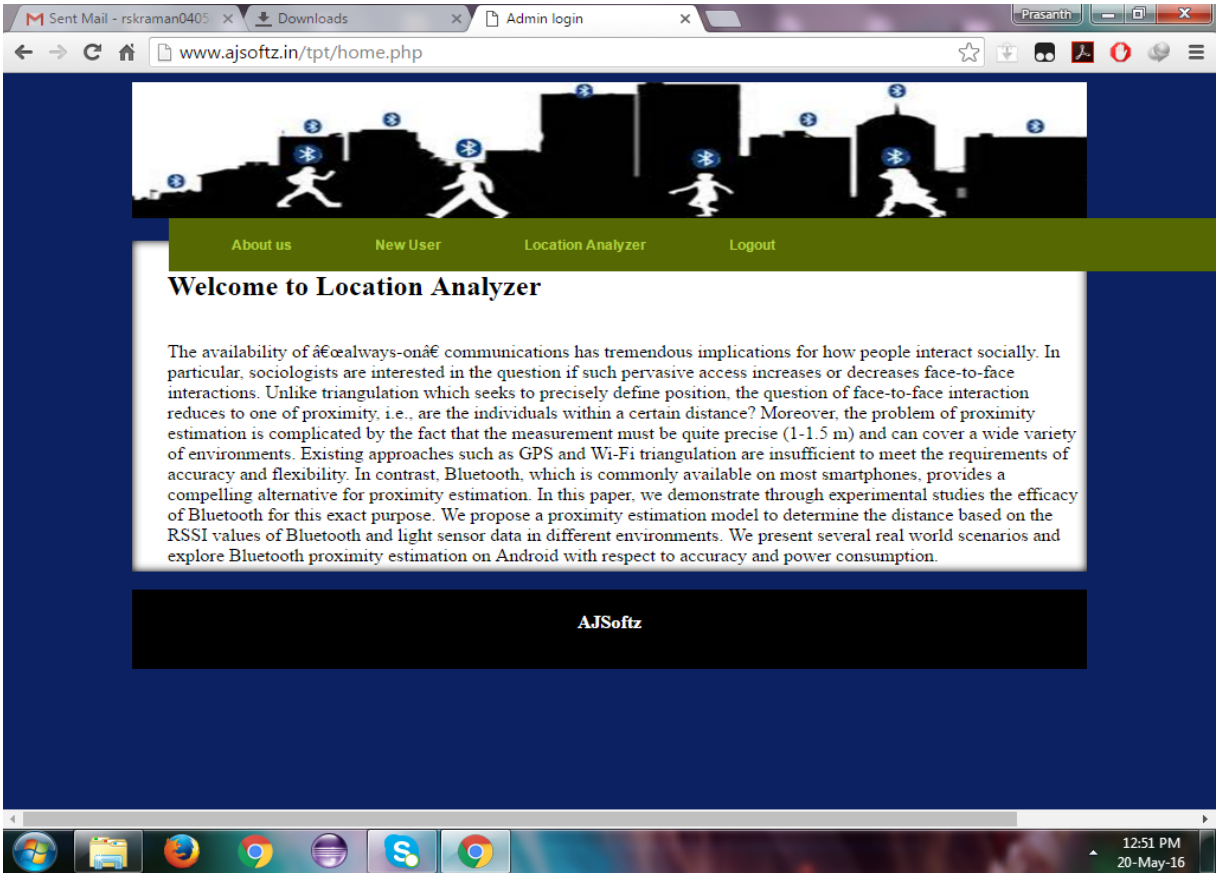
Fig. 4.1: Android Architecture

SCREEN SHOTS

Staring Menu



PHP



CONCLUSION

The technology of the Global Positioning System is allowing for huge changes in society. The applications using GPS are constantly growing. The cost of the receivers is dropping while at the same time the accuracy of the system is improving. This affects everyone with things such as faster Internet speed and safer plane landings. We applied the proximity estimation model on the realistic data and analyzed the proximity among the participants as well as the symmetry of proximity. Compared with the method of collecting all devices around, the accuracy of utilizing proximity estimation model to estimate whether two devices are in a direct communication distance is improved dramatically.

We also compared the battery usage and accuracy of our method with other different location methods such as Wi-Fi triangulation and GPS. The result demonstrates that Bluetooth offers an effective mechanism that is accurate and power efficient for measuring face-to-face proximity.

FUTURE ENHANCEMENTS

For our future work, we intend to improve our threshold algorithms with data mining. The thresholds used in the proximity estimation model are based on the experiment results on Nexus S 4G phones. For different phones, such thresholds may be different. Therefore, a more general method is necessary to determine the relationship between Bluetooth RSSI values and the face-to-face proximity. With more data reported in the next following two years, a more efficient data mining algorithm is needed to analyze the data. During the nighttime, only the data reported by light sensor is not reliable. One possible method to solve this problem is to take atmospheric pressure into consideration to determine whether the phone is indoor or outdoor.

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