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Smart Interactive Advertising Board

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Abstract--There have been various navigation and tracking systems being developed with the help of technologies like GPS, GSM, Bluetooth, IR, Wi-Fi and Radar. Outdoor positioning systems have been deployed quite successfully using GPS but positioning systems for indoor environments still do not have widespread deployment due to various reasons. A Smart Interactive Advertising Board (SIAB) has been designed and developed. This board is capable of interacting with humans in close proximity. A number of sensor devices are used in the board where sensors inputs (Bluetooth IDs and distance sensor readings) create an innovative form of user interaction with the board. The SIAB display is determined by user position, location, and movements. In this paper, the authors investigate how the user inputs are mapped to the advertising board and its behavior. A prototype of SIAB is implemented

Keywords-Tracking, Bluetooth, Wi-Fi, Positioning

I. INTRODUCTION

Location positioning is more and more important in many application services. The maturity of application services and enormous governmental support has driven the rapid advancement of navigation industry. People find their way every day: from home to the company, from company to a shop, from the shop to a sports club and back home. With the large scale expansion of campuses or premises of colleges, hospitals, corporate offices, hotels and all sorts of commercial and non-commercial buildings, precise positioning has gained a lot of importance not only to save time but also to get rapid access to everybody everywhere. There are a lot of organizations which have some restricted areas which they would like to make accessible to only a few people, this facility can also be provided by such tracking systems. Protecting secured networks from intrusion or maintaining a record of all the movements of the network assets are some other advantages of these systems. Although such tracking systems have such varied applications but the most commercially viable ones in the present scenario are those which make use of the existing wireless infrastructure so as to reduce the equipment and installation cost considerably. Wi-Fi tracking seems to be a plausible solution and significant work has been done in this regard but there are a lot of drawbacks associated with them. The system introduced in this paper is based on two most popular wireless technologies namely Bluetooth and Wi-Fi. The sole motive of using Bluetooth is that it is widely available in the mobile phones now a days and is designed for low power consumption compared to Wi-Fi. Moreover, we make use of Bluetooth – Wi-Fi Gateways which are integrated nodes and can communicate with both Bluetooth and Wi-Fi enabled devices and finally, we have Wi-Fi access points which are already a part of the organization's infrastructure to provide internet connectivity. The two concerned wireless technologies are being discussed in brief next.

A. Bluetooth

Bluetooth is an open wireless technology initially considered for replacement to the RS232 serial cables, now finds varied applications in consumer as well as industrial devices and practises . It is based on frequency-hopping spread spectrum and uses a master-slave structure for establishing connection. One master can connect to seven slaves at a time forming a piconet network. The functionality of a Bluetooth device is defined on the basis of the Bluetooth profiles, it has implemented. There are lot of such profiles defined, some of them are Advanced Audio Distribution Profile (A2DP) for streaming stereo audio quality from a media source to a sink, Human Interface Device Profile (HID) which defines the protocols, procedures and features to be used by Bluetooth HID such as keyboards, pointing devices, gaming devices and remote monitoring devices, Video Distribution Profile (VDP) which defines how a Bluetooth enabled device streams video over Bluetooth wireless technology etc .

B. Wi-Fi

Wi-Fi is wireless technology based on the IEEE 802.11 standards and is synonymous with Wireless Local Area Network (WLAN) since it is seen as a replacement to the cabling required in early Local Area Networks Its major application is to provide high speed internet connectivity to the Wi-Fi enabled devices while being in range of wireless network connected to the internet. Wi-Fi also uses the same radio frequencies as that of Bluetooth but requires more power for operation and thereby provides higher bit rates and

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better range of communication. The rest of the paper is divided into various sections. Section 2 describes the related work done before which is important to understand the relevance of the proposed solution.

II. LITERATURE REVIEW

"Mall Navigation System Using Wi-Fi Router" (ICETT2012115) proposed that with the help of a Wi-Fi router & a navigation software one can locate his position & also get the direction of his desired location inside a shopping mall. The MALL NAVIGATION SYSTEM USING WI-FI Router presented in thesis paper as a open source and cost effective system that is designed to find out the exact location if a Shopping Mall or a Shopping Complex, which is a vast place, & we often get confused with the direction of the nearest ATMs or even rest rooms .This is an application that needs real-time, fast, & reliable data processing and information / assistance to the clients and service mobile Wi-Fi navigation system. Wi-Fi is also used in connecting computer in the network together. By the use of emitted radio signals one can connect computers without wire anywhere in home or office. But this can be possible within a distance of 100 meters. Here, Wi-Fi enabled devices first transmit the binary codes of the computer into radio waves and then transmits it to the other computer where the attached Wi-Fi device again converts it into binary code for the respective computer .But as its accuracy depends on the density of Wi-Fi signals or the number of routers, the technology performs better in the urban areas that have more Wi-Fi beacons. It is not popular in rural areas where access points are deployed far from each other. Again unlike GPS satellites or cell towers, the Wi-Fi routers provide low signal strength, & perform under a limited area. As we relocate to a different place, we need to search a new Wi-Fi source.

