

FUTURE MOBILE CRM IN TOURIST AREA

(ANDROID APP: PENUMBRA)

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ABSTRACT

This paper describes parts of a research project that focused Future Mobile Customer Relationship in the tourism. Therefore, the paper deals with the possibilities and aspects to support CRM via future mobile services. The key profiles of future mobile communication are Interactive Broadband Protocols, Location Based Services and Individualized/Personalized Services – mainly based on Multimedia-Information.

1. INTRODUCTION

Aim of this project is to deal with finding nearest hotels according to GPS location, tourist attractions, optimal path finding for tourist attraction by Google Maps API. This project also helps the tourist to lodge a complaint against the Tourist Guide's, Rented Vehicle Drivers for diverting the tourist and charging him unfair tariff. It also provides you emergency numbers of fire, Ambulance, poison control and police according to GPS location finding out emergency numbers for the Binghamton city. In addition to all this feature holiday calendar and events list of a city is also provided in this application. This project Guides & Calculates optimal path from source to destination and the Fare for the Rented Vehicle by considering the different parameters such as Type of vehicle, the route traveled and total time for the journey. Our proposing system consists of six states. This project Guides for Hotels, Tourist attractions and optimal path from source to destination, lodge complaint against driver regarding rash driving, list of Emergency numbers, Holidays calendar, Events list and Open Maps.

I. System Initialization: System gets initialized and detects the current position of the mobile handset of user. There is a small registration form you have to fill that small form as a user. Once you filled the form you can log in to the android application.

II. Listing Tourist Attractions: The source is detected using the current GPS location and the user is able to see the tourist places and attractions of that particular place/city.

III. Optimal Path Tracking: User enters the destination, and then the system start determining the optimal paths and sorting by approximate time, distance and fare.

IV. Emergency Numbers: Once user has selected the path, the system will track the path and provide the emergency numbers of police, ambulance and fire brigade according to GPS location. If path is deviated from optimal path, then it will alert user reminding about the divergence. In addition, Google maps in application also navigate it to nearest police station or hospitals. Based on the GPS location the emergency numbers will be fetched to help the tourist in emergency.

V. Lodge Complaint: If driver is not agreed with the fare calculated by the system and asking for more Fare, user has the facility to lodge the complaint against the driver. The passenger can fill a small form having the details about him, the driver and

his vehicle and the complaint he has against the driver. After filling all these information the user can upload this information to the central database and can send to higher authorities.

VI. Events list: The Tourist also can see the number of events which held on city. The application tracks the location of the user and fetch number of events which includes musical events, opera events, drama or discussion events to user.

VII. Holidays Calendar: This is one of the best feature in this application. The holiday calendar displays holiday information of a particular country. So It is convenient for the user to travel and do work.

VIII. Hotel and Accommodation Guide: When tourist visit to any city or country the main priority of tourist is accommodation. So we are going to provide the nearest hotels and guest houses for tourist and their related information like contact no, address. We are also providing navigation system so that if tourist decide any hotel then he can have reached to that hotel by navigation.

1.2 EXISTING SYSTEM

There are number of android applications for tourists available on App store and Play store like TripAdvisor, Touristeye, Airbnb etc. These all applications provides you bunch of features for Hotels bookings, Flights booking or information about tourist attractions. But none of the applications are not providing the feature that which are going to provide in penumbra android application. While today's cell phones are winding up noticeably more canny, contrasted and PC, regardless they have the accompanying confinements like little screen and modest console, constrained CPU limit, constrained memory space, moderate and erratic Internet association. Numerous mobiles of late decades have travel manage application. Be that as it may, the application on these mobiles works ease back because of proceeds with procurement of the data transmission. Accordingly, the versatile end-client's operation is extremely troublesome, what's more, the substance show on the screen of cell phone is constrained

2. SOLUTION ASPECTS

The review of consumer loyalty's is the most applicable component for the breakdown or the accomplishment of an organization. Realities, for example:

- One unsatisfied customer affects up to ten different customers.
- 60 % – 80 % of all choices to purchase a specific item depend on the way that the organization offers the better administration/customer bolster.
- One fulfilled customer decidedly impacts up to three other potential customers.
- In the long haul, five percent of the customers who have a positive picture of an organization can bring about between 25 % and 85 % new turnover.

