Campus Navigator Using Bluetooth

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***Abstract*— Campus navigator is a mobile application that assist students, their parents and visitors by receiving user based dynamic information, which is based on Bluetooth. The data from Bluetooth gets transmitted and it can be monitored in smartphone. Speech output is embedded in the project which provides better assistance for the visitors. They use their own smart phones and an embedded device for additional information.**

***Keywords*— Bluetooth, RFID**.

I. INTRODUCTION

The campus navigator is the android portable application which is essentially utilized for exploring routes inside any grounds premises e.g.: Mall, College, Hospital and so forth... A fewcommercial navigation applications -, for example, Google Maps, Yahoo Maps and Map mission are not ready to give courses that are as precise as an on-campus path would require. Our project is concentrating on visitor assistance and security for the campus environment of manufacture industries, software companies, college and universities, government campus etc.

II. LITERATURE SURVEY

Design and Implementation of a Campus Navigation Application with Augmented Reality for Smartphone's proposed by Benjamin Lautenschläger [1] have in light of new methods like GPS and sensors, compass and accelerometer, that can decide the introduction of the gadget, area based applications combined with enlarged reality views are possible. With regards to this work a portable route application for the University of Calgary is produced. This depicts the initial thoughts on this application and the procedure that lead to the final framework condition. The approach on planning a graphical UI for pedestrian use on cell phones is described, and itsactual implementation. To give users area basedinformationonlocationa location tracking algorithm base on wireless network signals is created, which determines the topographical position inside buildings. The subsequent application enables the user discovering ways to particular areas on campus and offers him the capacity to investigate the grounds condition by means of augmented reality.

Indoor Navigation With Foot-Mounted Strap down Inertial Navigation and Magnetic Sensors suggested by BIRD Jeff (Defense R and D Canada), ARDEN (Dale Arden Consulting) [1] has depicted a strategy for navigation for an individual basedon traditional inertial navigation system (INS) technology, but with very small and independent sensor systems. A conventional INS contains very exact, however vast and heavy, spinners and accelerometers, and converts the detected rotations and increasing speeds into position displacements through an algorithm known as strap down navigator.They likewise, nearly no matter what, use an error compensation scheme, for example, a Kalman channel to decrease the error development in the inertially sensed motion using extra position and speed information from GPS recipients, other speed sensors (e.g., air, water, and ground speed), and heading aids, for example, magnetic compass. This innovation has been successfully used for a considerable number of decades, yet the size, weight, and power prerequisites of adequately exact inertial systems and speed sensors have prevented their adoption for individual navigation systems. Presently, as depicted in this article, Miniature Inertial Measurement Units (IMUsas light as a couple of grams are available. When it is set on the foot to exploit the concise times of zero speed when the foot strikes the ground (deterring the requirement for additional speed estimation sensors), these IMUs permit the acknowledgment of a conventional Kalman-filter based aided strap down inertial navigation system in a device no bigger or heavier than a crate of matches. A specific preferred advantage of this approach is that no walk modelling is included with its inherent dependence on the estimation of a forward distance travelled on each progression. The method works equally well for any foot movement, something particularly critical for soldiers and people on call. Additionally depicted is a strategy to misuse attractive sensor introduction information even in indoor conditions where nearby unsettling influences in the Earth s attractive field are huge. By carefully contrasting INS derived and magnetic inferred heading and orientation, a system can consequently decide when sensed magnetic heading is accurate enough to be useful for additional mistake compensation.

In-Car Positioning and Navigation Technologies suggested by Isaac Skog and Peter Handel [3].In-auto positioning and navigation has been an killer application for Global Positioning System (GPS) receivers, and a variety of gadgets for purchasers and experts have been launched on a large scale.

Positioning technologies based on stand alone GPS beneficiaries are powerless and, thus, must be supported by extra data sources to get the desired exactness, integrity, accessibility, and continuity of service. An overview of the information sources and data fusion technologies utilized as a part of current in-car navigation systems is presented.The pros and cons of the four generally used information sources, to be specific, 1) recipients for radio-based positioning using satellites, 2) vehicle motion sensors, 3) vehicle models, and 4) advanced guide data, are depicted. Common channels to combine the data from the different sources are discussed. The extension of the quantity of satellites and the quantity of satellite systems, with their use of available radio spectrum, is an enabler for advance improvement, in combination with the fast advancement of micro electromechanical inertial sensors and refined digital maps.

III. RELATED WORK

A campus is a complexinfrastructure for new students and individuals who are on it for the first time to orientate themselves and discover places. In campus the majority of the buildings are associated with each other, some of them even by underground walkways. Regardless of whether there are maps at some places in the campus, users don't have consistent help to reach their destination. They can make a start to make sense of an approach to get to their objective on these static maps, however when they begin heading in target direction they have no assistance any more.

