Article 2

Mobile Application for Calendar Events of UiTM Perlis Branch (CEPS)

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Abstract
Smartphone nowadays has become a must for everyone to communicate and retrieve important information. Various information about products, events and almost everything are accessible from the fingertips. Recently, method of dissemination of information regarding events in UniversitiTeknologi MARA (UiTM) Perlis Branch, is conducted thru posters, flyers and social networking sites. This method of spreading information is not reliable since it still fails to reach the whole community even students, lecturers and staff of the campus. Thus, lead to less number of participation. This project aims to introduce an innovative way of spreading information about events to communities via mobile application. Valuable information includes name of events, date, target audience, organizer and its location will be made available in the application for user. Data is stored in the MySQL database and JSON is used to manipulate it and pass to mobile application to be represented in user interface. User acceptance testing is conducted via questionnaire to check the capability and deliverables of the mobile application to the end users. The overall result shows that the application developed is acceptable and applicable to be used in by the community of UiTM Perlis.

Keywords:*Mobile Application, Calendar of Events, Information Dissemination, Events Calendar, Events Announcements.*

Introduction
Smartphone applications are meant to allow users to carry them anywhere they go, easy access to the information and completing simple tasks while on the go. Usage of smartphone is increasing nowadays where people spend more time to accomplish tasks beyond from basic communication needs(Cao & Lin, 2016). The delivery of smartphones had increased from 1.44 billion in 2015 to 1.49 billion in 2016 which mark a growing trend with three percent(Sui, 2017). The spread of information thru mobile application is becoming very effective due to its number of users in community. Thus, it is beneficial to develop an application to disseminate the information regarding events in mobile phone.

A successful event, require an organizer to attract large crowds. Earlier method of dissemination of information regarding events is thru spreading words, posters, flyers, social network sites and advertisements which is not reliable since it still fails to reach the whole community. There are multiple events conducted in UiTM Perlis at a time, which could lead to misleading information about the events. The information posted on social network sites is not effective due to unfiltered information on the newsfeed of the target audience and creates redundant information. Unorganized method of information delivery cause the information not delivered to target audience and same problem will be faced by new students.

This paper presents a mobile application for viewing and listing events organized in UiTM Perlis named as Mobile Application for Calendar Events of UiTM Perlis Branch (CEPS) with the assistance of Global Position System (GPS) for marking the specific location on the map.

The mobile application lists current and future events held in UiTM Perlis and its details, including event names, time, venue, organizer, target and number of participant and location. It also able to pin and display the location of events on the real map using Google Maps Application Programming Interface (API) and Android Operating System (OS).

Related Works

i. OHIO University: Calendar of Events

Figure 1 below shows a calendar of events of OHIO University. This university provides an electronic calendar for their students to inform the events which were organized in this university. Clicking on the date form calendar, users are able to know details of events' information such as type of events, times, date, location, and website of the events. Moreover, students can browse events' activities based on week of month.

