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Campus Commune Navigation System

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Abstract: ***The project is aimed at developing a campus commune navigation system that will help in guiding the people new to our college campus or any college for that matter. An android application is prepared with tabs for several departments present inside our college premises and the person new to the college just has to click on his/her desired destination that will then open the camera of that particular mobile phone and through the use of augmented reality an arrow (3D object) will be displayed in front of his screen that will help the person to navigate to his/her desired destination more efficiently.***

Keywords: Navigation, Application, Android, College, 3d Object, Path.

INTRODUCTION

In the field of technology is the use of augmented reality and navigation systems. The concept of augmented. In the era of digital world there is a constant requirement of new and innovative technologies. This has constantly led to new advancements in the field of computer technology. One of the major advancements realities has a very wide scope and this led our team to think upon the new possibilities and innovations we can provide to the people and the masses. We thought of creating a navigation system that will help a person entering a campus with proper navigation using the concepts of augmented reality and Global Positioning System (GPS) to provide them with accurate navigational path to the people.

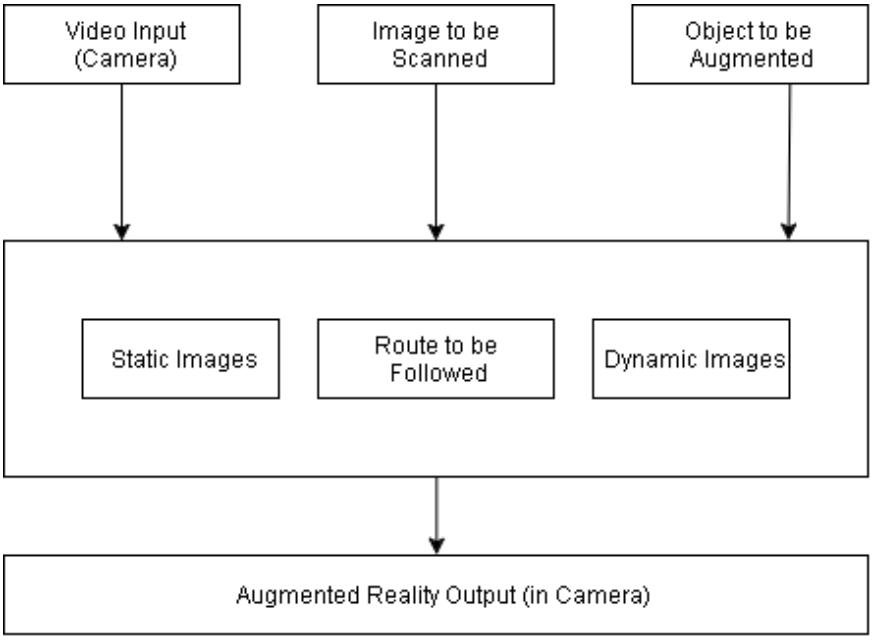

Figure 1: Working of the Proposed System

MATERIALS AND METHODS

Campus Commune Navigation System is designed by our team to serve the people with a proper navigation system to a location where they wants to go inside a college campus. Campus Commune Navigation System is developed by working on the three basic and important components which includes:

1 .Location of the persons entering our college premises is set to the administrative department present inside our college campus.
2. Providing the person with the list of names of every department present inside our college premises.
3. Providing a person with a real-time view of the surroundings of a college so that he/she can be guided to the desired location by following the navigation path.

Location of the person entering our college premises is set to the administrative department present inside our college campus. This was the first basic step for our team as when a person enters in the college premises we assumed that he/she does not have any information regarding the college premises and the path to be followed to go to a particular location. For this purpose an android application was designed which contains of a map for showing the current location of the person. By using our system's android application a person can know where he/she currently is. Providing the person with the list of names of every department present inside our college premises. After entering in a college campus the respective person should open our provided android application which consists of various tabs. These tabs consist of the destinations present inside our college campus. The person simply has to click on a destination that he/she wants to navigate to and then the camera of their respective phone will open up in order to provide a path to their selected destination. Providing the person with the real-time view of the surroundings of the college. Our System's android application consists of all the names of the respective departments which are provided with the means of tabs. So after selecting or by clicking on that button which consists of a name of a particular location, a person will get a real-time view of all the objects near him/her as the application will open a mobile camera directly, for this purpose two applications are linked to each other. Now the next step was to add navigation in this process. Our team created a database which contains the images of the following paths of all the locations inside a college campus. The Images were clicked from every angle so that the navigation can be done from each and every single point where a person is currently standing on. A 3-dimensional ARROW object is designed to guide a person to follow the respective paths and our team augmented this 3-dimensional navigational object to all the images. As the matching of the images will occur this 3-dimensional navigational object will appear on a mobile screen and will change its direction with respect to all the angles of a real-time view of a following path. This will provide a real-time navigation to a person to his/her desired destination.

RESULTS AND DISCUSSION

The software packages used for implementing the system are as follows:

- Android SDK 19
- Android version 2.2(min)
- Indoor plan
- Unity Software
-Vuforia for data base

In the system the user has the android application installed on his smart phone. The user opens the application to choose a destination inside the college. The user then uses the camera services through the app which fetches the images from the database and matches them to the images which are currently being scanned by the camera. The location of the user is processed and an arrow pops up which will act as a navigation object.

Android Software Development Kit which is an open source development kit was used to develop the main application named as YCCENS. The application contains all the destinations that the person entering the college wants to reach to. The destinations are various departments in the college such as Computer Technology, Admin, Electrical, Mechanical, Civil, and Information Technology and so on. XML was used to develop the buttons for the corresponding destinations and Java for their respective on click listening events. Google map has been provided for the person to check his current position inside the college. To check the current position, a button has been provided to which on clicking, immediately marks the current position of the person. Here are some of the pictures of the developed application.

Figure 2: Camera shows the Augmented object for Electronics Building

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