RESEARCH ARTICLE

GAPSS: GPS Aided Photo Search System

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Abstract- **Our project proposes a GAPSS (GPS Aided Photo Search System) to identify buildings through their photos captured by phone cameras. User need to take a picture of the building he or she wants to know with Android phone cameras and upload the picture to our system. The system returns name and information of the buildings on Google map. In the project we describe an image-based approach to finding location-based information from camera-equipped mobile devices. Our technique uses content-based image retrieval methods to search databases for matching images and their source pages to find relevant location-based information. In contrast to conventional approaches to location detection, our method can refer to distant locations and does not require any physical infrastructure beyond mobile internet service & simply a web service for information store. Also the Google API can be used to display navigation for the specified image - location on the Google maps.**

Keywords: Content based image retrieval, WWW search engine, meta-search engine, image search engine, GAP Search, Location based Services

1. Introduction

Location-based information services offer many promising applications for mobile computing. While there are many technologies for determining the precise location of a device, users are often interested in places that are not at their exact physical location.

In this paper, we present an image-location based approach for finding location-based information for the buildings through images. This is due to the growing popularity of camera-phones and the fact that taking a picture is a natural and intuitive gesture for recording a location. The key idea is that with a camera phone, users can point at things by taking images, send images wirelessly to a remote server, and retrieve useful information by matching the images to a multipurpose database such as a custom database.

According to the introduction of smart phone on wiki website, over 67 million people own smart phones in India and it is the fastest growing segment of the mobile phone market. Many phones have cameras and GPSs, which provide useful information for users to discover and navigate their environments. The information is usually in the form of image and latitude/longitude. However, in many cases, users may want meta information such as the names and introduction of the buildings around them. In this paper, we propose a system that combines network technologies and image retrieval algorithms to address this problem. A user uploads a building photo, and then our system can return its name and other introduction.

2. Literature Survey

Google achieves great success by moving its navigation applications, such as Google Map, to mobile phone. As tens of thousands people could afford mobile phones, how to locate in out-door with the help of computer vision and GPS technology becomes a new hot topic [5]. In, a hybrid image-and-keyword searching system, first, image is used to search through Web-Pages, and then keywords on these Web Pages are identified and submitted to existing text search engine, such as Google. In, a group from Microsoft Research Asia has conducted an experiment on Photo-to-Search system, which makes use of image retrieval[3][4] methods to locate around the world, gives an image retrieval system based on Content Based Image Retrieval methods.

The following are drawbacks of existing system:

1. Poor precision:
   List of retrieved documents contains a high percentage of irrelevant documents.

2. Poor recall
    Most web search engines consult databases of the most frequently used words in documents, such as words drawn from documents title and first few sentences hence they won't retrieve documents in which the keywords for which you are searching are buried somewhere within document. Many page authors send search engine numerous web pages containing various tricks like irrelevant title tag or repeating certain words in first few levels that are irrelevant to actual contents of the page, to boost the ratings. Though this seems to be matter of less concern but when attempted by many persons leads to very serious problem, it might lead to situation where not even one of the top ten sites listed would be of subject you like.

3. Poor quality
    Sites are randomly crawled and indexed for keywords by software. Not even the largest search engine can crawl the entire web, it is too vast. Results are not evaluated for quality

3. GAPSS architecture
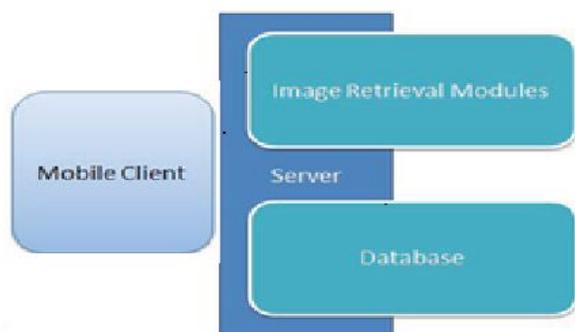
Our system is composed of three layers:
1 .The client
2. The server
3. The image retrieval component.

There is only one type of the client the mobile client which is based on Android mobile system. System administrators are able to sign into the system and manage all the building information, picture information, and user uploaded photos. As the mobile client, users only need to upload building photos to perform a search. Latitude and longitude are directly retrieved from GPS instruments [2].

The server is a conjunction of the client and the image retrieval component and has a database of the information and images of the buildings to be retrieved. Given an input image, the image retrieval component finds its nearest image in the database, which indicates the building this image belongs to. The image retrieval component contains the key algorithm of the whole system.[2]

4. **Proposed System**

Working:
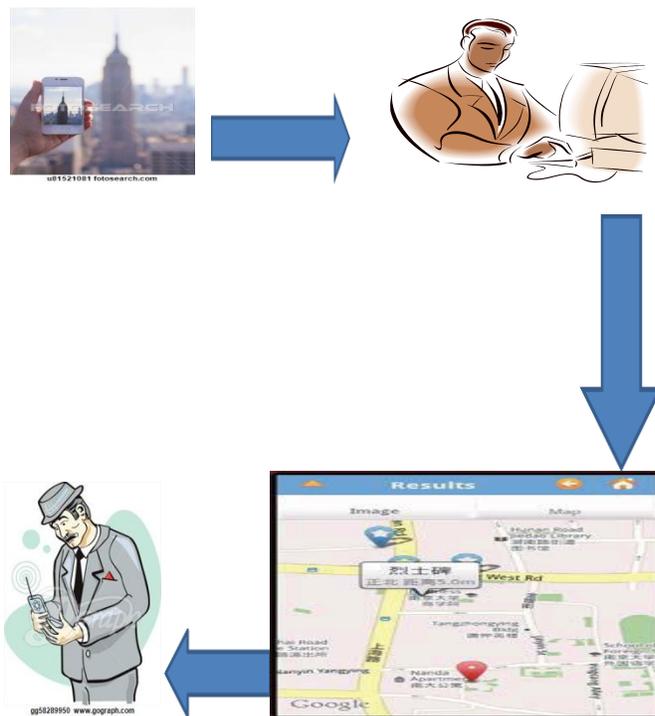
Our proposed system works on asp.net web service to make a database driven search engine which is presently the most powerful tool for website portals, etc. The system will have high-end GUI for the user interaction. The application will be a web technology based so that it can easily be integrated with the web and/or with GPRS mobiles. The client application will be developed in Android which is the most powerful & used OS for the smart phone devices. The mobile app will be used to capture images from user mobile phones & the location of the user which is then connected to the web service for image processing. The result from the web server is then sent displayed on the mobile application. This application uses "Android Location API" for implementing the Location based services on the device. And an effective Image processing technique is used on the server application for

fetching similarity based images. This project also helps in searching the information using input as image with the location which is the most important aspect that isn't implemented till today.

4.1 HARDWARE REQUIREMENTS:-

• 512 MB RAM.
• 80 GB HDD.
• Intel 1.66 GHz Processor Pentium 4
• GPRS enabled Mobile Phone with Android.

4.2 SOFTWARE REQUIREMENTS:-

• Windows XP Service Pack 2
• Visual Studio 2008
• MS SQL Server 2005
• SDK for Android
• Windows Operating System

5. Conclusion

Thus we introduce a system using mobile camera, GPS information and PC server to search and recognize buildings without typing any words our system provides an attracting and easy way to know about the world using images captured by mobile cameras and provide information about places and buildings.

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