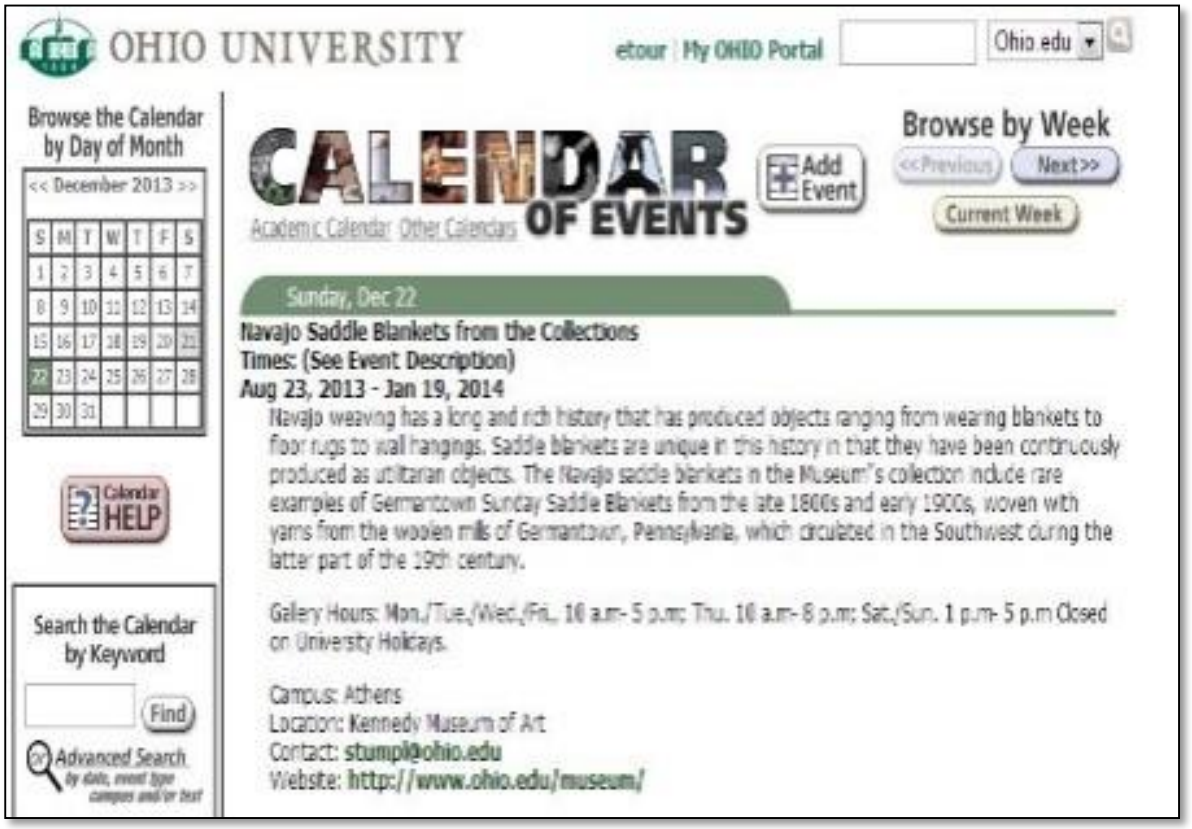

Figure 1: Calendar of Events from OHIO University website (Ohio University, 2013).

ii. University of Illinois Urbana Campaign

Students or users are able to search current events by clicking the date. The advantage about this calendar of events is, it allows users to search events based on all, grid, month, week, day using search tool. Upon the click of events, it will be highlighted in red color. The details of information such as Speaker, date, time, location, cost, sponsor, contact, e-mail, phone, registration, views are attributes of the information of the related event will be displayed.

