COLLEGE DIRECTORY:A DETAILED DIRECTORY FOR ANDROID BASED MOBILE DEVICES

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ABSTRACT

The purpose of this paper is to describe the development of mobile application for college directory. The Android based COLLEGE DIRECTORY aims to provide information for new students, parents or visitors to enhance their experience in the college.The features that we included in this proposed work are Android-based college directory system to locate student's current location, directions from current location to another location staffrooms labs, office and map model.Directions are provided from the current location using a search function to enable Students or parents to search for classrooms, staffrooms, offices they wish to visit.College information such as floor layout, Class rooms, computer labs, instrumental labs, Library, staffroom, office, Canteen will be provided in this mobile application. Main contribution here is providing technical details with me used as a guide for new students, Parents and visitors.

Keywords: *Indoor navigator, college directory, android college application, mobile location*.

I.   Introduction

Our proposed mobile app is based on Android of college with indoor navigation of college directory, Which helps the consumers to know their current locations in big college buildings. By using this application on their mobile devices, they can identify their current location in a college campus which includes the answers to questions like; what are the classrooms near to us?, where is the resource lab? etc. They can get directions to another location in the building and viewing the floor layouts of the college directory as well. This mobile application is a Android location-for indoor positioning systems. In this paper, we are dealing with the problem of indoor navigation. Estimating student's location can be done in several different ways, because Global Positioning System (GPS) is not always available particularly for the indoor environment where the satellite coverage is veiled. Besides, college navigation directories are difficult to find inside class rooms. Currently few colleges do have their own mobile Android app directories that support only the indoor layout building, but it is not a location-based system which means they do not contribute the service for defining the current locations. On the other mobile application directories also couldn't provide the directions from the student's current location to another location. To overcome the above mentioned problems, our proposed work uses the college building's particular pattern of Wi-Fi access points. There are a big variety of solutions of the indoor positioning systems on the market so far. With increasing demand of location-based services, more solutions of positioning will be realized. This paper describes in technical details the problem of indoor-navigation and explains the available techniques in the market nowadays.

II.   LITERATURE REVIEW

The rapid growth of mobile devices and the growing call for location tracking systems which refines information based on current device site, have led to an growth in research and product development in this area . In this section, we have shown the related techniques and products in which their main features, strength, and limitations are discussed.

Cellular Networks:

A Cellular Communication Network is a system that grants mobile phones within a distinctive cellular range to wirelessly communicate with each other across large cell towers. This type of communication is based on the potential of the network to determine the position of a cell phone by identifying the cell tower that the device is connected with at that particular moment. The advantage of this technique is its Omnipresent Distributions,easy implementation and the fact that all mobile cell phones

support it. On the other side of the coin , accuracy of this technique is very low due to the fact that the cell towers can support ranges of 35 kilometers or more. In urban environments cell towers are distributed more densely.

Wi-Fi:

Wi-Fi stands for Wireless Fidelity that complies with the IEEE 802.11 standard. Nowadays, wireless connectivity is more prevalent than ever in our everyday lives. Each wireless Access point (AP) broadcasts a signal that can be heard by all devices within its range. Wireless devices have the capability to measure the strength of this signal. This strength is converted to a number, known as Received Signal Strength Indicator (RSSI).

Bluetooth:

Bluetooth is a wireless communication that complies with IEEE 802.15 standard, similar to Wi-Fi except it is over short distances. The devices can send a maximum of 3Mb/s. Implementation can be highly expensive.

Infrared:

Infrared (IR) is a wireless networking tool specialized for the indoor positioning for limited range. IR has multiple technical limitations such as : need of line of sight,Receiver affected by sunlight coming through a window room, plus its expensive installation and maintenance.