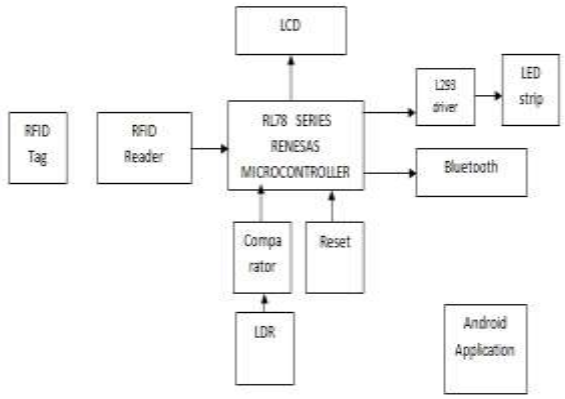
But the proposed system enableusers to acquire routes that are considerably more point by point than a existing commercial application can give. The user needs to get to this application through an android mobile phone when he enters the premises of the campus and register before the utilization of the application. The user can't use the application outside the campus environment. The user also has to compulsorily register to proceed.

IV. PROBLEM STATEMENT

1. It is very difficult to reach destination without Navigation.
2. It will be waste of time in searching destination
3. It may be overhead to the guards to guide continuously to the strangers or visitors.

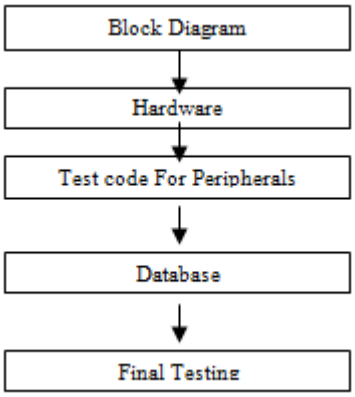
V. PROPOSED SYSTEM

The microcontroller situated at the centre of the block diagram forms the control unit of the whole project. Embedded within the microcontroller is a program that helps the microcontroller to take actions based on the information sources provided.Here in this project, tags will be placed on the floor in certain directions resembling that of a path to various offices or different buildings in a campus. The visitor will be given a RFID reader. The direction to the particular office or buildings in a campus will be shown on a map in his/her android smart phone.LDR is helpful at the night time. Whenever there is a light on LDR then LED's will be in off state, if there is no light on LDR i.e. at night time LED's will turn on.In any situation if you want to restart your system then reset button is provided.An android application, to display the route map of the campus on any visitor's android smartphone.



If visitor takes correct path or wrong path, an acknowledgement in the form of voice output will be given through the visitor's android phone.The LCD is used to display any event taking place between microcontroller and peripherals connected to it..

VI. FLOW CHART



VII. RESULT AND DISCUSSION

An android application is created for this project, to display the route map of the campus on any visitor's android smart phone. 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. If visitor takes correct path or wrong path, an acknowledgement in the form of voice output will be given through the visitor's android phone. As seen in the block

diagram an LCD is added. The LCD is used to display any event taking place between microcontroller and peripherals connected to it. Below are snapshots of how the android application looks.

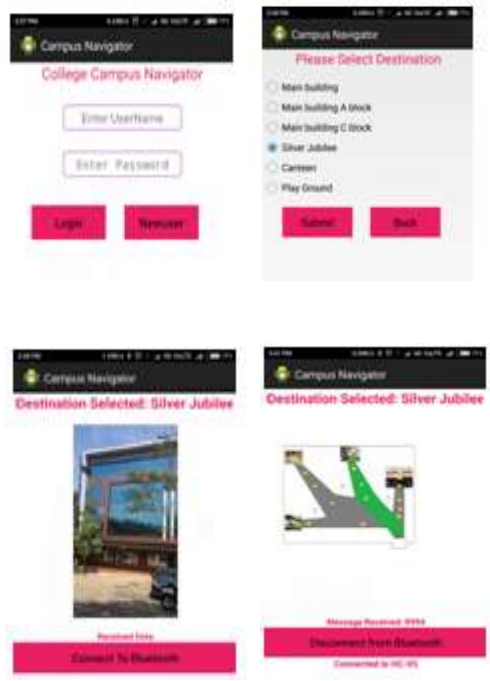


Fig: Screenshots taken in Android Device

VIII. CONCLUSIONS

In this paper we presented a campus collaborator application created on an Android platform. The application provides different navigation services to users at any hugecampus. It is very difficult to find path from current location to any location inside university like entrance gates, departments, canteen, library, playground and parking lots etc for the new admitted students and visitors. To reduce this pain inside the campus,we implement the campus navigation using bluetooth on android platform has been designed, implemented and tested successfully in this work.This application gives the route guide for users from his/her own area to desired location and even updates with its proper place. Expanding the application to various college campuses. We can include more features and updates according to the physical changes around the campus.

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