Sensor Based Navigation System using RFID Technology for Smartphone

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Abstract— Sensor Based Navigation System Using RFID Technology for Smartphone(SBN) is goal to builda reliable, significant and precise guidance system in aim to guide the Institutions novice and visitors during the adjustment to the unknown environment. SBN system supports building an android application that consists of Campus Navigation.
Key words: RFID, Smartphone, Campus Navigation

I. INTRODUCTION

A campus is an intricate infrastructure where novice visitors who are on it for the first time have a difficult time to find their desired destination. The campus occupies more than 12 sq. km and is even more large than that. The campus has many buildings, blocks, routes. Most of them are connected to each other. Even though there are directions at some point in the premises, freshmen don't have continuous help to get to their allotted rooms. Visitors may try to think of a different route to get to their desired location on these static maps, but as they start moving in a targeted direction they have no guidance any more.

"Sensor Based Navigation System Using RFID Technology for Smartphone" application which enables the new people to obtain directions that are much detailed than an already existing system. The people have to ingress this application through an android smartphone when person in filtrate the campus and register before, to use this app. She/he can't use the application outside the institute.

The intent of the SBN System is to provide the visitors a smart navigation system when he/she first visits the campus. The objective of the SBN system is as follows:

To develop a system that provides building information accurately to the client. To construct in which enables to navigate the user to the selected destination. To develop a system with automatic transmitting of message whereabouts of the visitor to security centre.
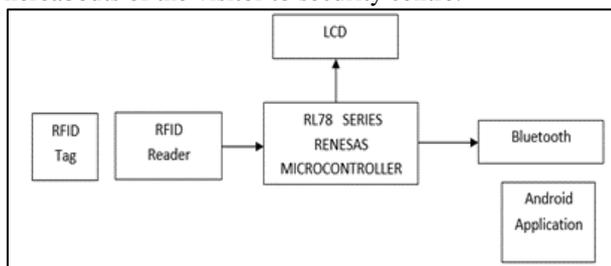

Fig. 1: The block Diagram of Sensor Based Navigation System Using RFID Technology for Smartphone.

Many enclosed systems have substantially various design according to utilities and purpose. The project aims in which, methodized modular design concept is adopted and the SBN system is composed of microcontroller, RFID reader, Bluetooth and LCD.

The microcontroller situated at the middle of the figure is the control unit of the entire SBN System. Embedded within the microcontroller is a program that helps the chip to take action based on the inputs provided to it specified in the android app.

II. METHODOLOGY

In SBN System project design there is a microcontroller, which controls the entire system. The program embedded within the microcontroller helps to take actions. An android application is created for the SBN system, to display the route maps of the infrastructure on any invoice android smartphone. The LCD used in the system displays any event taken place between microcontroller and components connected to it.

III. IMPLEMENTATION

SBN System includes the consolidated system and emphasis is given to the algorithm of the decision making that put forth the convenient and safe decision of overtaking instead of using many sensors.

1) Tags will be placed on the floor in certain directions resembling that of a path to various classrooms or different buildings in a campus. The visitor will be given a RFID reader. The direction to the particular classrooms or buildings in a campus will be shown on a map in his/her android smart phone.
2) If the visitor deviates once or twice from the path shown in the android smart phone, the microcontroller will pass message to the android smart phone via Bluetooth. On receiving this message the android smart phone will activate a predefined voice output, thereby suggesting the visitor to take the correct path.
3) If the visitor deviates from the path, for the third time, the microcontroller will pass this message to the android smart phone via Bluetooth and as usual a voice output will also be created. Immediately, after the voice output is given, a message will be passed to the security centre on that campus from visitor's android smart phone.
4) An android application is created for the project, to display the route map of the campus on any visitor's android smart phone.
5) At the entrance of the campus the security guard will be in charge of installing this android application on any visitor's android mobile phone. Automatic transmitting of message to security centre is part of the android application feature.
6) If visitor takes correct path or a wrong path, an acknowledgement in the form of voice output will be given through the visitor's android phone.
7) The LCD is used to display any event taking place between microcontroller and peripherals connected to it..

Initially, home page will be displayed in the application. When the user inside the campus, can view their current location. The user request the desired location in the map application.
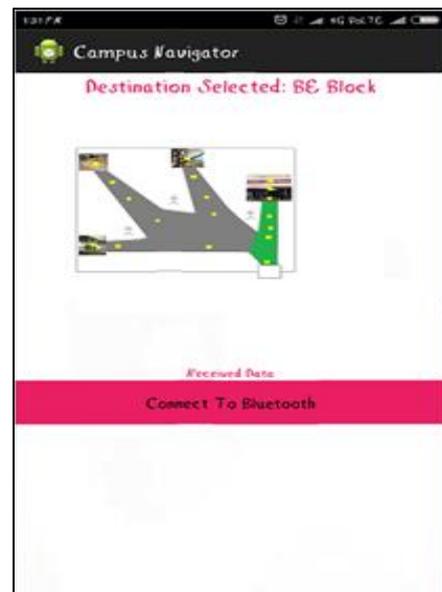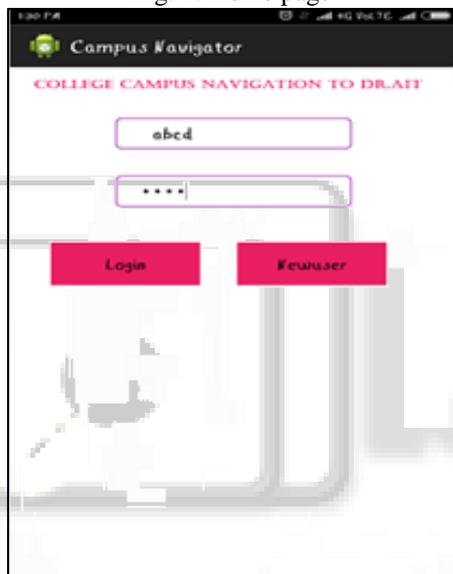
Fig. 1: Home page

Fig. 2: login page

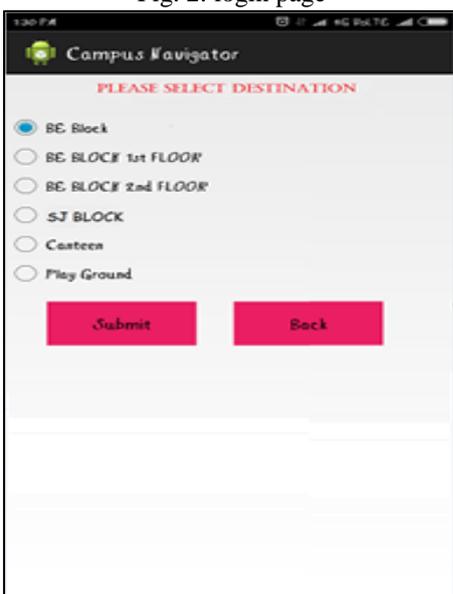Fig. 3: Destination selection

Fig. 4: Map

Many smart-phones are used to track the location by electronic map. Database is used to store the details of the login users.

IV. CONCLUSION

The Sensor Based Navigation System Using RFID Technology for Smart Phone system is flexible and Sensor Based Navigation System Using RFID Technology for Smart Phone is a dynamic and useful changes can also be done. The Sensor Based Navigation System Using RFID Technology for Smart Phone system is flexible. SBN system is a smarter navigation app, that can be used in an unknown environment.

The system and modifications can be made effortlessly. Forby most of the units in the SBN System can be embedded along with the microcontroller on a single board, there by reduces the size of the system.

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