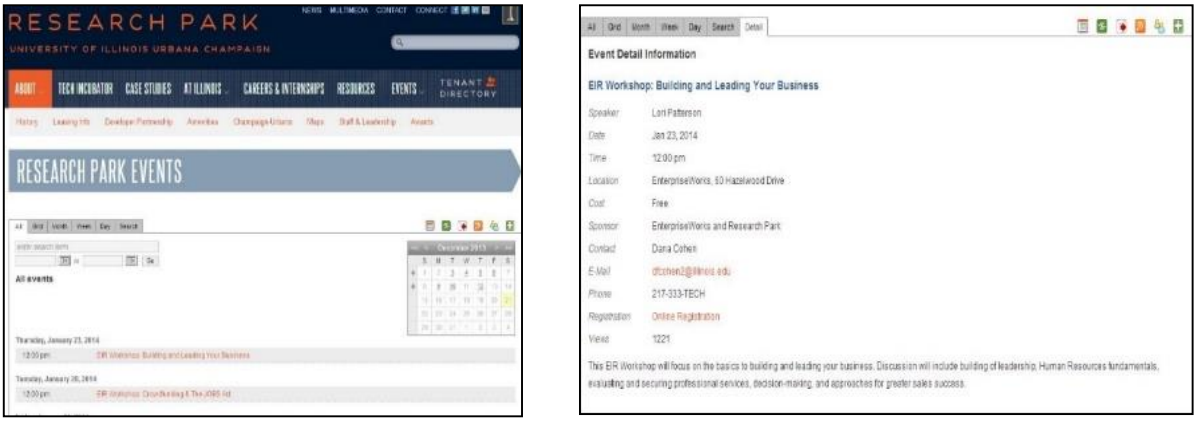

Figure 2: Calendar of events of University of Illinois Urbana Champaign (University of Illinois Urbana Campaign, 2013).

Research Methodology

This research applies repetitive development process (Figure 3) adapted from a Waterfall Model consists of six phases. The flow progress works in repetition until each phase satisfies and may revert to the previous phases. Activities, techniques and deliverables are explained as follows:

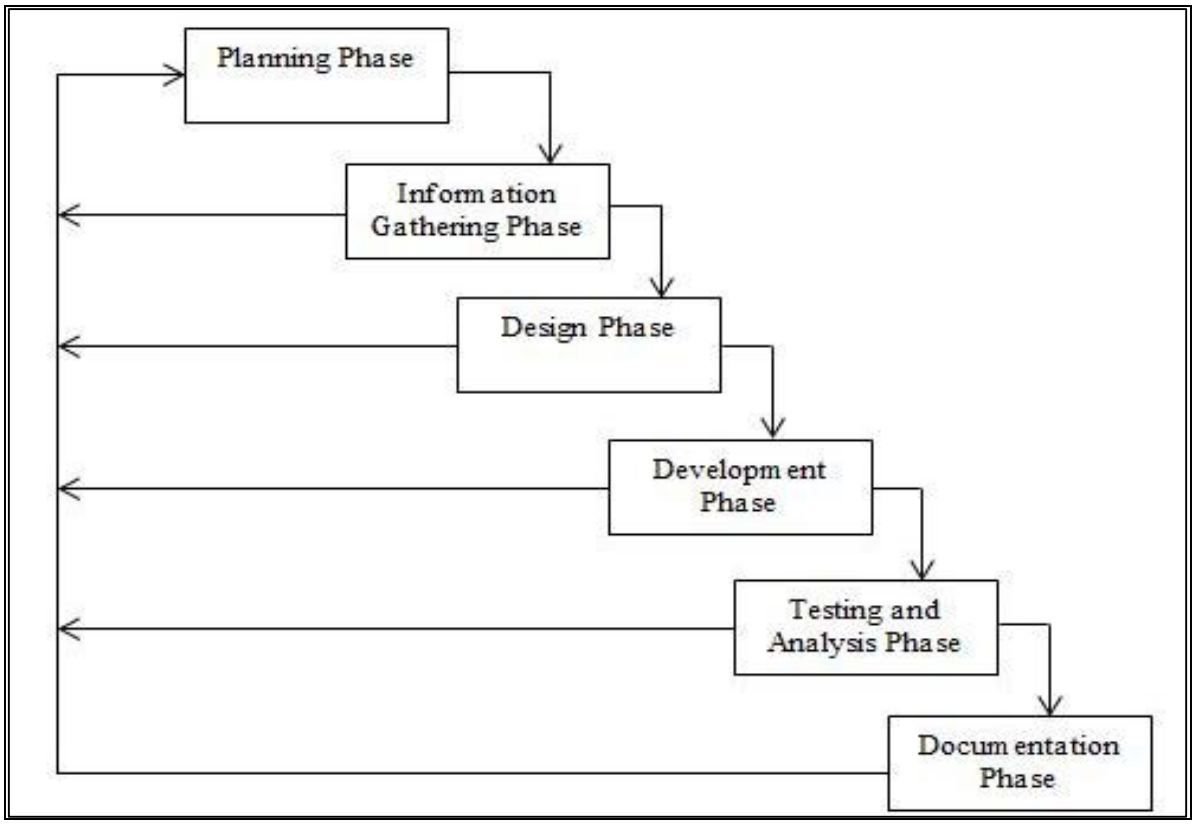

Figure 3: Waterfall Model (Repetitive).

