

Android App Based Tourist Guide

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Abstract - In a society undergoing rapid changes, future museums will contribute to human culture by means of smart-phone technology that promotes active interaction with the public. As the electronic techniques advance, computing machines have been miniaturized and smart phones are equipped with powerful processors, large memories, sensor, Bluetooth and WiFi connectivity. Since android based smart phone is a personal belonging, it is an excellent candidate device on which a context-aware service is provided. This paper introduces our Android application that recognizes the tourist place in which a user is interested and displays useful information like historical importance in the form of text, photo gallery and video clips. The goal of proposed work is to provide correct and easy information to the tourist, to make tourism attractive.

Index Terms: Android app, WiFi, Smart phones, Server and Client

I. INTRODUCTION

Tourism plays an important role in the economies of many countries. Tourism can secure employment, foreign exchange earnings, investment and regional development. Travel or museum guides are the most common and long-standing approach to make the experience better of site visits. Talented guide can hold the public by their interesting stories and make the tour memorable. But sometimes guides are offered only at certain times and for the groups of visitors. The general problem with traditional guides are priced, demanding and may come with linguistic barriers. Above all there is no certification for them, so we can't trust them completely on the information provided by them. Our system is going to replace manual guide by electronic-guide which can provide historical importance in the form of video clips, specification, and photo gallery of special places. The goal of proposed work is to provide correct and easy information to the tourist, to make tourism attractive. E-guide is a tool for tourist to browse background information for deeper understanding of any exhibition, museum or tourist place.

As a smart phone is equipped with a computer and various useful applications running on it have been developed. Since a smart phone is one of the most common personal belongings, it is one of the most appropriate devices which can provide location based services. Among

the most popular mobile operating systems Android is most attractive because it is easiest to access and to start developing an app running on it. In proposed work android app is developed in a way that, it will provide all kind of information related to tourist point or showcase of museum. As smart phones are equipped with WiFi facility, accessing the information from WiFi point is very easy.

II. RELATED WORK

There are number of research papers are published that are similar to ours. For example [1] introduced a mobile application that recognizes the structure in which user is interested displays useful information about the structure and plays a video that is closely related to the structure. This system is implemented in campus which is consists of server and clients. The main features of the client include determining the current location of the building and the user is watching and playing the video which is closely related to the building. In order to realize the client's features, the server consists of many components including the streaming server and a database server. The streaming server takes charge of delivering video content to the client whereas the database server takes charge of storing and retrieving information of the videos. When a new video is obtained and stored at the archive the path of the video file will be stored in the database.

In [2], a mobile education application, which displays educational contents relevant to the object in the photo when child in a museum or a park takes a picture with a smart phone, is introduced.

[3] Introduces design of the recommendation showcases of their Museum Guide in detail. Their Android app actively recommends showcases that the user most likely wants to visit. It is the first indoor-location-based, context-aware, and video-on-demand Smartphone app. The indoor positioning process implemented in this research is not accurate enough to pin point where the user is.

[4] Introduce 'Unified App' which can be provided to those visitors, they can select the appropriate museum by considering the purpose and preference. Furthermore, they

can find the information of the trial programs of places, times, fees, contents, routes on the map, etc.

According to [5] they reported on an ongoing project with the aim of developing an electronic tour guide for museums based on a self-contained, inexpensive PDA that delivers a fully interactive 3D Augmented Reality (AR) to a group of visitors. Previously, it was believed that AR is technically too difficult to render services for museum users. Clearly, regular PCs or notebooks are not feasible for everyday use, and PDAs were believed to be not powerful enough.

III. PROPOSED WORK

As the electronic techniques advance, computing machines have been miniaturized and smart phones are equipped with powerful processors and large memories. In the consequence, various services become available on smart phones. Since a smart phone is a personal belonging, it is an excellent candidate device on which a context aware service is provided. As an example context aware service on smart phones, we have picked the tourist guide and we are introducing our implementation of it in this paper.

Target place consists of the servers and the clients. Main feature of client is to identify correct location of user. The server consists of many components including the streaming server and a database server. Numbers of servers are depending upon numbers of tourist points. Server represents tourist point. The streaming server takes charge of delivering video content, images and any other relevant information to the client whereas the database server takes charge of storing and retrieving information.

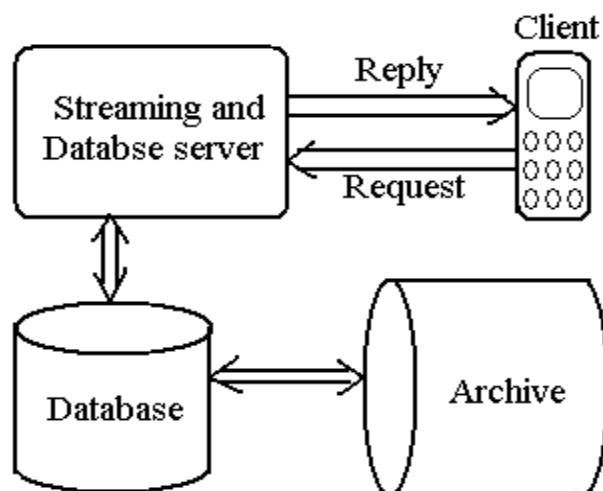


Fig 1. Main component of our system

Since the informative files are stored in an archive, our system should be a kind of client-server system as shown in Figure 1. In the server, in addition to a database

server, we need a streaming server which takes charge of controlling and delivering media. There are quite a few free streaming servers and implementing a streaming server is quite easy.