Accordingly, organizations search for capable and creative

answers for bolster Customer Relationship Management by means of individual contacts as well as more in view of the possibilities offered by the web and versatile correspondence.

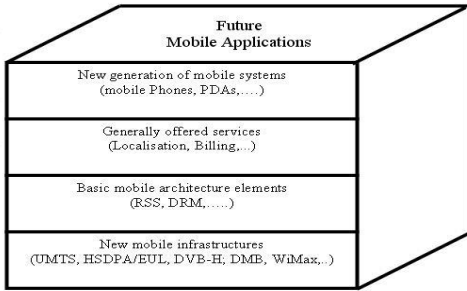


Fig.1 Four level model for future mobile communication

2.1 Project Scope

- I. Detecting the GPS location of the User.
- II. Listing of tourist places according to GPS location with navigation system
- III. Calculating the optimal path with distance and time to travel.
- IV. Tracking the path and alerting the user if any divergence is occurred.
- V. Hotel accommodation details with address, contact no and navigation system
- VI. Lodge a complaint against transportation facility
- VII. Listing of the emergency numbers for the city.
- VIII. Open Maps

3. DESIGN

In this part of the project, we are going to provide design and the connection between front end and the middleware development with database connectivity using JDBC and connection. So when tourist is going to use the application it can fetch the information like hotels, tourist attractions, emergency numbers, events list etc. from server.

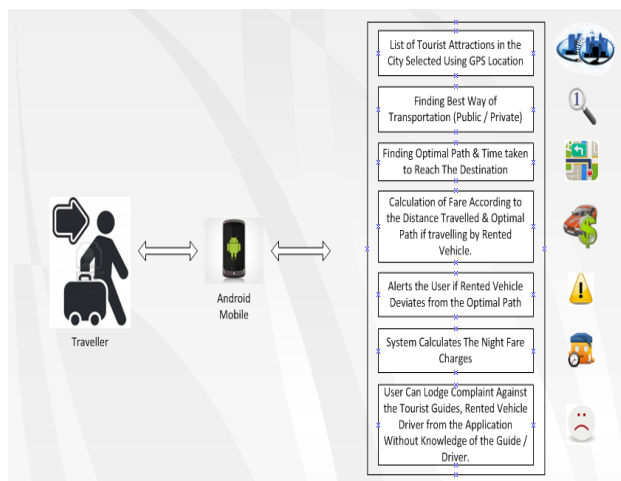


Fig.2 Features of Penumbra Android Application

3.1 Design Constraints

I. Software Fault Tolerance - If we cannot avoid a failure, then we must constrain the software design so that the system can recover in an orderly way. Each software process or object class should provide special code that recovers when triggered.

II. Limit Module Size and Initialize Memory - The optimum module size for the fewest defects is between 300 to 500 instructions. Smaller modules lead to too many interfaces and larger ones are too big for the designer to handle. Structural problems creep into large modules.

III. Reuse Unchanged - A study of 3000 reused modules showed that changes of as little as 10 percent led to substantial rework--as much as 60 percent--in the reused module. It is difficult for anyone unfamiliar with a module to alter it and this often leads to redoing the software rather than reusing it. For that reason, it is best to reuse tested, error-free modules.

4. IMPLEMENTATION

The Implementation of this framework contains four level model engineering comprise of another era of portable frameworks, by and largely offered administrations, essential versatile design components, new portable structures. To begin with, layer gives the connection between the end-clients and the framework. The portable end-clients, as a rule, connect with Middleware and front end UI through the android application. The second layer is an essential layer of the framework. It manages information and administrations from the information sources layer, what's more, the versatile end-clients. which is the capacity to convey the outcome to the portable application by the Wireless Application Protocol (WAP). The third layer gives information, substance, and administrations which are given by open web APIs which are given by Google API and databases. The APIs of Google Maps is the most generally utilized for the route from source to goal. The most prevalent conventions utilized by the APIs are REST (Representational State Transfer), SOAP (Simple Object Access Protocol). Accordingly, we pick Google Maps API and other notice API. The server speaks with the database in light of APIs by REST.

