

Indoor Wireless Tracking Using Wifi

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ABSTRACT

Wireless location finding is one of the key technologies for wireless sensor network. GPS is the technology used but it can be used for the outdoor locations. When we deal with the indoor location GPS does not work. Indoor locations include buildings like supermarkets, big malls, parking spaces, universities, etc. In this area the accuracy of the GPS location is greatly reduced. Location showed on the map is not correct when the GPS is used under the indoor environments. But for the indoor localization it requires the higher accuracy and the special purpose GPS is not feasible for the current view. And also when GPS is used in the mobile device it consumes a lot of the mobile battery to run the application which causes the drainage of the mobile battery within some hours. So to find out the accurate location for indoor environment we use the RSSI-based trilateral localization algorithm. The algorithm has the low cost and the algorithm does not require any additional hardware support and moreover the algorithm is easy to understand. The algorithm consumes very less battery as compared to the battery consumption of the GPS. Hence this algorithm has become the mainstream localization algorithm in the wireless sensor network. With the development of the wireless sensor network and the smart devices the WIFI access points are also increasing. The mobile smart device detects three or more known WIFI hotspot positions. And using the values from the WIFI routers it calculates the current location of the mobile device. Under the indoor environment and can navigate to the destination using the navigation function and also can enable the low consumption of the smart mobile battery for the tracking purpose.

Keywords: Wireless location, Wireless sensor network, GPS

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I. INTRODUCTION

Wireless location finding is one of the key technologies for wireless sensor networks. GPS is the technology used but it can be used for the outdoor location. When we deal with the indoor locations GPS does not work. Indoor locations include buildings like supermarkets, big malls, parking, universities and locations under the same roof. In these areas the accuracy of the GPS location is greatly reduced. Location showed on the map is not correct when the GPS is used under the indoor environments. But for the indoor localization it requires the higher accuracy GPS is not feasible for the current view and also when the GPS is used in the mobile

device it consumes a lot of the mobile battery to run the application which causes the drainage of the mobile battery within some hours. So to find out the accurate location for indoor environment we use the RSSI-based trilateral localization algorithm.

The algorithm has the low cost and the algorithm does not require any additional hardware support and moreover the algorithm is easy to understand. The algorithm consumes very less battery as compared to the battery consumption of the GPS. Because of these this algorithm has become the mainstream localization algorithm in the wireless sensor networks. With the development of the wireless sensor networks and the smart devices the WIFI access points are also increasing.

The mobile smart devices detect three or more known WIFI hotspots position and using the values from the WIFI routers it calculates the current location of the mobile device. In this paper we have proposed a system so that we can find out the exact location of the mobile device under the indoor environment and can navigate to the destination using the navigation function and also can enable the low consumption of the smart mobile battery for the tracking purpose.

Application: The application of system is that we can find out the exact location of the mobile device under the indoor environment. User tries to search for any specific room then the application displays map of the location along with the current location of the user. With the help of Wi-Fi routers navigate to the destination using the navigation function and also can enable the low consumption of the smart mobile battery for the tracking purpose.

Basic Concept

Android App:- It is smartphone based application accessed on any version of android by the end users.

II. LITERATURE SURVEY

Sr.No.	Paper Title	Author	Findings	Limitations
1	Modern Wireless Sensor Implementation for Indoor tracking, Transport and Power Grid Monitoring	W. S. Yeoh, Q. Li and C. E. Png	Modern wireless sensor applications play a critical role in in three areas, ranging from personal service to regional application. Remote sensors are the key component.	Technology in nano-sensors and low power chipsets still in progress.
2	Improved Wireless Localization of Mobile Devices in Smart Indoor Scenarios	T. Moriyama, A. Polo & A. Massa	A method for improving wireless localization of active targets in indoor environments	Low speed, could be troubled by surrounding environments.
3	Indoor Mapping and Localization Using Time-stamped WLAN Received Signal Strength	Feng Qiu, Mu Zhou, Zengshan Tian	This method uses the spectral clustered time-stamped WLAN RSS data to characterize environmental layout, as well as conduct target localization.	Incisive accuracy. Satisfactory localisation accuracy.
4	An Accurate and Efficient Multi-Entity Device-Free WLAN Localization System	Moustafa Youssef, Athanasios V. Vasilakos	Use of a cross-calibration technique and an energy-minimization framework to reduce the calibration overheard to linear in the number of locations.	Cost of implementation is high, limitation in applications for mobile in which location information can be used to improve the quality of users' experience and to add value to existing services offered by wireless providers.

III. PROPOSED SYSTEM

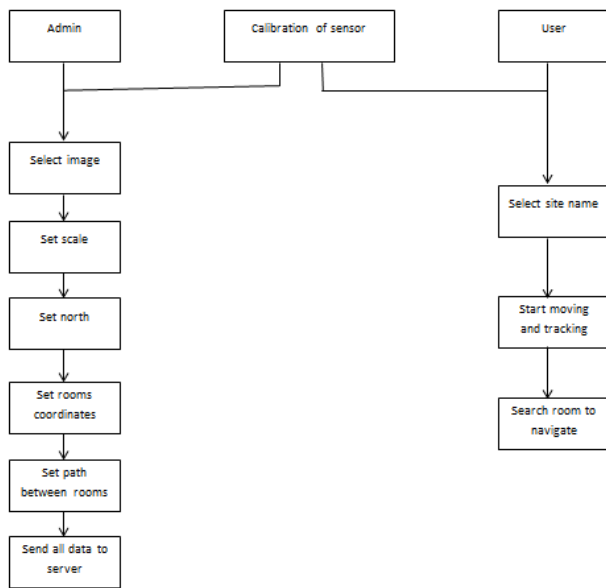


Fig 1. System architecture

The main objective of this system is user search rooms and current location of the user. In this system user track location of room using nearby Wi-Fi system. System finds out the accurate location of the area and enables the tracking of those areas from the user's location with less consumption of the Smartphone battery. This is a system where admin can create a new project and insert a blue print or image in that project which will be visible to client user.

The main objective of this system is user search rooms and current location of the user.

The system can collect the user location and can plot the location on the Google map. This plotted location gives the user location in real time.

IV. CONCLUSION

A new concept for tracking indoor system has been proposed. The object being tracked is initialized using least square statistical method whereas principles of motion supported Calibration of sensor technology are used to track. Although the system is computationally intensive for the Central Monitoring System yet the Central Monitoring System being a powerful system handles computations effectively and efficiently.

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