i. Planning Phase –Includes the feasibility study to identify area, scope significance and outcome of the project based on related journal, research articles and text books.

ii. Information Gathering Phase – Search for required information related to the topic, collect relevant data and information from the discussion with person in charge and available resources and materials. All required software are determined in this phase.
iii. Design Phase – Includes the database design and flow of application logic. This phase ends with the prototype frame work produced.
iv. Development Phase – Development of the mobile application for Android platform using Android Studio, database development using PhpMyAdmin and php editor using Dreamweaver.
v. Testing and Analysis Phase – Developed application is evaluated to test the delivery and user's acceptance by allowing the random person to test the application and fill up the survey form. Results obtained from survey are analyzed.
vi. Documentation Phase – Involves writing a documentation of the project.

Mobile Application Framework and Implementation

In general, the mobile application utilizes JavaScript Object Notation (JSON) for reading data from database. Based on Figure 4, mobile application begins with requesting data to Hypertext Preprocessor (PHP) web service, and it will direct the request to the database. Data returned by the database is represented in a form of JSON using PHP standard library and pass back to mobile application. Finally, mobile application represents the data in a graphical user interface (GUI). Database developed for this project consists of two simple tables purposely to store data for the events and details about the developers.

Implementation of this project involved the use of mobile application as a client and a laptop as a server for storing and manipulating data. Data conversion into JSON format is done at the server side after received a request from the client (mobile application). The connectivity between these two devices is thru the network of wireless router. Client should properly set the address of the server in order to establish a connection.

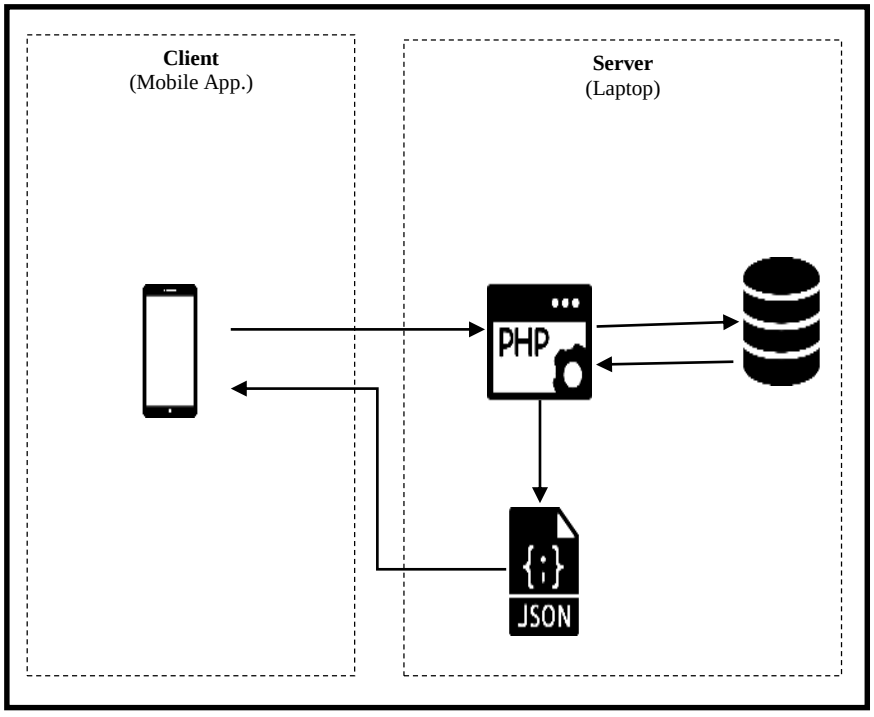

Figure 4: Framework for mobile application CEPS.