III. INTRODUCTION TO SYSTEM

In this paper we are developing system which is having pull Based approach. In this approach data which is stored on the server throw on the customer display on his requirement. In push based approach unwanted data is also sent to the user. We are developing system as a prototype application that is capable of interpreting sensor based human interaction to control a computer application driving what is displayed on a board .From the studies it is cleared that with the combination of the Bluetooth and the wi-fi we can build a good user interaction.In our system we are using the this technique for the user interaction with the board. Major guidelines for installing the board in public and private places are provided.

A. Flow Of System

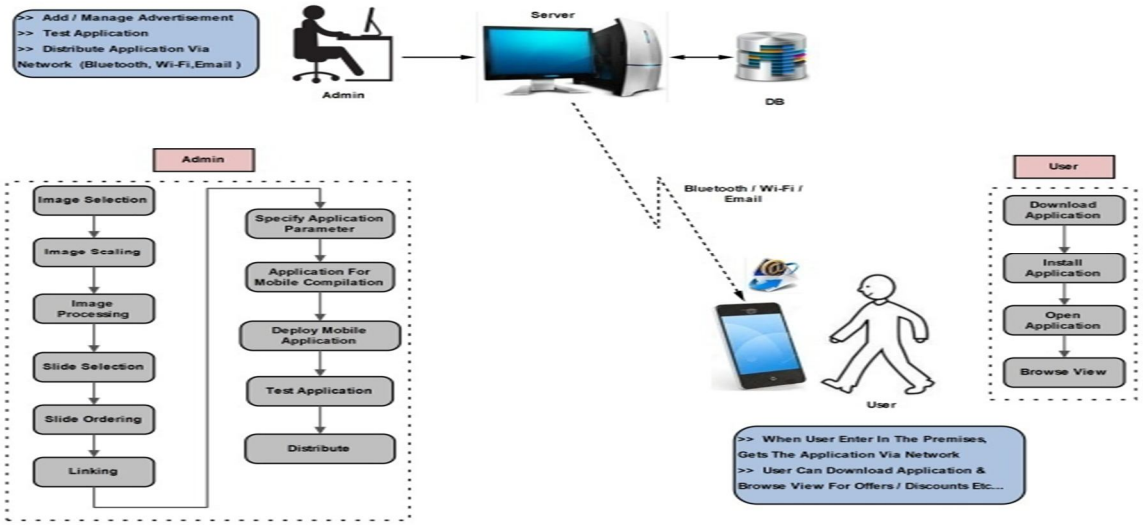


Fig: System Flow

Flow of the system show What is the overall View of the System .According to the system. There are four major part in the system on which the system is stand. Admin which add or manage the application he is responsible for the application management.

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Admin can also test the application, Distribute application via network (Bluetooth, Wi-fi,email).Server is connected with the user with the help of Bluetooth/wi-fi/email to show the data related to advertise. When user enter in the premises, gets the application via network. Then user download the application and browse offers/discounts.User will follow the following sequence when he will enter into the premises.

B. System Overview

This system gives the over all view of the system in that it will describe all modules which are going to cover in the system. Functions included in the system. In this system We have three different phase which tell the different level interaction of user with system.

Phase I: In the first phase all the slide preparation and pre-processing is done .This slide will be the slide which is present at the user side. which include the Image ,Image processing tools, Text Editing Tools, Drawing Tools Image Scaling tools.

Phase II: In second phase Presentation of the slide and the creation and linking of the slides is done. In this phase slide selection, slide Numbering, Welcome screen , Information On data, Slide links is done.

Phase III: In third Phase we Presentation compilation and Broadcasting is done. All the compilation of the slides is done in this phase. After the compilation slides are broadcast for the user. In this Phase compilation, testing ,presentation information and broadcasting is done.

