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"Location Finder" using ArcGIS map in Android

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Abstract

Now a days the availability of smartphones are becoming very common to people. There are lots of applications developedfor smartphone devices. Applications with GIS facility for smartphone are growing day by day. The mobile application is developed in Android platform.For showing the maps and its related information using ArcGIS map. This paper gives idea about how to find the location. Two various forms of location Finding is provided. One is entering the address and searching and other is whenever map is clicked, it will check out the clicked location and retrieved the detail address and display the information in pop up window. This helps to search the area where we are and based on that information can be shared.

Keyword:Android, Arc GIS, Maps,Smartphone,Location, Searching, GIS

Introduction

In emerging technology paradigm, "Geographical Information System (GIS)" has emerged as powerful tool which has potential to organize complex spatial environment with tabular relationships. The emphasis is on developing digital spatial database, using the data sets derived from precise navigation and imaging satellites, aircrafts, digitization of maps and transactional databases. The power and potential of GIS is limited only by ones imagination. [1]

However to exploit the technology to benefit the planning process there is need to initiate aprocess for integration of data, based on Interoperable open standards, specifications & formats. The enormous demand for the storage, analysis and display of complex and voluminous data has led, in recentyears, to the use of Geographic Information Systems for effective data handling and also for analyzing and geographically transferring the information around the world. [1]

A GIS can be thought of as a system it digitally makes and "manipulates" spatial areas that may be jurisdictional, purpose, or application-oriented. [3] In a general sense, the term describes any information system that integrates stores, edits, analyzes, shares, and displays geographic information for informing decision making. GIS applications are tools that allow users to create interactive queries (user-created searches), analyze spatial information, edit data in maps, and present the results of all these operations.[4][5] Geographic information science is the science underlying geographic concepts, applications, and systems.[6]

GIS Can Do

Map Where Things Are

Mapping where things are lets you find places that have the features you're looking for and to see patterns.

Map Quantities

People map quantities to find places that meet their criteria and take action. A children's clothing company might want to find ZIP Codes with many young families with relatively high income. Public health officials might want to map the numbers of physicians per 1,000 people in each census tract to identify which areas are adequately served, and which are not.

Map Densities

A density map lets you measure the number of features using a uniform areal unit so you can clearly see the distribution. This is especially useful when mapping areas, such as census tracts or counties, which vary greatly in size. On maps showing the number of people per census tract, the larger tracts might have more people than smaller ones. But some smaller tracts might have more people per square mile—a higher density.

Find What's Inside

Use GIS to monitor what's happening and to take specific action by mapping what's inside a specific area. For example, a district attorney would

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monitor drug-related arrests to find out if an arrest is within 1,000 feet of a school—if so, stiffer penalties apply.

Find What's Nearby

GIS can help you find out what's occurring within a set distance of a feature by mapping what's nearby.

MapChange

Map the change in an area to anticipate future conditions, decide on a course of action, or to evaluate the results of an action or policy. By mapping where and how things move over a period of time, you can gain insight into how they behave. For example, a meteorologist might study the paths of hurricanes to predict where and when they might occur in the future.

Developed GIS System

A system is developed with the help of GIS for Android platform. Several times we came across a situation, we could not able to find the location where we are and there is no provision for finding the current location. The developed system provides the facility for finding the current location with its details with full address. For developing the system ArcGIS map is used in android application. Few settings and some coding is required for implementing the system. The main idea for the system is getting the current coordinates of user. Even user can also select another location and it will give the information regarding the location. Pre requisite for ArcGIS map API is also required for displaying map into the application. Apart from API requirement, few settings needs to be taken care while running the application on emulator. One needs to check Host GPU emulation on for the Android Virtual Device (AVD). It also requires Intel(R) Hardware Accelerated Execution Manager (HAXM), it is Intel(R) Virtualization Technology (VT) for faster Android Emulation. The Hardware Accelerated Execution Manager (HAXM) is a hardware-assisted virtualization engine (hypervisor) that uses Intel(R) Virtualization Technology (VT) to speed up Android development.

By default we have set our local address into the search bar. One can change the address as per the need. Figure 1 shows the main screen of the application where user can enter the addressed to search.

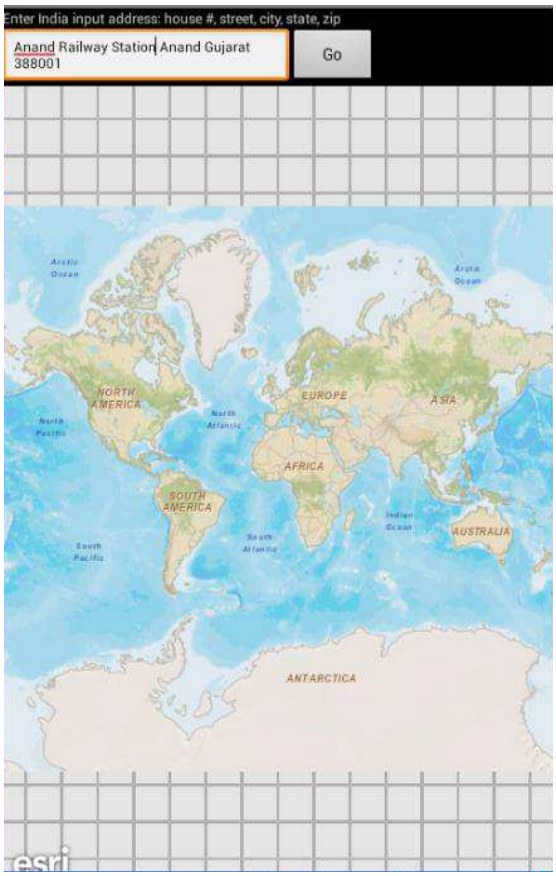

Figure 1 Main Screen

Figure 2 shows the process for searching the address.

