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ANDROID LOCATION-AWARE MOBILE APPLICATION FOR LOCAL EVENTS SUGGESTION

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ABSTRACT

This paper describes Android location-aware mobile application for local events suggestion to recommend local events as the activities for boredom people. This application recommender system consists of two major components: 1) local events location recommendation and 2) Android mobile application component supplied to display the nearest places for the android user based on his/her GPS position from a mobile device. To make the personalization, this application using build-in storage from android for the local events data. The researchers also implement an android application to use the recommender system via a mobile device. Offline experimental results demonstrated that the recommender system can achieve satisfying precision and recall of recommended local events places.

Keywords: android application, android device, location based services, google play services location APIs.

1. INTRODUCTION

In modern society, people's daily life always been filled up by many activities since people's habit to keep away from boredom. Boredom is one of a condition that can cause a habit called laziness that also has an impact on people's productivity [6]. Sometimes, boredom is a response to a moderate challenge for which the subject has enough skill [7]. So it is natural for human to do any activities aside not doing anything. Therefore, the idea to replace the boredom with activities is placed.

With the advances of smart phone technologies, the application can use Location Based Services (LBS) that have grown extremely popular. LBS use real-time geospatial positions (i.e., latitude and longitude) from a mobile device to provide information about the places nearby [1]. For example, give people information or suggest them an activities list about what to do, local event, music festival, available coffee shop, etc. around them. That is what the application going to do.

The usage of smartphones has grown globally in this past years. Smartphones are mainstream in this area with active I OS and Android devices surpassing 700 million globally in 2012 [5]. As the users carry the mobile devices almost anywhere and at any time, location-aware services have received attention from mobile computing communities [3]. Due to the presence of GPS navigation in mobile phone, location-tracking is become a great aspect to implement too [4]. Moreover, Global Positioning System (GPS) was adopted in the form of many application such as, mobile navigation, game applications, micro movies, and online platforms [8].

There are a lot of services and applications that allow simplifying this, proactively providing information about interesting attractions, local events, etc. For example is, Android location APIs, which is going to applied on the application [2]. So, the main objective is to suggest or recommend local events as the activities for boredom people.

2. METHODOLOGY

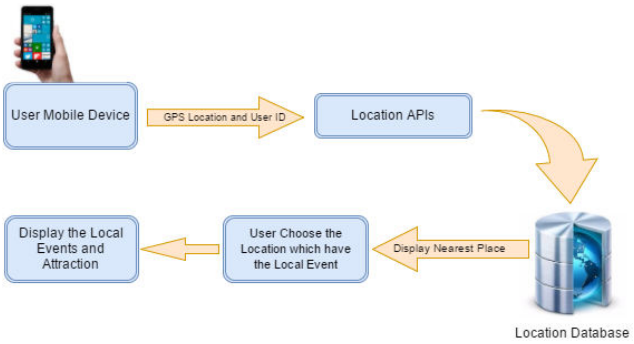

Figure-1. The application system.

As shown in Figure-1, Android can access the location services. The location APIs available in Google Play services facilitate adding location awareness to the application with automated location tracking, geofencing, and activity recognition [2].

The Google Play services location APIs are preferred over the Android framework location APIs (android. location) as a way of adding location awareness to the application.

A. Local event database

The Application was using build-in storage from android for the local events data. So, the applications use the storage to display what kind of local event around the user location for the output.

B. The application

As shown in Figure-1, the application can give; suggest information about local events around user location. Also an application to give people things to do. The user provides their location. After giving the location, it read and channelled it to the database. The application organizes the database from the build-in data storage by the location. So when the user gives specific location, it

gives the database of that specific location and provides the local events near or around the user location.

3. DESIGN AND IMPLEMENTATION

This section will explain the details of design and implementation of the place recommender system. It basically is divided into the two main parts: the recommender system and user interface design.

A. Recommender system

The system consists of five modules: Google Location Service API, Location, and Recommender.

a) Google Location Service API: This module functions to contact Google Location Service to retrieve real-time information about venues via Google Location Service API.

b) Recommender: This module performs to make a set of recommended local event places to the mobile phone user.

c) Location: This module will handle the temporary results performed by the recommendation system using Google Location Service API.

B. User interface design

Figure-2 shows some user interfaces designed in the mobile application.

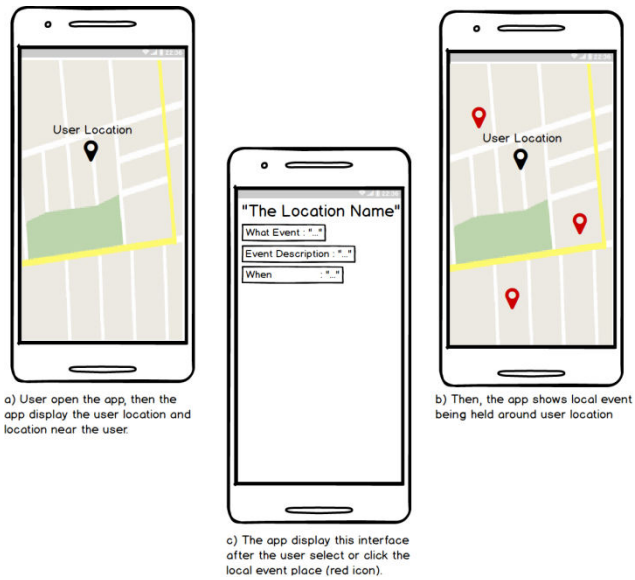

Figure-2. User interface design.

4. DEVELOPMENT PROCESS

A. Google location services

The google_maps_api.xml resource file is the main part to put the main services, the Google Location API key, which is going to provide every google maps services for the apps. The API key taken from google console APIs credentials. Right after the activity on Android Manifest resource file, the meta data is written to establish the google location services by using the API key.

