

**QR Code Based Indoor Tracking**

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**Abstract**

Gadget free (DF) limitation in WLANs has been presented as an esteem included administration that permits following of indoor elements that don't convey any gadgets. Past work in DF WLAN restriction concentrated on the following of a solitary substance because of the obstinacy of the multi-element following issue whose many-sided quality develops exponentially with the quantity of people being followed. In this paper, we present ACE: a framework that uses a probabilistic vitality minimization system that consolidates a contingent arbitrary field with a Markov model to catch the fleeting and spatial relations between the elements' stances.

A novel cross-adjustment method is acquainted with diminish the alignment overhead of different substances to straight, paying little mind to the quantity of people being followed. We plan an efficient vitality minimization work that can be mapped to a twofold diagram cut issue whose arrangement has a straight multifaceted nature by and large and a third request polynomial in the most pessimistic scenario.

We additionally utilize grouping on the evaluated area contender to diminish anomalies and get more exact following in the ceaseless space. Trial assessment in two run of the mill test beds, with a next to each other correlation with the cutting edge, demonstrates that ACE can accomplish a multi-element following exactness of under 1.3 m. This compares to no less than 11.8 percent, and up to 33 percent, upgrade in middle separation blunder over the state of the workmanship DF limitation frameworks. What's more, ACE can gauge the quantity of substances accurately to inside one distinction mistake for 100 percent of the time. This highlights ACE accomplishes its objectives of having a precise and efficient multi-substance inside confinement.

**Keywords:** DF, WAN, ACE, Field, Energy.

**1. 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 the 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 more over the algorithm is easy to understand. The algorithm consumes very less battery as compared to the battery consumption of the GPS.

Because of this 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.

## 2. Problem Statement

- The objective of this system proposed a system so that we can find out the exact location of the mobile device under the indoor environment.
- The main goal of the system is to provide a way to track the indoor areas with the less consumption of the smart phone battery.
- 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.

## 3. Drawbacks Of Existing System

In previous system radar is used for the calculation of location. It uses IR wireless networks for the location tracking and power levels to find the location of the device. The drawback with this system is that it can't be useful for the real time tracking of the devices. GPS can be used for the tracking of the outdoor areas but it will not be effective if the areas are under the same roof. It is used for the outdoor tracking. In this system we use Wi-Fi, GPS and QR code system for tracking user's location and navigate other room for users. By scanning QR code we can determine how many times user was present in that room.

## 4. Proposed System

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 so that the system can give the feature of navigation in the GPS isolated areas. Whenever users reached any room he has to scan QR code present on the door of that room so that we can track user's location. 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.

## 4.1 DOT Net, Android

### 4.1.1. about Dot Net

NET Framework is a software framework developed by Microsoft that runs primarily on Microsoft Windows. It includes a large class known as Framework Class Library (FCL) and provides language interoperability (each language can use code written in other languages) across several programming languages. Programs written for .NET Framework execute in a software environment (as contrasted to hardware environment) known as Common Language Runtime (CLR), an application virtual machine that provides services such as security, memory management, and exception handling.

### i. about Android

An Android phone is a powerful, high-tech smart phone that runs on Google's Android operating system. Pick an Android mobile phone and you can choose from hundreds of great applications and multitask with ease. You'll also get regular software updates that add great new features to your smart phone. Android is an OS created by Google for use on mobile devices, such as smart phones and tablets. It's an OS that's available on devices made by a variety of manufacturers, giving you more choices of device style and pricing. Also, with the Android OS, you can customize your device in many ways.

## 4.3 Architectural Diagram

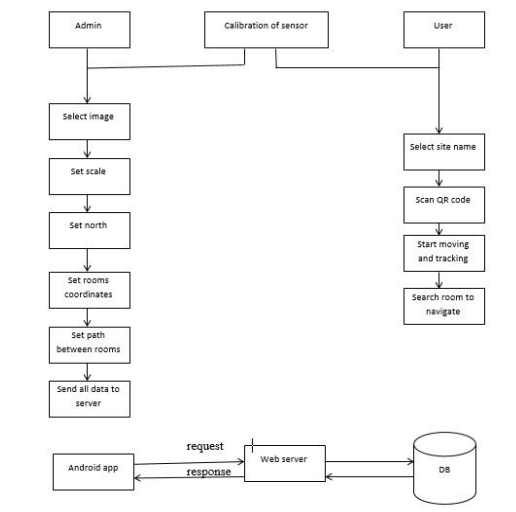


Figure 1: System Architecture

### 4.3. User Characteristics:

- User finds location on map.
- User search room with the help of location on map.