Ultra Wide Band:

Ultra Wide Band (UWB) has been pioneered for the use of lowest energy levels for short range and high bandwidth communications, using a large parts of the radio frequencies. The original strength of the Ultra-Wide-Band sits in its use of highly wide transmission bandwidths, which results in preferable capabilities which include accurate Positioning location and ranging, lack of exceptionally different fading, great number of multiple accessibility, and easy material penetration.

Radio signals	Indoors	Outdoors
Cellular networks	● Available but inaccurate.	● Available but inaccurate.
Wi-fi	● Readily exist throughout most buildings. ● Cheap to implement and maintenance.	● Very short network range for outdoors.
bluetooth	● Very cheap to implement. ● Limited range.	● Cannot be covered.
Infrared	● Very short range ● Expensive. ● Can be affected by sunlight streams.	● Impossible to implement.
UWB	● Accurate positioning information ● Very expensive to implement so not commonly used.	● Accurate positioning information ● Very expensive to implement

III. PROPOSED WORK

In this section, we discuss the technical details of our proposed solution. This description aims to help students, researchers, and Android developers to understand in deep the developing steps of our proposed product. In the following, in the first sub section, we have explained our design steps which include the System Requirement Specification (SRS), use case diagram, Activity diagram, and flowchart of user interface. In the second subsection, we have presented some screen shots of our product during its run time.

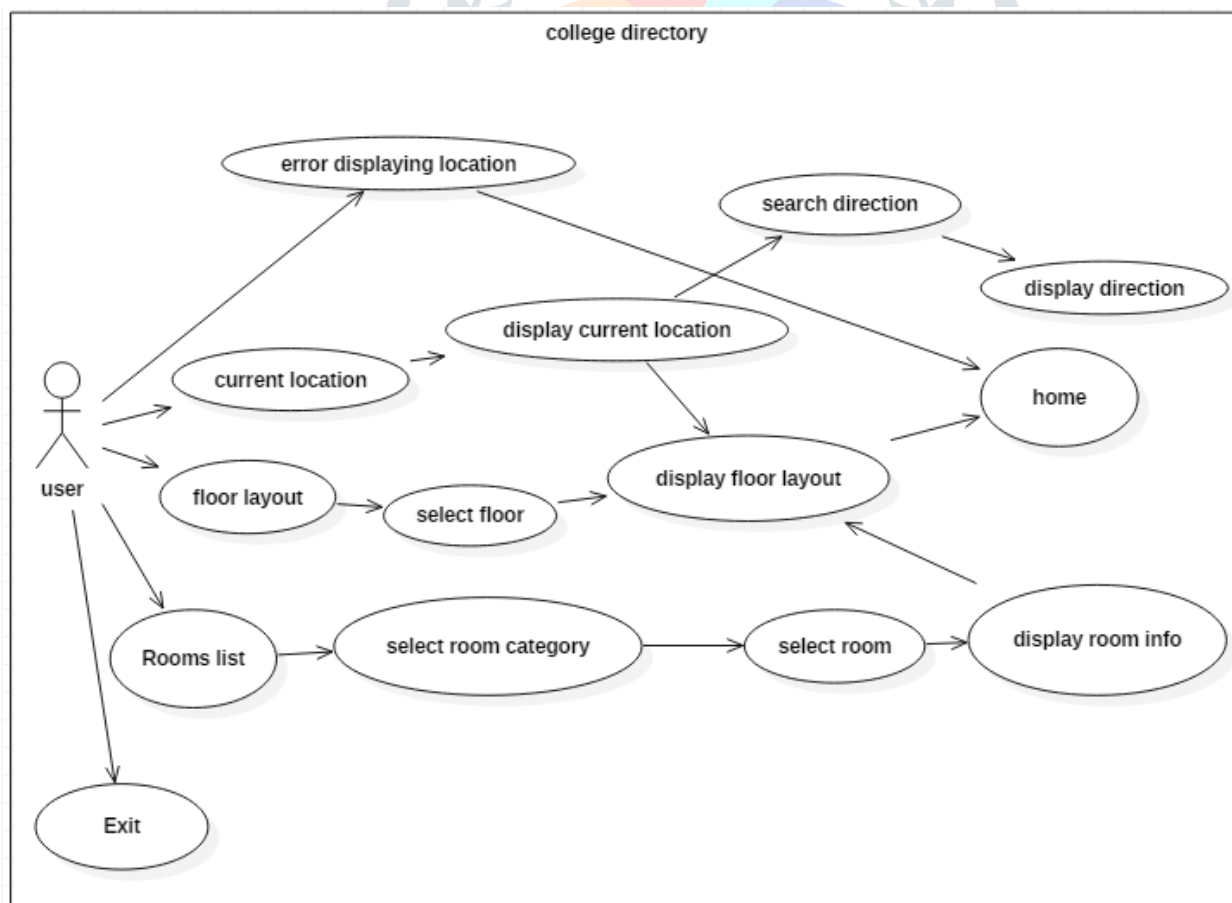| No	Requirement	Use Case
1	To locate user's current location	Current Location
2	To display user's current location information	Display Current Location
3	To display error when couldn't locate location	Error Displaying Locations
4	To provide a search function for user to search for direction to another location	Search Direction
5	To display user's desired location direction	Display Direction
6	To provide user the floor plans of the building	Floor Layout
7	To provide the list of floor layout for user to select	Select Floor
8	To display the selected floor layout by the user	Display Floor Layout
9	To provide user all the stores information in the building	Store List
10	To provide the list of store categories for user to select	Select Category
11	To display the list of stores under the selected	Select Store
12	To display the selected store information	Display Store Information
13	To display the first interface of the application	Home
14	To end application	Exit