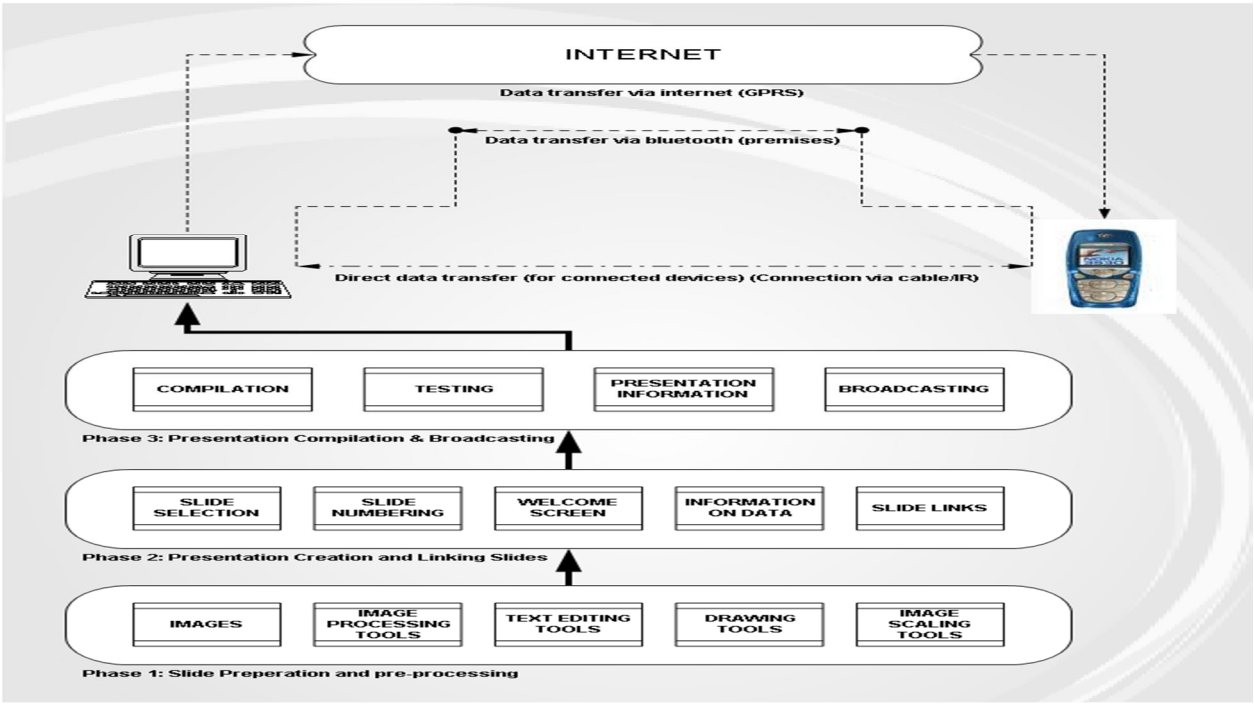


Fig:System Overview

IV. SYSTEM IMPLEMENTATION

This section outlines the implementation of the interactive advertising board application prototype and the experimentation used in developing the SIAB (smart interactive advertising board)system.

A. Bluecove API And SIAB Application

Bluecove is a Java library for Bluetooth [13] which can interface with many operating systems such as window XP SP2.It shows the important protocols addressed by Java APIs for Bluetooth wireless technology Bluetooth is used for wireless connection. The

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API provides a way to discover devices, find services and undertake services registration. interfacejavax.bluetooth .DiscoveryListener

This class provides an event listener that will respond to inquiry-related events and service search class javax.bluetooth.DiscoveryAgen

This class provides methods for service and device discovery. Start Inquiry () method to place the local device in inquiry mode, retrieve Devices() method to return information about devices and cancel Inquiry() method to cancel an inquiry.

B. SIAB Application

In the SIAB application prototype, the first step is to discover the Bluetooth ID by the device Discovered() method. In this event handler is created and that event is registered with the Phidget API library. The library can call an event handler function whenever the event occurs. While the user is standing near the board and moving in front or across the sensors, the action would be false and the display will not change. If the user moves backward or forward so that the distance from the board is less or more than the sensor inputs required the board will display nothing.

V. RELATED WORK

A. Navigation

From the of several positioning technologies has been presented from so many approaches were applicable for indoor navigation system[2]. Indoor application may have different requirements but we are focusing on the area covered which is not very large and the user interface and installation should be user friendly .For outdoor Navigation most widely used technology is definitely Global Positioning System(GPS) which is a world-wide satellite based communication system [1].We cannot use GPs for indoor navigation ,Assisted GPS can be use for indoor navigation But it have its own limitation with respect to the network assistant. The systems that completely depend on Wi-Fi consider either laptops or mobile phones as their mobile nodes to track down the owners of these devices. But Using laptop for this purpose may give incorrect result as we person is not carrying his laptop all the time .Also with case of mobiles it may be high expensive high end smart phones .for this mere connection In the early 1990s, Olivetti laboratory developed the active badge indoor positioning system [5], which is considered as the original indoor positioning system.