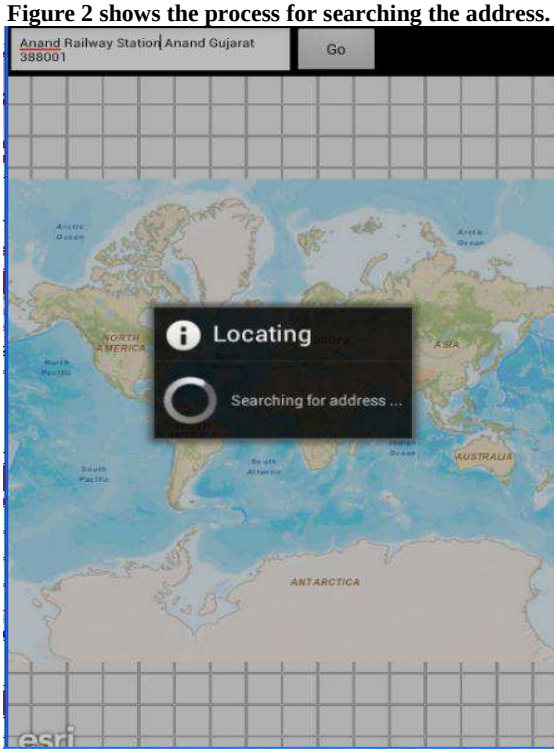

Figure 2 Searching Entered Location

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Once it finishes searching, it shows the point at the searched address and with zoomed to it. Figure 3 shows it. Once the icon is clicked it shows the detail address of the location, figure 4 shows it.

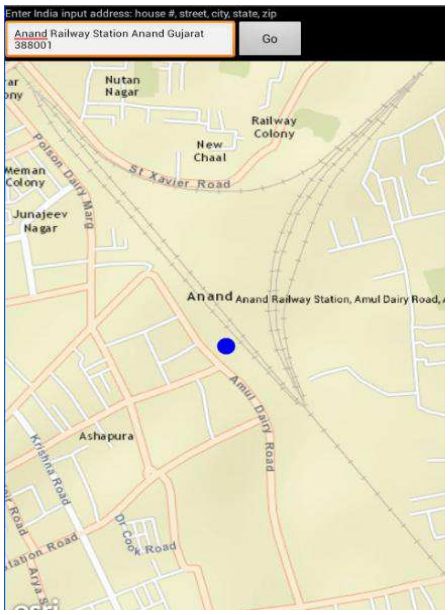

Figure 3 Show Point at Location

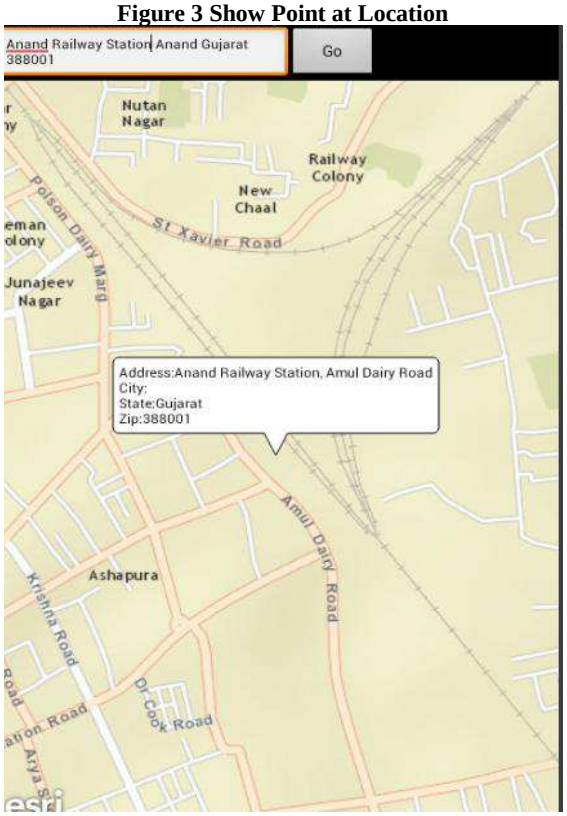

Figure 4 Show detail address

This is one of the ways for searching the location through application. This application also provides another way for searching. User can click on any area of map it searching the location and shows the details with address.

Benefits of GIS

GIS benefits organizations of all sizes and in almost every industry. There is a growing awareness of the economic and strategic value of GIS. The benefits of GIS generally fall into five basic categories: [2]

- Cost Savings and Increased Efficiency
- Better Decision Making
- Improved Communication
- Better Recordkeeping
- Managing Geographically

Conclusion

Overall this paper presents an application which uses ArcGIS map which finds the location either by providing the details or by clicking any area of map.

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