### 4.4. Constraints:

- User must have android phone.



Figure 2: Auto calibration or step selection

There are two applications used for this system.

- Apps: “1 is” for user and “1” is for admin.
- Admin can create a new project and insert a blue print or image in that project which will be visible to client user.
- Blue-print and image of any specific location will be stored by admin (Map of any college, Shopping Mall, Hospital).
- Whenever user of the app visits that specific location the map should be already present in the system.
- User tries to search for any specific room then the application displays map of the location along with the current location of the user.
- Path from the user’s current location to the user entered destination is displayed.
- Whenever users reached any room he has to scan QR code present on the door of that room so that we can track user’s location and to give him navigation for other rooms.
- By scanning QR code we can determine how many times user was present in that room.

By using accelerometers it detects the number of steps you walked for tracking. Auto calibrations is performed and best route is selected.

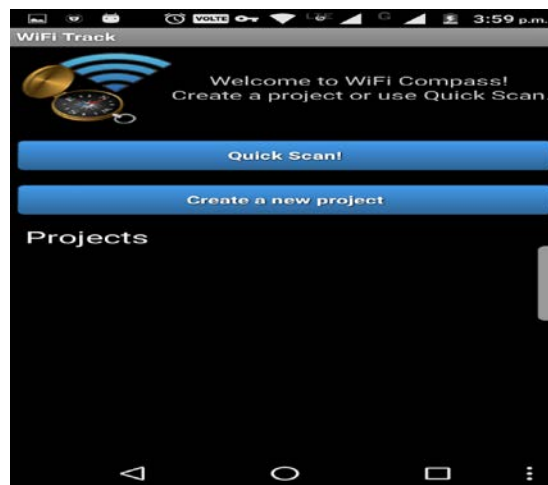


Figure 3: Admin side

Map will be downloaded into android phone by scanning QR code and he can proceed with tracking the destination.



Figure 4: Client Side - I

On client side it will ask for a particular destination. After providing a destination it would provide best route for travelling on basis of received signal of WIFI router.

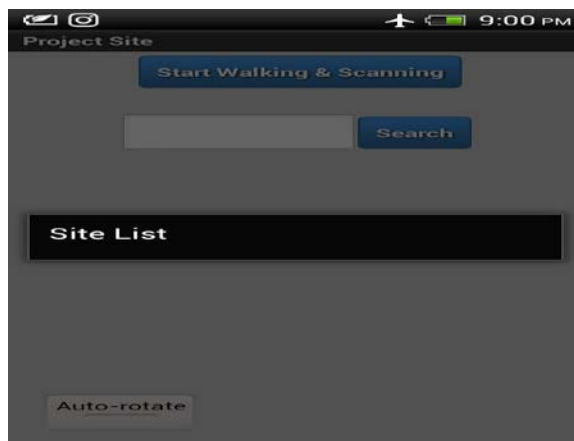


Figure 5 : Client Side - II

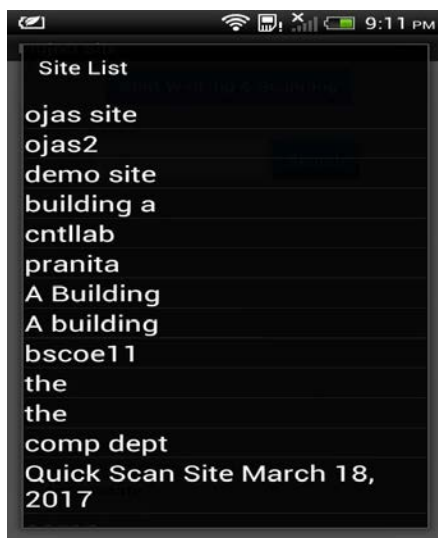


Figure 6: Database

Site List contains blue prints of the map on database which are available.

## **5. Conclusion**

In this system we use GPS and QR code for tracking indoor rooms for user. By scanning QR code we can determine how many times user was present in that room. The system provides technique for indoor tracking using the WIFI routers. These techniques don't require any additional hardware and as the sensors require very less battery consumption than the GPS it can be used to save the battery life.

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