The service scenario of our electronic guide is summarized as follows:

- 1) Application is provided to user from right authority.
- 2) When user installs this application, application takes user's personal information and saves it in the database.
- 3) As application is designed in such way that, once user opens the App, it searches nearest WiFi enabled server device. Nearest WiFi enabled servers will be displayed on the screen.
- 4) Once user selects this server, user gets connected to that server. Now, new options will be displayed on screen. These options are provided by server which represents tourist point or museum showcase.
- 5) User can select given multimedia options like videos, photos, historical text description relevant to the object.
- 6) When user move to the another WiFi zone area, previous WiFi connection gets disconnected automatically. User will be asked for establishing new WiFi connection. After selecting new connection, it goes back to the 4th step.

The proposed system consists of a streaming server, database server and an Android application (client) as shown in Figure 1. A user specifies the video he/she wants to watch on the user interface of the application. Then, the database server searches for the file that matches the requested information and sends back the file path with the URL of the streaming server to the mobile client. If the mobile application accesses the streaming server then the streaming server streams out the data to the client. The media player at the client saves and plays the video as it receives the video stream.

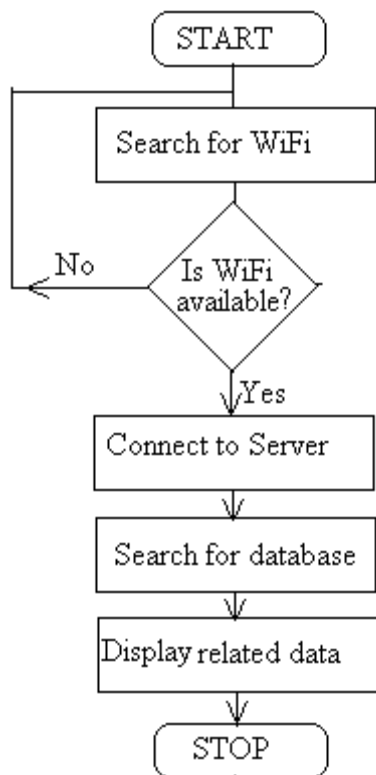


Fig 2. Process of application

It is highly impossible to store entire information of all the tourist point in a application. Therefore information of tourist points is stored onto the server of respective tourist point. When user connects to the WiFi device which is acting as server of that tourist point, application running on to the smart phone access the data from the server. As speed of WiFi connection is high. Huge data can be accessed within few seconds. Data accessed by smart phone is information related to the tourist point. All the data gets erased after closing the application by user.

Apart from regular services, visitor may require secondary services like, information about medical facilities, transportation facilities, food facilities and respective contact numbers. Such information can be displayed on to smart phone. So that user will roam independently.

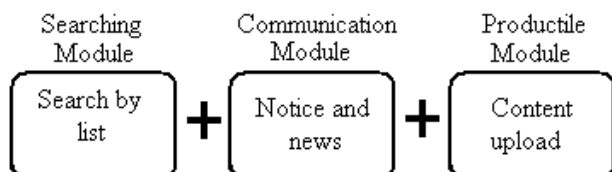


Fig 3. Modules of specially designed app

To increase the effectiveness of this specially design App, it is desirable to have a 'searching module', 'communication

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module', and 'producing module.' Users use the search module to find the appropriate museum or tourist place and contents. By using the communication module, users can obtain news and information, and give feedback. Authorized person can updates any information at server side, irrespective of any updates at client side. Numbers of server is depending upon number of tourist points. All servers are working independently so that there need not to be inter server communication.

A. Search Module

It arranges a list of museums or tourist points in an alphabetical order, or groups museums by similar exhibition. It provides recommendations regarding the visitor's age as well. It is desirable under the circumstance that a destination is already decided, further information is needed, or a visitor's preference and standard is clear.

B. Communication Module

Visitors can obtain information before or after visiting, and have an active attitude toward the exhibition using the communication module. Before visiting, visitors check related news and announcements, on visiting time, they use further detail information, and after visiting they use this module as a tool for exchanging opinions.

C. Producing Module

The producing module helps curators to easily produce contents and upload new information, and therefore increases the effectiveness of the app. It was difficult to edit contents because the previous producing method requires the programmer's assistance. Using the producing module, however, minor museums can update contents without additional cost.

IV. CONCLUSION

In this paper, we demonstrated how a smart phone is used as authentic electronic guide. Visitor gets 100% authenticated and pure information that increase the scope of researcher as well as bring the cultural and historical importance of many places in the front of the world with very attractive way. It will make the tourism very interactive. This system is also effective. Secondary services like medical assistance, security system, accommodation facility, transport facility and important contact numbers can be incorporated in the android app, which will make the system full proof.

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