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LuminaCity: A new Approach for Smart City Tourism Guidance

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Abstract: With the proliferation of mobile computing applications that aim to improve everyday living, mobile phones have become an essential component of peoples' lives in the modern era. Location-dependent systems are emerging as important tools among these uses. An instance of note is the My City Information system, intended to provide an architectural structure and execution for a system based on location. In order to produce a functional prototype for a mobile city guide on the Android platform, this project looks into developing one. With the use of design science as the research methodology, the project's objective is achieved through the creation and implementation of the city guide artefact. Four primary aspects of the project are the platform evaluation, general functionality, scenario analysis, and non-functional considerations.

Keywords: Smart phones, Tourist guide systems, J2ME, Android, XML

I. INTRODUCTION

People's consumption patterns have improved noticeably and steadily in the current century. It's amazing how many more people are choosing tours as a form of entertainment and leisure. When it comes to the global economy, tourism is the most resilient and widespread sector, accounting for an estimated 11% of GDP (gross domestic product). The project's goal is to design and develop a tourist guide specifically tailored for Mysore, a city in Karnataka, India, catering to the needs of both domestic and international tourists. The current inadequacy of a reliable tourist guide has led to various challenges for visitors. Traditionally, tourists arriving in our country had to rely on professional tourist guides, incurring significant expenses for their services. However, this approach is often expensive for most tourists. Facts that are essential for making decisions, like temperature, elevation above sea level, meteorological conditions, historical dates, and significance, are frequently lacking. This project seeks to provide an affordable remedy to these problems. The tourist guide application can show maps of desired destinations, determine distances between two sites, and offer crucial details about tourist attractions by utilising Android-based smartphones. This free resource is easily accessible to travellers at any time and provides convenience

II. SCOPE AND LIMITATIONS OF APPLICATION

2.1 Scope

The scope of our project is mainly for the travellers of Mysore. Moreover, Mysore people particularly the new comers to the city can also use the application non for knowing the route and source to destination cost by different transportation medium. Currently our project is covering only this region, so only travellers who visit the Mysore city, can use the application to know every information related to famous destination, transportation, hotels, shopping malls and other related information of this region. 2.2 Limitations

We have identified a few areas that still require attention and are being given extra consideration after assessing our project. Our current repertoire of sentences lacks real-time interaction. Since language translation does not assist target users (foreigners) in real-time discussion, it may not have much relevance

for them. The fact that we are not using a GPS position tracker to monitor the user's present location is another problem. The software is restricted to a single city in our system.

III. CORE CONCEPT OF THE APPLICATION

In order to help visitors better understand tourism sites and make objective decisions, the programme seeks to produce detailed texts, photographs, maps, contact numbers, history of that place and other advice information. The inability of travellers to obtain timely travel information while they are on the go is demonstrated to be an issue. Our objective is to look into creating an Android application that is based on a mobile tourist guide system in order to address this problem.

IV. COMPONENTS OF THE APP

Find destination location.

- Find the approximate price for adults and children's. □ Main information about the city.
- Contact number and address for services.

4.1 TRAVELLER'S REQUIREMENTS

Even while the internet provides some general information about travel, it can occasionally be difficult for visitors to a country to adjust to their new surroundings. In essence, they have trouble connecting with one other and locating accurate routing data and related expenses for various routes.

4.2 SURVEY OF LITERATURE

We did a detailed literature analysis covering user requirements, software development, and tourist behaviour in order to gain a full understanding of the junction of tourism and technology. We also looked through project reports and articles that described earlier iterations of mobile tourism platforms. Two important things came from this review of previous research in the field: it gave us ideas for our survey and revealed user perceptions of different aspects of mobile tourism systems.

This literature review's double goal made it easier to build a theoretical framework for data collection and analysis.

- We are adding below table formatted survey of previous year papers

table 4.2.1 examining the influential components of tourists' intention to use travel apps: the importance–performance map analysis (2022)

Author name	Topic Name	Result	Advantage	Disadvantage
Pipatpong Fakfare and Noppadol Manosuthi are the authors affiliated with Bangkok University and Khon Kaen University	The title suggests that the article is focused on understanding the factors influencing tourists' intention to use travel apps. The "importance–performance map analysis" indicates a specific methodology or analytical approach used in the study.	The results of the study would likely provide information on the significant factors influencing tourists' intentions to use travel apps. This could include factors like user experience, features offered by the apps, perceived usefulness, or other relevant variables.	The advantages of the study may include insights into the key factors that influence tourists' intentions to use travel apps. This information could be valuable for app developers, marketers, and the tourism industry to enhance their understanding of user behavior.	They may have limitations such as sample size constraints, generalizability issues, or methodological limitations.

table 4.2.2 the mediating and moderating effects on the intention to use navigation apps (2022)