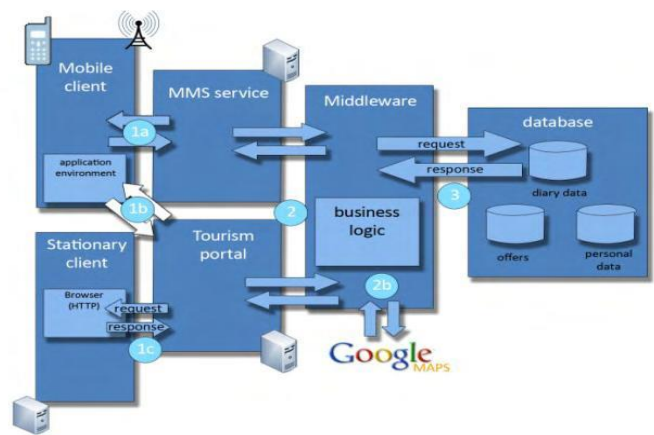


Fig.3 Implementation details and working of application through mobile network.

4.1 Implementation Constraints

I. Compatibility- The software can operate with other products that are designed for interoperability with another product. For example, a piece of software may be backward-compatible with an older version of itself.

II. Extensibility- New capabilities can be added to the software without major changes to the underlying architecture.

III. Maintainability- The software can be restored to a specified condition within a specified period. For example, antivirus software may include the ability to periodically receive virus definition updates to maintain the software's effectiveness.

IV. Reliability- The software can perform a required function under stated conditions for a specified period of time.

V. Security- The software can withstand hostile acts and influences.

5. SYSTEM REQUIREMENTS AND FEATURES

5.1 Dependencies:

I. Speed of the data transfer may vary depending on processing speed.

II. Accuracy depends upon GPS device.

III. More the accuracy of GPS more will be accuracy of application program.

IV. Availability of network.

5.2 System Features

Generic application program:

I. The system makes CRM application with Server and user as Client.

II. All software products should incorporate accessibility features efficiently.

III. MLMC is mobile based application so the admin is interacting with the LAN server which is a network. This web page follows the client-server architecture.

Non-Functional Requirement:

I. Secure access of confidential data (user's details).

II. High Scalability. The solution should be able to accommodate high number of customers and brokers. Both may be geographically distributed

III. Flexible service based architecture will be highly desirable for future extension

Performance Requirements

I. High Speed: System should process voice messages in parallel for various users to give quick response then system must wait for process.

II. Safety Requirements: The data safety must be ensured by arranging for a secure and reliable transmission media. The source and destination information must be entered correctly to avoid any misuse or malfunctioning.

Security Requirements

Secure access of confidential data (user's details). Information security means protecting information and information systems from unauthorized access, use, disclosure, disruption, modification or destruction. These fields are interrelated often and share the common goals of protecting the confidentiality, integrity and availability of information; however, there are some subtle differences between them. User password must be stored in encrypted form for the security reason. All the user details shall be accessible to only high authority persons. Access will be controlled with usernames and passwords.

6. ADVANTAGES AND DISADVANTAGES

6.1 Advantages:

I. Extensibility: Extensibility allows new component to the system, replaces the existing once. This is done without affecting those components those are in their original place.

II. Compatibility: Compatibility is the measure with which user can extend the one type of application with another. The presentation tool is compatible with any type of Operating system. Because of this its usability is highly flexible.

III. Serviceability: In software engineering and hardware engineering, serviceability also known as supportability, is one of the aspects (from IBM's RASU (Reliability, Availability, Serviceability, and Usability). It refers to the ability of technical support personnel to install, configure, and monitor computer products, identify exceptions or faults, debug or isolate faults to root cause analysis, and provide hardware or software maintenance in pursuit of solving a problem and restoring the product into service.

6.2 Disadvantages

I. Application will fail to perform its function ,If range problem is there.

II. There may be problem in mobile device,in that case app can not perform its function such as battery low, sudden switch off etc.

6. FUTURE IMPLEMENTATION

Moreover, it is possible to offer the voyager the chance to record area situated impressions he had amid his trek utilizing his portable journal and furthermore share his area points of interest on Messenger, Facebook, Instagram, and other web-based social networking. This area-based data can be brought together utilizing Google maps. Furthermore, he can call taxi benefits through an application like Uber. Additionally, the voyager can see admissions and most ideal method for transportation to the specific area. Presently different travelers have the likelihood to peruse this data and additionally to see pictures, recordings or sound remarks going to this area later.



In Fig.7 the corresponding system architecture for this kind of application is shown.

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