International Journal of Engineering Research-Online
A Peer Reviewed International Journal
Articles available online http://www.ijoer.in; editorijoer@gmail.com

Vol.5., Issue.2, 2017
March-April

RESEARCH ARTICLE

ISSN: 2321-7758

MAP APPLICATION USING AUGMENTED REALITY FOR SMART PHONES

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ABSTRACT
Global positioning system (GPS) finds nearby doctors like ATM, Bank, Cafe, Bus Stop, Restaurant, Hotel, Movie Theatre, etc. using Location and compass Sensors. The Location Sensor hardware can determine the phone's latitude and longitude as well as place name. This application can use in emergency case; we are able to find location of nearby place and place details. The application allows you to set radius and it also supports Augmented Reality (AR). It automatically finds your current location and plots it on a map. Augmented reality (AR) is a live direct or indirect view of a physical, real-world environment whose elements are augmented (or supplemented) by computer-generated sensory input such as sound, video, graphics or GPS data.

KEYWORD: Accelerometer, Mobile augmented reality; Compass sensor; Global positioning system; Camera; Touchpad

I. INTRODUCTION

The technological advances have a direct effect on our life and on our behavioral manner. The Augmented reality moves from the industrial niches to mass technology . It can be defined as an emergent form of practice, through which the real world is improved through computer generated content that is connected to particular places and/or events. In other words, AR permits the digital content to be effortlessly superimposed and inter-mingled into our insights and conception of the real world .Augmented reality can be described as one of the technologies that can develop a "next generation, reality- based interface" .Also, it is distinguished by promotion from just being in test centers around the world to being used in different fields and consumer markets. Nowadays with the emergence and diffusion of the smart phones and AR browsers, we begin to accept this different and exciting type of human-computer communication. In spite of the fact that AR has gained much more re- search interest and attention recently, various meanings are attached to the term AR by researchers. Besides, AR could be developed through using and involving different inventive technologies (for instance, body-borne computers, mobile phones, and immersive technologies). During the last years, the AR applications have turned out to be transportable and broadly accessible on mobile phones. Also, the AR has become one of our audio-visual media (for instance, news, means of entertainment and sports). In addition , it is being used recently in many fields such as electronic commerce, tourism and pro- motion. Besides, it has turned to be a very significant part of the Virtual Reality (VR) domain. The AR enjoys clear advantages in comparison to the traditional VR. One of the key advantages gained by AR is having a better sense

and interaction of reality whereas it lays emphasis on the organic integration of virtual environment and the real world. *Augmented Reality* (AR) is a variation of *Virtual Environments* (VE), or Virtual Reality as it is more commonly called. VE technologies completely immerse user inside a synthetic environment. While immersed, the user cannot see the real world around him. In contrast, AR allows the user to see the real world, with virtual objects superimposed upon or composited with the real world. Therefore, AR supplements reality, rather than completely replacing it. Ideally, it would appear to the user that the virtual and real objects.

II. AUGMENTED REALITY

Augmented reality (AR) can be defined as able to deal with the new information immediately direct or indirect therefore influence the physical real-world environment has been enhanced/ augmented were by adding virtual computer-generated information .Also, the AR is defined by Azuma in 1997. He indicates that the AR is not only restricted to the technical hardware whereas it brings the real and virtual items together in a real environment. In addition, it records the real and virtual objects together and then runs jointly in real time in three dimensions.

III. PROPOSED SYSTEM

The proposed system consists of various sensors for collaborating current location and places in augmented view. If the user select category and radius then it shows the places on camera of the smart phone.

IV. SYSTEM ARCHITECTURE

In our architecture Android client is the user. User select categories and radius and pass to AR. AR will then collaborate the camera & compass sensor of Android mobile to find the current location of the user and find the distance between user and place (object). Android client send the http request to the satellite through GPS system. Satellite will collect the latitude and longitude position of the user then it will send request to the Google server.

Google server will find the place in their database and the result found by Google server will send to the satellite in a JSON response, then satellite will response to the http request and will give location to the user.

Hence the various places will be plotted on the user smart phone in an Augmented view.

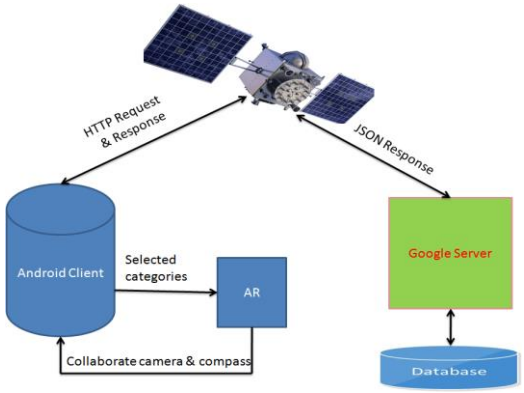

Fig. 1 System Architecture

In our System we have proposed 4 module which are listed as below:

A. UI Module :User interface module is the basic module of our System. In this module we have define the overall design of system . We have provided user with the various categories like ATM , Hospital etc in the dropdown list. We have also given the radius in meter for the user to select it form dropdown list. At the end we have provided with the submit Button. So that user will give the category and radius to the system .