Author name	Topic Name	Result	Advantage	Disadvantage
Zhanjing Zeng, Po-Ju Chen, Xiao Xiao, Peixue Liu, Jie Zhang	The title suggests that the article is focused on understanding the factors that mediate and moderate the intention to use navigation apps. This may involve exploring the various influences, both direct and indirect, on individuals' decisions to use navigation apps.	The results of the study would likely provide information on the mediating and moderating factors that influence users' intentions to use navigation apps. This could include variables such as user experience, perceived ease of use, external factors affecting app use, or other relevant factors.	The advantages of the study may include shedding light on the complex relationships between different variables that affect users' intention to use navigation apps. Understanding mediating and moderating effects can provide more nuanced insights into the dynamics of user behavior.	It's challenging to specify the disadvantages. However, like any research, potential limitations may include sample size constraints, generalizability issues, or methodological limitations.

table 4.2.3 smart mobile tourism app featuring augmented reality and big data analytics: an empirical analysis using UTAUT2 and PCT models (2023)

Author name	Topic Name	Result	Advantage	Disadvantage
Phoebe Yueng-Hee Sia, Siti Salina Saidin, Yulita Hanum P. Iskandar	The title suggests that the article focuses on an empirical analysis of a smart mobile tourism app that incorporates augmented reality and big data analytics. The study likely employs UTAUT2 (Unified Theory of Acceptance and Use of Technology 2) and PCT (Perceived Characteristics of Technology) models to analyze user acceptance and adoption.	The results of the empirical analysis would likely present findings related to user acceptance and usage behavior of the smart mobile tourism app. This could include insights into the impact of augmented reality and big data analytics on users' perceptions and intentions to use such applications.	Use of smart mobile tourism apps with augmented reality and big data analytics. Understanding these factors is crucial for developers and marketers in the tourism industry to design effective and user-friendly applications.	Sample size constraints, generalizability issues, or methodological limitations. .

V. METHODOLOGY

- The proposed methodology for enhancing the LuminaCity mobile app involves a comprehensive approach that aims to improve user experience, security, and feature richness. The methodology encompasses the following key steps:
  - User Feedback and Needs Analysis
  - Usability Testing
  - Security Audit
  - Dynamic Dashboard Development
  - Real-Time Data Integration
  - Social Integration Features
  - Offline Functionality

fig 5.1.1

5.1 FLOWCHART

Flowchart for the City Finder application. Here a user inputs password and email. He is logged in if he has an account or registration is required for the further query. If he is not logged in for issues like the wrong password or email the application terminates. Or if he is logged in he is asked for his interests like Places, Parks, Hotels, Restaurants and Shops.Then using Dijkstra's algorithm shortest paths are selected and form a list of POIs according to user interests.

5.2 ARCHITECTURE

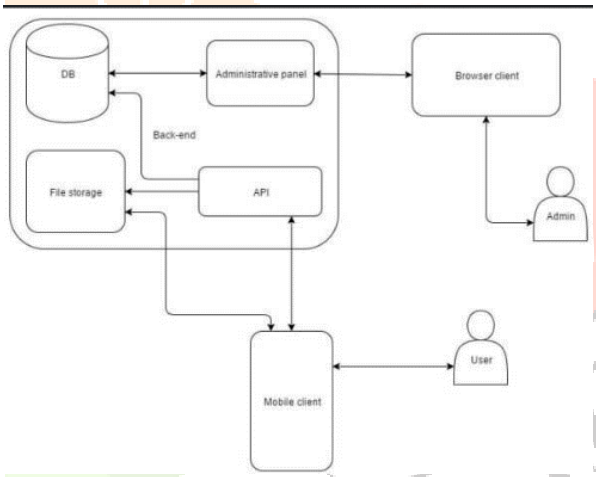

figure 5.2.1 architecture

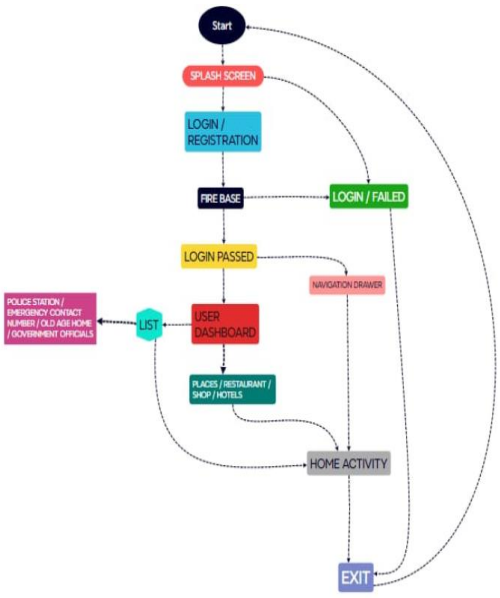

figure 5.2.2 sequence diagram

Specification	
Minimum Android API level	API 16 Jellybean (100 per Efficient)
Area of usage	Mysore , Karnataka
Hardware	Android or iphones , Laptop or Desktop and Mac1 with 8GB SSD
Languages	Java and Xml
Android Development	1.Android Studio 2.Java Jdk 3.Google map API

fig 5.2.3 specification

VI. RESULT

As shown in *fig 6.1,6.2,6.3* First, the application is launched then the splash screen appears, after the splash screen, the Login/ Registration appears. In the Login/Registration page the user has to login using their name, e-mail and password. We have used firebase in the login page, so as to match passwords. First, the application is launched then the splash screen appears, after the splash screen, the Login/ Registration appears. In the Login/Registration page the user has to login using their name, e-mail, phone number and password.