Development

i. Home and events interface

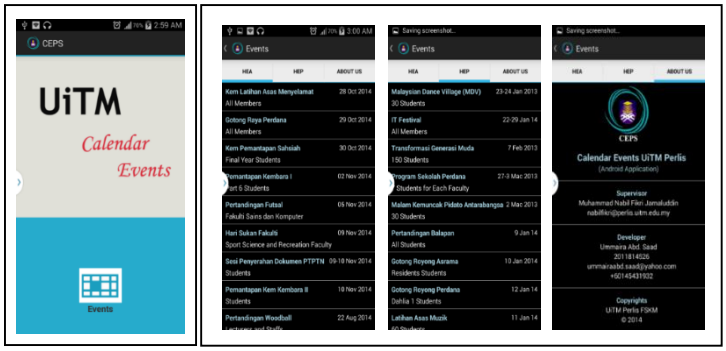

Figure 5(a) Figure 5(b)

Figure 5: (a) Main interface. (b) List of events from the CEPS application.

Figure 5 (a) shows main interface of Calendar Events UiTM Perlis (CEPS)mobile application with a button named 'Events' which will be directed to second interface. Figure 5 (b) shows the second interface of CEPS android application. In this page, it has a navigation tab consist of HEA (Hal EhwalAkademik), HEP (Hal EhwalPelajar) and ABOUT US information. Both HEA and HEP shows current and future events will be held in UiTM Perlis. It has information about the event's name, open for and date of the events. About us section shows information regarding CEPS developer. Users can return to the home page of the application by clicked the back-arrow navigation at the top of CEPS application.

ii. Event Details and Map Location Interface

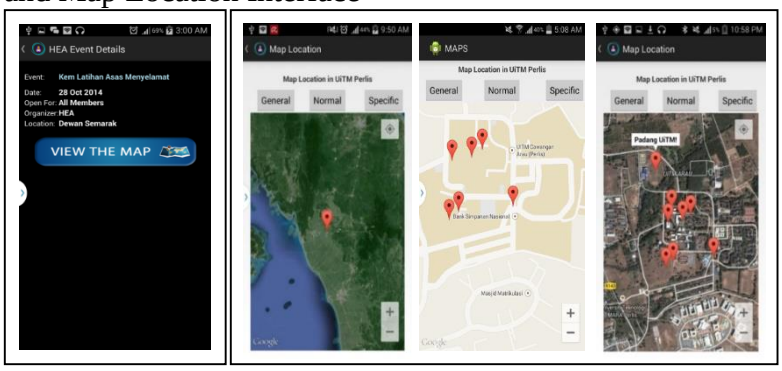

Figure 6(a) *Figure: 6(b)*

Figure 6(a) Details of selected events. (b) Specific location of events on the map.

Figure 6 (a) shows the event details after users tap one of the event listed in the main interface either from HEA or HEP tab, name of event, date, open for (target audience), organizer and location of the event are displayed. One button ('View The Map') is available for users to view specific location on the map where the image of the map is provided by Google API. Figure 6.b shows specific location of the event chosen on the map based on pin in red color. Users also provided with options to view the map either in 'general', 'normal' or 'specific' mode.

Results and Analysis

Survey on user acceptance testing is carried out to check acceptance and deliverables of product to end user. To complete the study, 30 respondents are selected randomly among UiTMPerlis

students, lecturers and staffs. Two main parts of testing, which are effectiveness and satisfaction.

