ANDROID SMART CITY TRAVELER

A PROJECT REPORT

submitted by

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to

the APJ Abdul Kalam Technological University
in partial fullfilment of the requirements for the award of the degree

of

Master of Computer Applications

Department of Computer Applications
College of Engineering Trivandrum
Trivandrum-695016

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DECLARATION

We undersigned hereby declare that the project report ANDROID SMART CITY TRAVELER, submitted for partial fulfillment of the requirements for the award of degree of Master of Computer Applications of the APJ Abdul Kalam Technological University, Kerala is a bonafide work done by me under supervision of Prof. Jose T JOseph. This submission represents my ideas in my own words and where ideas or words of others have been included, I have adequately and accurately cited and referenced the original sources. We also declare that We have adhered to ethics of academic honesty and integrity as directed in the guidelines of Institutional ethics committee of the college and have not misrepresented or fabricated any data or idea or fact or source in my submission. We understand that any violation of the above will be a cause for disciplinary action by the institute and/or the University and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been obtained. This report has not been previously formed the basis for the award of any degree, diploma or similar title.

Place : Trivandrum
Date : 25-11-2019

Yedhu Thambi
Chippy Mohan
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DEPARTMENT OF COMPUTER APPLICATIONS

COLLEGE OF ENGINEERING TRIVANDRUM

CERTIFICATE

This is to certify that the report entitled **ANDROID SMART CITY TRAVELER** submitted by **Yedhu Thambi** & **Chippy Mohan** & **Parvathy Raj** to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree of Master of Computer Applications is a bonafide record of the project work carried out by her under my guidance and supervision. This report in any form has not been submitted to any University or Institute for any purpose.

Head of the Dept

Project Guide

ACKNOWLEDGEMENT

If words are considered as symbols of approval and tokens of acknowledgement, then let words play the heralding role of expressing my gratitude.

First of all, I would like to thank God almighty for bestowing me with wisdom,courage and perseverance which had helped me to complete this project ***ANDROID SMART CITY TRAVELER***. This project has been a reality as a result of the help given by a large number of personalities.

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Yedhu Thambi
Chippy Mohan
Parvathy Raj

ABSTRACT

Android Smart City Traveler by the Name indicated smartly makes it way in analyzing user's likes and dislikes and the time period the user is willing to explore a place and gives him with Amazing results in the form of path to utilize the time. This System is basically used to help a traveler new to the city or anyone who wants to explore a city in the given time period, the system makes use of the Google Map Api to get all the locations and places with all their information to sort and place it before the user to make his choice. The user is asked some questions helping them to filter out in searching the places, the places are displayed on the maps giving a clear idea of the location and giving the paths from one place to another from the start location to the end location. The System requires an working internet connection all the time for the app to work.

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Chapter 1

Introduction

At present, in general tourists and travellers waste a lot of time planning and deciding their trips to achieve maximum satisfaction. In this context, this application aims to identify the main computing needs to support the improvement of tourist point of promotion for the traveller, by the means of an easy to use mobile application proposal.

Normally, most travellers like to visit the famous sightseeing spots as well as local charms unique to that place.To achieve this, we propose a system that can automatically show a travel route and plan for the user. This application also leads to quicker decision making with respect to places to visit.

This system is basically used to help a traveller new to the city or anyone who wants to explore a city within a specific time period. The user is supposed to enter his/her interests and preferences while signing up. Once the account has been created, the user can choose the location manually or let the system detect his/her current location as the starting and ending point of the trip. Then, the start and end time of the trip must be specified by the user. Since all the trips of a user will be stored, he/she can also viewthe previous trips. Smart City Traveller as the name indicates, smartly makes its way in analyzing users' interests and preferences and the time period the user is willing to explore a place and designs an itinerary and a route with the best tourist spots around the selected location such that he/she returns to the starting location by the specified end time. This makes use of shortest path algorithms for determining the route.

The system makes use of the Google Maps API to get all the places around the selected location with all their information. Then, these locations are sorted based on ratings, distance, and various other constraints to place it before the user.

Chapter 2

Requirement Analysis

2.1 Purpose

The purpose of developing this android application is to create a plan for the traveler travelling to city and wanted to explore the city by specifying the time in hours. System then smartly analyzes the questionnaire and creates a plan for traveler based on provided time. The development is done in Java for Android Application for User/Traveler. First of all, traveler need to register himself by filling up the details using android application. After successful registration, user can login now using login credentials which then proceeds with questionnaire where application ask user about their likings. Based on questionnaire, application smartly analyzes for the place based on user specified time. The application is capable enough to search the place automatically based on Google Map API. This application also helps you to find the places nearby you or around the world.