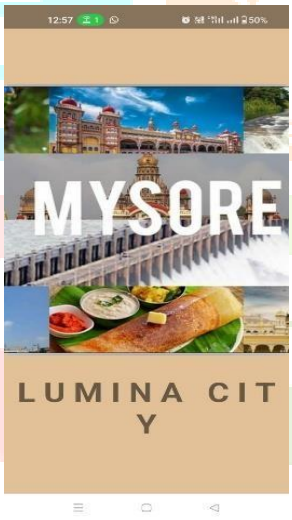

fig 6.1

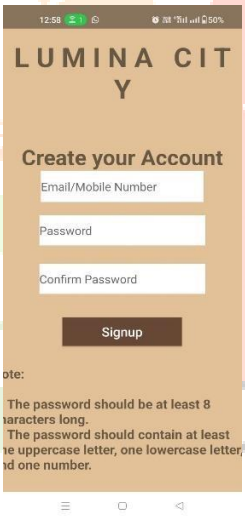

fig 6.2

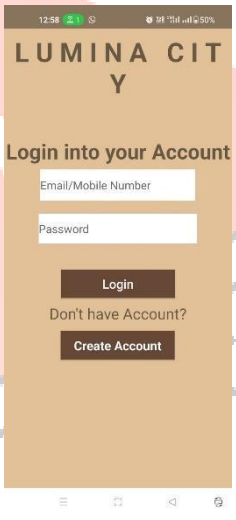

fig 6.3

fig 6.4

- The working of LuminaCity application system can be understood as follows. At first the application displays the dashboard on the screen which presents LuminaCity with 5 buttons i.e. Places, parks, Hotels, Restaurant, Shops.

- The user opts the button as per his/her choice. If the user wants to go ahead with PLACE, then he/she must click on it. After selecting the button PLACE, it displays further options which say about different places of Mysore. After user selects the place which he/she wants to travel around. It further displays the famous spot, which a traveller would never miss out.

- If the user wants to know about the parks nearby then he/she must go for PARKS option. After opting for PARKS, the user will get to know about the parks, its timing, tickets for adult/child, location.

- If the user wants to explore the delicacy or have a comfortable living then he/she can go for the RESTAURANT or HOTELS option, it displays the cost of the

hotels, contact information if any queries, location, address. It gives a list of hotels according to your budget.If the user wants to know about shops or shopping malls then he/she must click on SHOPS button.It gives a list of shops from street shop to luxurious malls.If the user wants to know more information about the city they can click on the vertical ellipsis(three vertical dots) and can find information like Hospitals, Banks, College/University, Blood Banks, Emergency Contact No., Police Station, Local Bus Time Table, Local Train Info, Nearest Police Station, Logout.

VIII. CONCLUSION

As a result of this research, tour guides are being used to help tourists in Mysore. Users can access detailed information about Mysore's hotels, restaurants, shopping centres, and tourist attractions as they see fit. Additionally, travellers may quickly obtain comprehensive information on the tourist attractions so they are aware of them before visiting the location. Travellers may find their closest locations quickly and easily with the recommendations of local locations, saving them time. Strong network signals and the state of the environment affect how quickly the programme can determine the user's location.

IX. RECOMMENDATIONS AND FUTURE WORK

Enhancing the functionality of our app involves incorporating key features to make it more user-friendly, effective, and efficient, all within the constraints of our current project. One significant upgrade is the introduction of a Real-Time Interactive Conversation feature, leveraging instantaneous language translation. This will facilitate seamless communication in diverse settings like restaurants, hotels, and transportation, eliminating language barriers for users. Another vital addition is the GPS Location Tracker, enhancing the app's robustness and organization. Instead of manually inputting their location on a map, users' positions can be automatically tracked, providing a more dynamic and accurate experience. Furthermore, we propose offering More Detailed Routing Information, empowering customers with specific details about adjacent city regions during route planning. This addition aims to provide a comprehensive navigation experience, aiding users in making more informed decisions. Lastly, achieving Whole Nation Coverage is feasible by utilizing Google's map infrastructure. This ensures that the app can be effectively deployed nationwide, delivering consistent location-based services across the entire country. These enhancements collectively contribute to an improved user experience, elevating the app's functionality and appeal.

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