In the manifest also, the apps use some permission to help any features or services going to applied on the apps.

B. Maps and location

The application calling the maps fragment from the activity maps resource file in the main activity On Create () method. For the maps type, the application use the menu resource file then implement the features that already have the permission from the Android Manifest resource file. In the On Create Options Menu () method, the application calling the menu design. In the on Options Item Selected () method, the application applied the maps type services or features taken from the permission. That is, Normal map type, Satellite map type, Terrain map type, and Hybrid map type.

For the user location, the application implement the location services on the On Map Ready() method which is the set My Location. Then to animate the camera movement into the user location, the application applied it in the go To Location () method with move Camera command.

C. Marker (Local event)

The onMapReady () method going to implement the add Marker command then give latitude and longitude for the specific local event location. Then the title and snippet as the description for the local event dummy data.

5. ALGORITHM

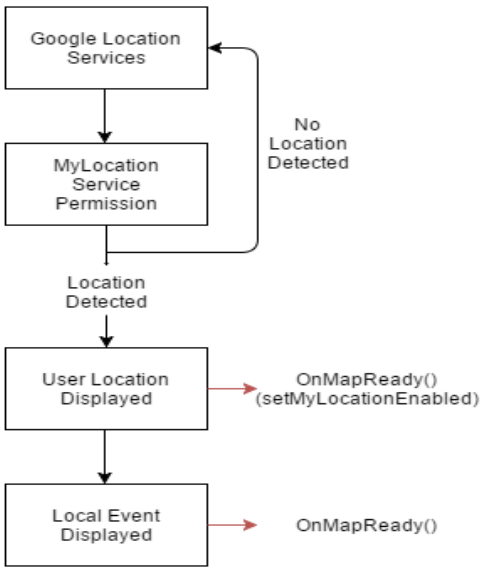

Figure-3. Application algorithm.

As shown in the Figure-3, when the application is started, the application has to apply the google location services so that can apply the My Location service permission. If My Location service cannot provide the location because of any problem, it is going back to apply

the google location services. Next, when the location detected, it is going show the user location because of the On Map Ready () method on the set My Location Enabled command in the main activity class. After that, the application going to display the local event which is gong to interpret as the marker.

6. RESULT

Figure-4. The user location interface.

As shown in the Figure-4, the blue dot is displayed as the user location. If the user move the map, then click the top right button, the camera is going animated or moving into the user location.

Figure-5. The map interface (User and local event).

As shown in the Figure-5, the two red marker is the location of local event held.

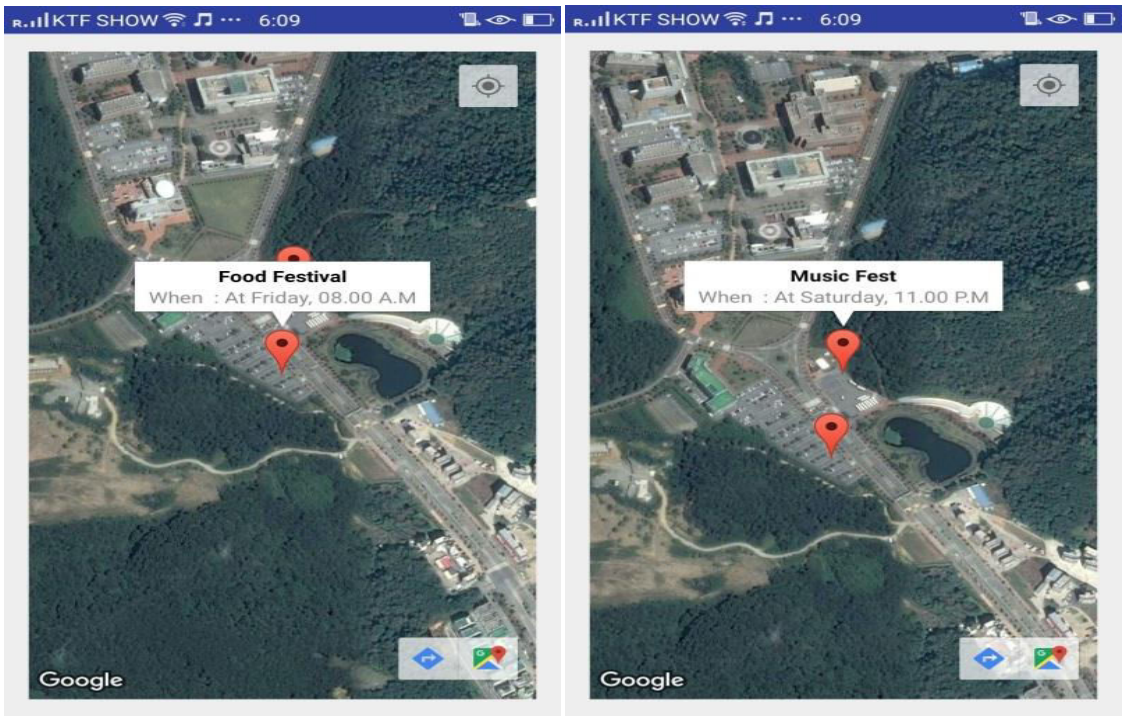

Figure-6. The local event marker system.

As shown in the Figure-6, the two red marker can be click by the user to display the description of each local event marker.

7. CONCLUSIONS

This paper, already provide the mobile application to give suggestion or recommendation of local event around the people. The mobile application provide for people who need activities, to avoid boredom. The application already implements the google location services to do some services.

The application could be further expanded by using real local event database, not using dummy data. So, it is more intelligent to suggest real local event.

ACKNOWLEDGEMENTS

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