An Automated Book Finder In Library Using iBeacon

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ABSTRACT

iBeacon is a new technology which provides a higher level of location awareness in indoor positioning. iBeacon is a built-in, cross- platform technology for Android and IOS devices, which utilizes Bluetooth Low Energy (BLE) for long-last services. This technology has significant advantages compared to other types of indoor positioning technologies, such as less expensive hardware, less energy consumption, needless to internet connection, and being capable of receiving notifications in background.

This technology will provide huge benefits for future location awareness applications. The main aim to provide a more accurate, cost efficient approach to indoor positioning of mobile devices using iBeacon. The main purpose of this application is to help the user to easily track the required book and reduce the Search time of finding a book in the library. Keywords : Library, ibeacon ,Android application, books, users etc

I.   INTRODUCTION

Well a library is a vast collection of books. This requires a proper arrangement and placement of books in an order that makes it easy for the user to find a particular book. But in very large libraries having a huge collection, locating a particular book become a difficult or quite risk task. Even though all books are arranged in categories, the location of category must first be known so that the user gets to know where that particular category of books is placed. In such a condition there needs to be a way through which user can precisely locate the location of any book by just typing its name. Here we propose a server based system using an android application to achieve this task using Beacon technology.

II. EXSTING SYSTEM

As seen in previous technologies like Digital library, Robotic Arm, Blue-Droid Android, Advanced library system, Smart library ,RFID technologies etc are the technologies implemented in library system .those technologies has some drawbacks such as some of them are costlier ,needs high searching time ,low performance etc. In our proposed system by using Ibeacon technology the user can easily search the required book in large library system with a minimum period of time and gives high performance on system[1-5].
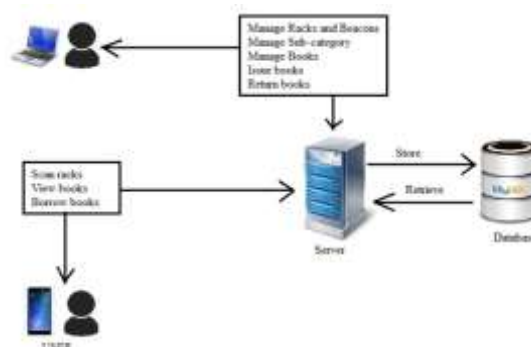
III.   PROPOSED SYSTEM

Figure 1. Architecture of library system

The above figure 1 represents a system architecture of library system

Librarian : Who will manage the racks by configuring beacon id and delete and updates the rack using beacon id ,Manage the category by creating it under that he will create the sub category, Issuing the books by accepting the request which was send through the android app.

End user : Who will get register and login to the app where it always scan the racks, View books and details, Users can select the books he want it is add to the cart then he can borrow.

Transmitter : It is an electronic device which produces Radio Waves ,The transmitter itself generates radio frequency, A transmitter used in broadcasting.

IV.   METHODOLOGY

1. iBeacons are small devices that transmit Bluetooth LE signals. Smartphones can easily detect these signals. An additional function of iBeacons is that it can provide the distance between the transmitter and receiver.

2. At the simplest form, an iBeacon is a Bluetooth low energy device transmits a UUID a strict format, followed by a variable UUID, and a major, minor pair.

- An advertising packet consists of four main pieces of information.
- UUID: This is a 16 byte string used to differentiate a large group of related beacons
- Major: This is a 2 byte string used to distinguish a smaller subset of beacons within the larger group
- Minor: This is a 2 byte string meant to identify individual beacons
- Tx Power: This is used to determine proximity (distance) from the beacon.

3. UUID is received by android app running on android device

4.The application can scan and locate beacons

5. After receiving certain actions are followed based on UUID.

6. BLE Advertising is a one-way communication method. Beacons that want to be "discovered" can broadcast, or "Advertise" self-contained packets of data in set intervals. These packets are meant to be collected by devices like smartphones.

V.   IBEACON TECHNOLOGY

A **ibeacon** is an intentionally conspicuous device designed to attract attention to a specific location. **i**Beacons are tiny and inexpensive, micro-location-based technology devices that can send radio frequency signals and notify nearby Bluetooth devices of their presence and transmit information. Smart phones or other mobile devices can capture the ibeacon signals and distance can be estimated by measuring received signal strength. The closer the receptive devices the stronger will be the signals. A ibeacon fixed on to a wall or event location or any public place, can communicate easily with a corresponding Smartphone app and figure out where the person is located currently, with great accuracy.

VI.   CONCLUSION

The iBeacon technology overcome some of the problems like in short time searching of required books, reduces manual work .In this Project we cannot download the e-pdf, In future, this application can be enhanced by providing facility to download e-pdf of the book. When the users scan the racks for the book they can get the e-pdf of that particular book and can be downloaded.

VII. REFERENCES

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