2.1.1 Product Functions

The main functions of the proposed system include:

- Accept time from user.
- Fetch nearby places to user.
- Multiple Route generation.
- Showing the travel plan.

2.1.2 Software Requirements

- Windows 7, Windows 10(ultimate, enterprise)
- Android Studio

2.2 Functional Requirements

Functional requirements outline the intended behaviour of the system. This behaviour may be denoted as tasks or functions that the specified system is intended to perform.

2.2.1 App Interface

A app interface facilitates the interaction of the users with the system. The user is able to view the custom generated routes and can select from one of these.User can view the selected route in this interface helps him to pursue his journey.

2.2.2 Firebase

The Firebase is a mobile and web application development platform developed by Firebase Inc. in 2011, it was then later acquired by Google in 2014. Firebase provides services such as a real-time database and backend. The service provides application developers an API that allows application data to be synchronized across clients and stored on Firebase's cloud.

2.2.3 Google Maps API

Google Maps API allows maps to be added based on Google Maps data to an application. The API automatically handles access to Google Maps servers, data downloading, map display, and response to map gestures. API calls can be used to add markers, polygons, and overlays to a basic map, and to change the user's view of a particular map area. These objects provide additional information for map locations, and improves user interaction with the map. The Google Places API for Android allows to build location-aware apps that respond contextually to the local businesses and other places near the device.

2.3 Non Functional Requirements

Non-Functional requirements define the general qualities of the software product. Non-functional requirement is in effect a constraint placed on the system or the development process. They are usually associated with product descriptions such as maintainability, usability, portability, etc. it mainly limits the solutions for the problem. The solution should be good enough to meet the non-functional requirements.

Chapter 3

Design And Implementation

3.1 Design

3.1.1 Overall Design

Our system is an android based route generation system. The system enables the user to give the available time. The time is analyzed and based on the available time nearby places are found multiple maps are generated based on it.Since multiple routes are generated the user can select one according to user's preference.

3.1.2 User Interfaces

One of the main aims while designing the system was to abstract as much lower level details of the system as possible from the user. This system provides an app interface for its users. The interface is developed using Android Studio xml.

3.1.3 System Design

The only technology that can solve the problem is with the help of an Android application.Since everyone carry around mobile phones and since the solution need location access the best option is to design a system such that it solves the problem. So the solution is designed with the help of Android Map Api and places Api.

3.2 Implementation

3.2.1 Finding Nearby Places

The place details are fetched from google map servers and it categorized in to different routes by considering the time it can be reached in the specified time given by user. The details such as place name,longitude,lattitude are taken from the servers to check the distance.

3.2.2 Generating Routes

Multiple routes are generated using the places fetched and the location given by the user.Three routes are given to user so that he can select from among these and select as the travel plan of the day.Since the hours are limited from 2 to 10 hours nearest places are only taken.

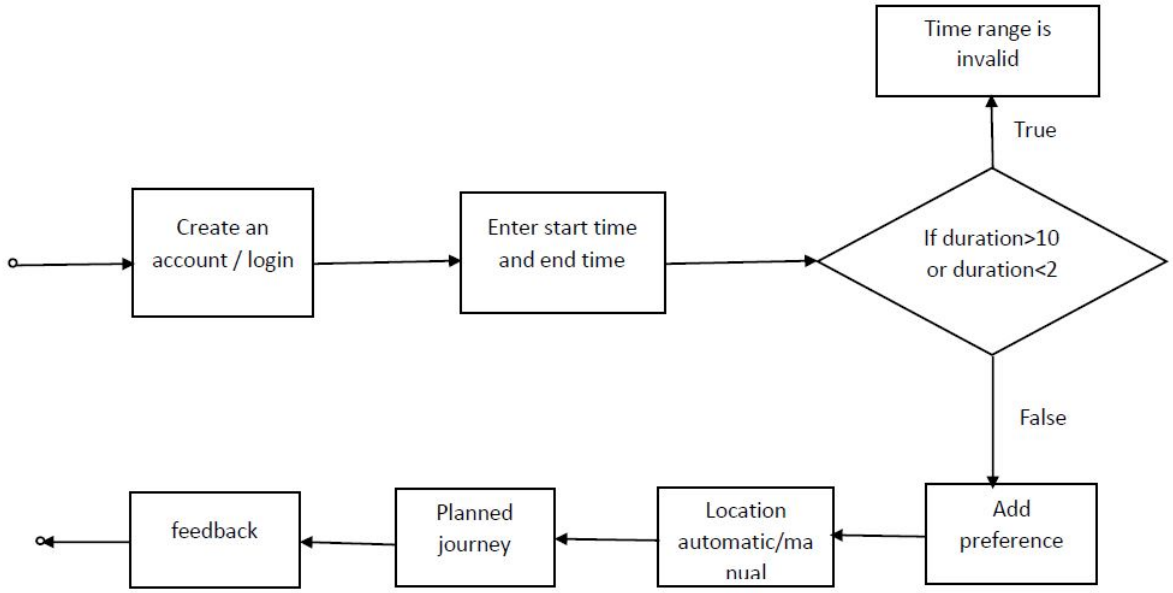


Figure 3.1: System Design

3.3 Data Flow Diagrams for the System

These diagrams gives a clear picture about the privileges of each user. Also the entire working flow was specified in this. The DFDs are as follows:

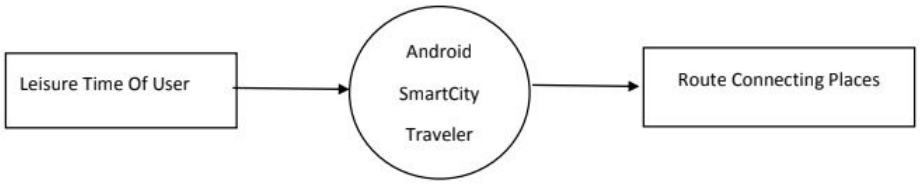


Figure 3.2: Level 0 Data Flow

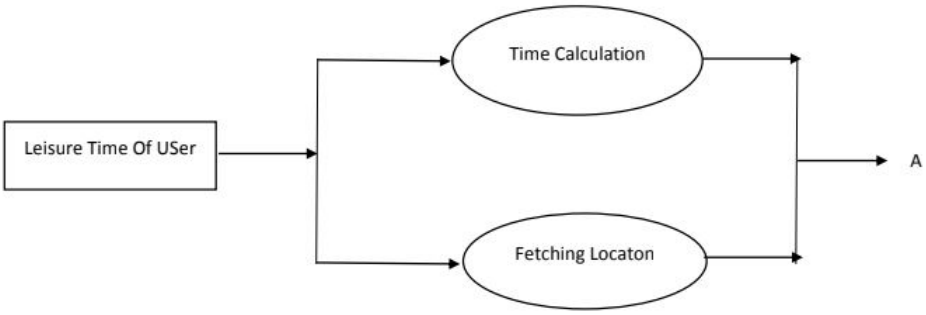


Figure 3.3: Level 1 Data Flow

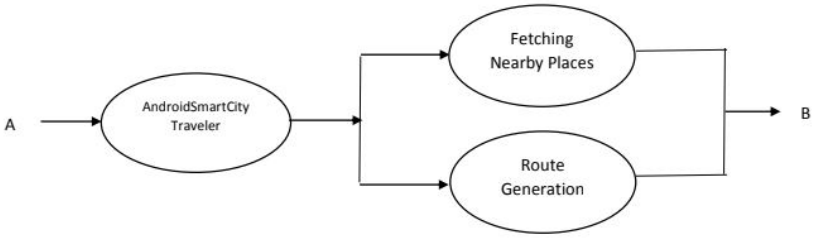


Figure 3.4: Level 2 Data Flow

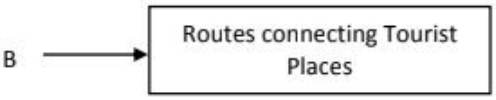
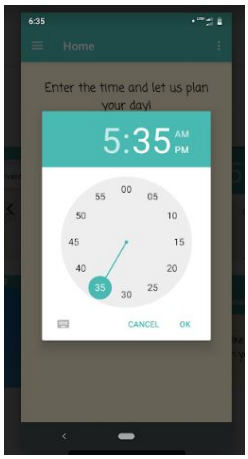
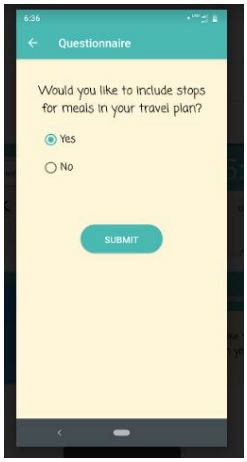
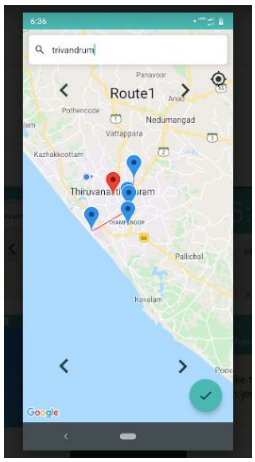