Use Case Diagram:

Figure no: 1

A use case diagram is to get the requirements of the system by displaying the communications between with users and other stakeholders and show them what the system is intended to do. Figure 1 shows the use case diagram of our proposed mobile application. There are 14 use cases all of them work together to satisfy the SRS.
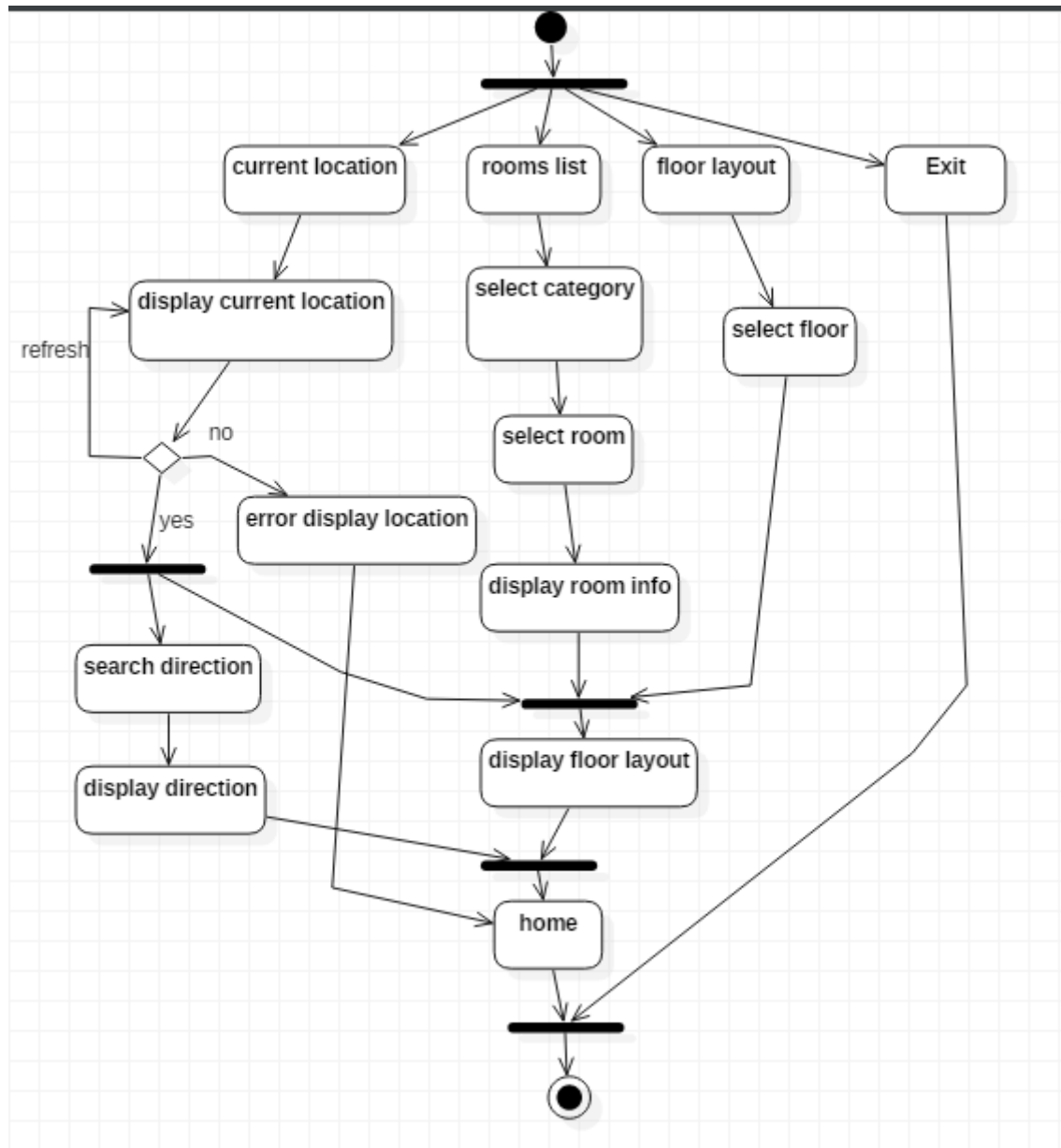
Activity diagram:

Figure no: 2

Activity diagram is used to show the sequence of activities that takes place while execcuting the project. It shows the workflow from a starting point to the finishing point and detailing of the many decisions paths, that exist in the advancement to Future progress of events contained in the activity. Figure 2 shows the activity diagram of our proposed mobile application.

IV.   CONCLUSION:

As the saying goes, "Time is gold". The Android Location-based College Indoor Directory: Mobile Application will assist new students once they step into the college. Instead of having to waste their time and energy moving physically through the college, with this sophisticated but user-friendly mobile application, it will help enhance their experience in the college building.

Moreover, this mobile application provides students their current locations, directions, floor plans and class room's information. Students will also get detailed direction statement from their location to where they choose to go with this mobile application's search functionality.Besides that, this application can help those who have no sense of direction to locate the room that they desire to go. Our college directory is the application that satisfies the five main functions, i.e., class room details, search by name categories, floor plans, directions, and current location.This is because all the information can be obtained from this application without having to search for the directory board in the college building. Hence, we hope that this project can be continued in future to give more benefits to the other vast colleges.

References:

[1] F.Jordan, "Industry watch: Shopping mall" in the International Business and Economic Journal, 2012.

[2] P.Vijaya, Prasad, N. Fadzlina, M. Saadi, A.O. Elfaki, and B. Saadi, "Shopping Mall Directory: A Detailed-Guide Application for Android Based Mobile Devices" in ARPN Journal of Systems and Software, vol.3, no.6, October 2013.

[3] Pallavi S. Bangare , "The Campus Navigator: An Android mobile Application". International Journal of Advanced research in Computer Engineering, Volume 3, Issue-3, March 2014.

[4] Wikipedia "Android application and Android System" "Mobile Application".

[5] Prof.Vandana Navale, "Mobile Application for Shopping Mall Directory". Volume 3, issue-9 September 2016.