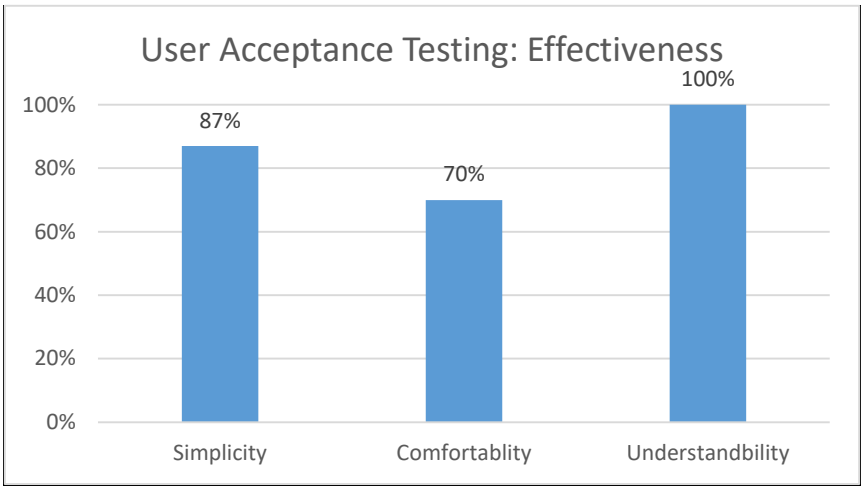

Figure 7(a)

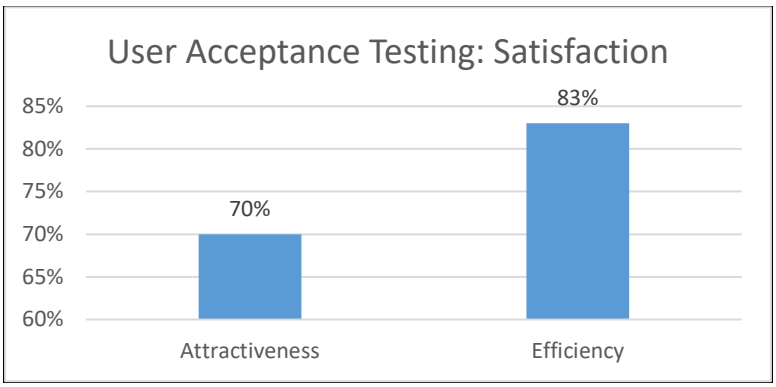

Figure 7(b)

Figure 7: (a)User acceptance testing: effectiveness (b) User acceptance testing: satisfaction

The first part of the user acceptance test begins with effectiveness of CEPS which is presented in the bar chart in Figure 7(a). This part is divided into three categories which are simplicity, comfortability and understandability. Among 30 respondents, 87% agree that this mobile application is simple and easy to use. 70% of them believe it is comfortable to use and all of respondents agree it easy to understand. From the figures presented, it shows majority of the respondents agree that the CEPS is effective.

Results for the second part of the testing are presented in Figure 7(b), where it is divided into two categories which are attractiveness and efficiency. 70% respondents agree CEPS is attractive and 83% of them believe it is efficient for real usage. Results from two categories showed that the average satisfaction is obtained for CEPS.

Conclusion and Future Works

Effective way of dissemination of information about certain event is very crucial in organizing a successful event to attract participation of big crowds. CEPS mobile application is introduced to make the information available and easy to access for the UiTM Perlis community such as students, lecturers and staff. Centralized and organized information in single mobile application introduces an innovative way of information dissemination. Details of events and specific

locations provided allow the potential participants to well informed with the event. Results from user acceptance testing shows majority of the respondents agree that the CEPS is effective for real usage. While in term of user's satisfaction, it shows the average results. This suggests, a few improvements should be taken into consideration.

The future works for this project should consider the user's satisfaction criteria such as attractiveness and efficiency. Currently CEPS provides information solely about the events, in order to attract more users to the mobile application, other information can be provided such as announcements, news, exam schedules and contact information on each department in UiTM Perlis. Features such as filtering can be implemented in the mobile application, so that the users able to filter certain events based on their preference. Recommendation of events to the users can be implemented based on user's interest. For the enhancement of the project, web based system can be developed for admin to manage the data about the events.

As a conclusion, this project has achieved the objectives to develop a mobile application with a list of current and future events held in UiTM Perlis. It is accepted by majority of users who tested the application and received positive feedbacks. CEPS introduces an innovative and organized way of presenting the information about the events.

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