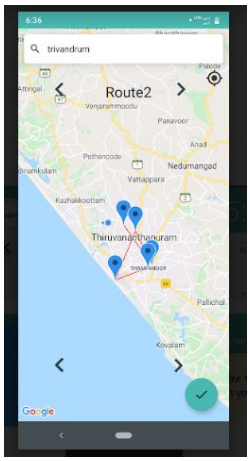
Figure 3.5: Level 2 Data Flow

3.3.1 Screenshots






trivandrum
Route1
Nedumangad
Vattappara
Pallichal
Kovalam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Route2
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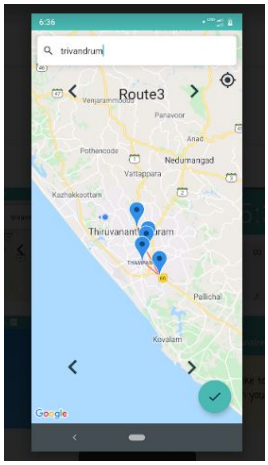
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Route3
Nedumangad
Vattappara
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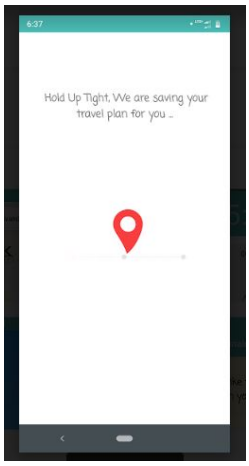
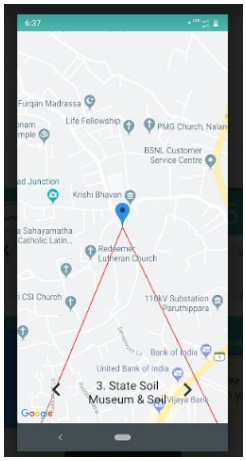
Kovalam


6:37
Hold Up Tight, We are saving your travel plan for you ..


6:37
Furqan Madrassa
Life Fellowship
PMG Church, Nalan
BSNL Customer Service Centre
Krishi Bhavan
Redeemer Lutheran Church
CSI Church
110kV Substation Paruthippara
Bank of India
United Bank of India
3. State Soil Museum & Soil
Google

Chapter 4

Coding

Algorithm 1 AcceptTime

1: Start
2: Input the available time
3: Store the time given by user
4: Check whether time is b/w 2-10 hours
5: Stop

Algorithm 2 ShowMap

1: Start
2: Connect to the Google Map Server
3: Select the nearby places
4: Store the places in tables
5: Stop

Algorithm 3 RouteGenerate

1: Start
2: Read the stored places
3: Calculate the distance
4: Generate route using places
5: Display the routes
6: Stop

Chapter 5

Testing

8. Testing and Validation

Version: 1.0

Test #	Date	Action	Expected Results	Actual Results	Pass? <Yes/No>
1	15-Sep	Add User	Able to create Account for User	Account creation made possible	Yes
2	18-Oct	Add Map	Map showing location	Added Map	Yes
3	30-Oct	Fetch Places near User	Showing Places Near User	Places are shown	Yes
4	9-Nov	Generate Routes	Routes with selected Places	Multiple routes are generated	Yes

Approval by Scrum Master

Chapter 6

Results and Future Scope

It is observed that the system performs all the functionalities as expected. The main aim behind this was to solve the issues related to the time taken to plan and find places near to a user when user is in a place that he doesn't know well. The user is able to view multiple routes showing different places and select one as a travel plan.

6.1 Advantages and Limitations

6.1.1 Advantages

- The user can also find the paths to follow to reach the final destination in map which gives a better view to the users.
- Since the location can be viewed in map, the user can even zoom in and zoom out to get a better view.
- The system gives 3 travel plans for the user to select.
- The usage of this application greatly reduces the time required to search for a place.

6.1.2 Limitations

- It requires active internet connection else error may occur.
- The android mobile user will not be able to insert or view details if the server goes down.

6.2 Future Extensions

- As the world is developing very fast, and people are more interested in traveling so this application will help the traveler to create their whole day plan.
- This application will connect with a different third-party application like Uber, OLA, and Trivago. This will make users journey very easier user doesn't need to hire any tour guide this will act as a tour guide for the traveler.

- There are multiple places included in this application; this application will give each and every information about a place with a click. So that traveler doesn't need to ask any information about a particular place to anyone.
- Travelers are having different mother tongue different languages, so we are trying available language select option this will make the user very familiar with our application.

Chapter 7

Conclusion

Since travelling is one of the important aspect today, it is very necessary that proper planning need to be done beforehand in terms of time management. Most people without using the latest technology waste a lot of time just planning trips. So, an application like Smart City Traveller really helps tourists to utilize their precious time to the fullest and also enjoy their trip at the same time.