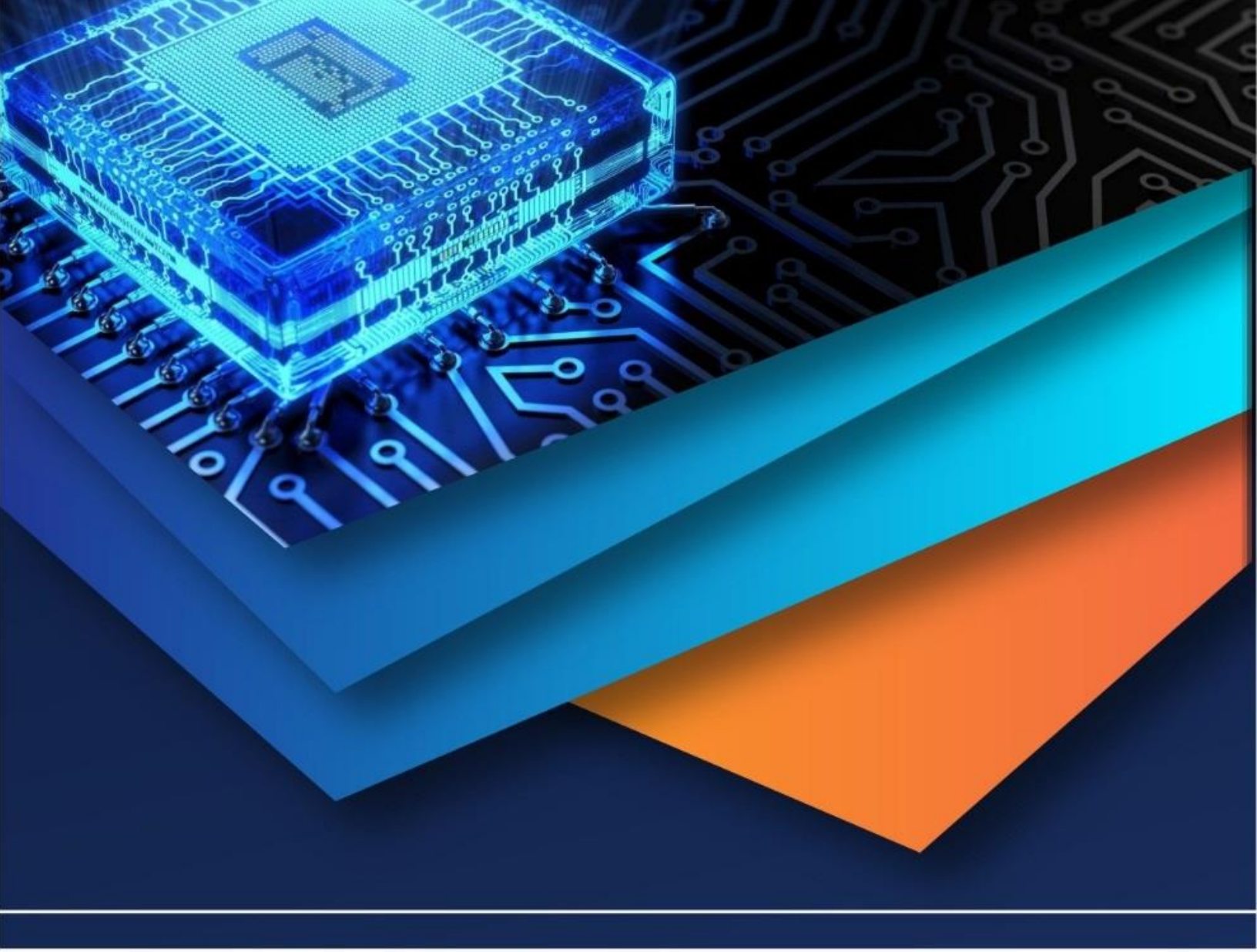
VI. CONCLUSION

In this paper we describe two Api that Blue cove and the SIAB application. From the experiment, we find that the accuracy of positioning application using Wi-Fi signal is higher than using GPS. Wi-Fi can assist GPS in positioning application for higher accuracy, and it can apply in indoor, outdoor and other complex environment. The paper mainly introduces a new tracking system t hat relies on Bluetooth and Wi-Fi simultaneously. In the proposed system, the authors have achieved a tracking accuracy of 10 meters which is the range of the Class 3 BT devices and is the most prevalent class of BT devices.

REFERENCES

[1] Wi-Fi, Wikipedia Encyclopedia.
[2] Want R, Hopper A, Falcao V, et al. The Active Badge Location system [J]. ACM Transaction on Information Systems, 1992, 10(1):91-102.
[3] Wifi-based Indoor Navigation with Mobile GIS and Speech Recognition
[4] University of Washington, “UW Campus Navigator
[5] Wireless Sensor Network (WSN)Wikipedia Encyclopedia

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