B. Google Map Module: In this module we are going to show the current location of the user. This current location will be indicated by a blue dot or marker. We have to load this map using Google play services. Which can be downloaded from the SDK manager after fetching the current location we will show it on device of user

C. Search Place and Show on Map Module: In this accepting radius and category from user . we call a http service using the Google AIP key and send to user then will get response from Google server in the JSON format then we will parse the JSON object and add places on Google map obtain form Google . At last we will show it on map.

D. Augmented Reality Module

This is the main module of our system. This data obtain from parsed JSON object in form of latitude , longitude and name. This data will then be pass to the AR services. The AR services calculate the altitude using latitude and longitude, after calculating the altitude we have to calculate the distance from altitude . Last we have to plot the

object on camera with data(distance, latitude, longitude and name).

V. TOOLS

We use different tools for developing the system such as:

1. Eclipse: It is used as sever side.
2. Android
3. JDK version 1.7

VI. ALGORITHM

1. *GPS tracking Algorithm*: A GPS tracking is a device, normally carried by a moving person, that uses the Global Positioning System to determine and track its precise location, at intervals. The recorded location data can be it may be transmitted to a central location database, or Internet-connected computer, using a cellular (GPRS or SMS), radio, or satellite modem embedded in the unit. This allows the asset's location to be displayed against a map backdrop either in real time or when analyzing the track later, using GPS tracking software. Data tracking software is available for Smartphone with GPS capability.

VII. RESULTS

Fig.2

Fig.3

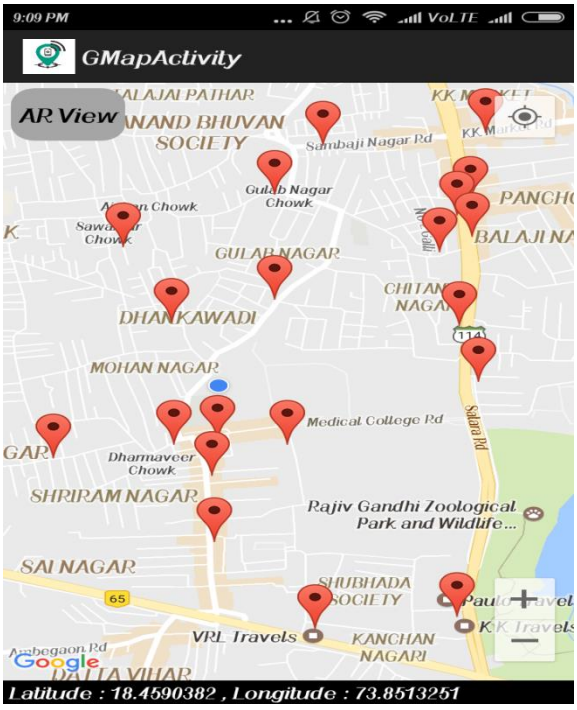

Fig 4

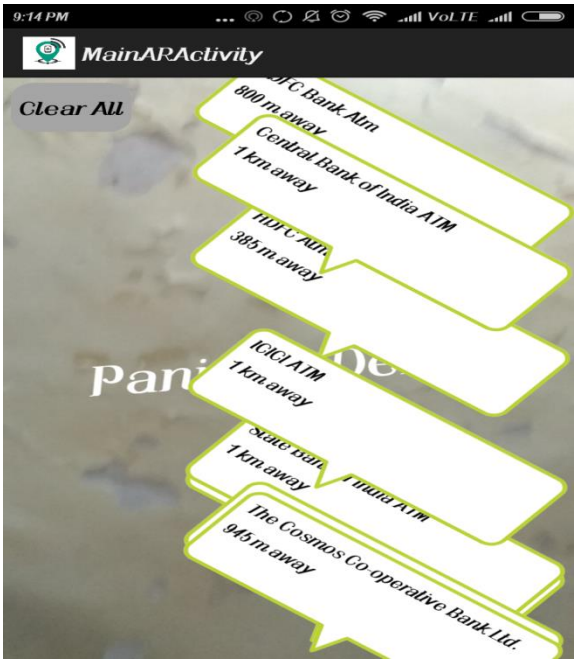

Fig.5

VII. CONCLUSION

This system overcomes the drawback of Google map to select the radius for various searches. Augmented reality enable us to combine the real world and the virtual world to obtain the map on our devices .Thus this app is useful for searching the places like ATM, hospital for the user in the specified range to an unknown location .It

also reduce the work of typing error as we provide the select option form the list .

This paper describes the architecture of the system. This project will help to user to find the address of place on unknown location.

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