

Mobile Application For Shopping Mall Directory

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Abstract - *Directory is defined as a board in an organization or large store listing names and locations of departments, individuals and others. Directory is important as guidance to people because it provides information about the mall such as list of shops and locations of the shops. Some of the directory boards are difficult to find, especially in the big shopping mall. Shopping Mall Directory Mobile Application with the web-based support system is proposed to make the searching of information of a mall much easier. This application acts as a guide for users in the mall to get the accurate information all the time whenever and wherever they want. This system is supported by the online database server which can be manipulated by the administrator of the shopping mall. The function of this application is to let users know the latest events and promotions that took place at the mall besides providing them a guide at the mall.*

Key Words: mobile application, shopping malls, mobile directory, mobile location

1. INTRODUCTION

Shopping mall is important for customer because it provides almost everything they need all under one roof. Hence, the bigger the shopping mall, the more things and services that they can provide. Shopping mall should have at least one directory board for each level. This facility is the most important thing that should have in the shopping mall. However, having a static directory board is troublesome for user as user need to walk to the directory board to seek for information. Therefore, a mobile application which provides the directory of the shopping mall will be useful at this moment. Shopping mall directory mobile application which acts as a guide for user. The directories are divided according to their category such as fashion, food and beverages, health and fitness and others. When user tap on one of the category, for example, fashion, a list of all fashion shops and boutiques that are available in the mall will be displayed on the screen. User can tap on the shop or boutique to view the details and the location of the shop. Apart from that, user can view the floor plan for each level of the mall.

2. LITERATURE SURVEY

A shopping mall needs to have a good directory boards with the most updated information. This is to guide and direct users to the right path with the accurate information. Thus, it will help users to save time. Poor directory will lead the users to a wrong path and make them confuse about the orientation of the shopping mall. They might get lost in the mall. This is a reason why a shopping mall directory application is indeed very useful to user. This section explains about the information, methods that will be used to build this application and related application.

2.1 Shopping Mall

According to Oxford Dictionaries, a mall which is also known as a shopping mall is a large building or series of connected building containing a variety of retail stores and typically also restaurants [1]. A shopping mall is a place with multi-functional purpose such as entertainment, business, medical, food, shopping and an accommodation center [2]. Many people like to go to shopping mall to do their shopping especially on weekends. People usually love to shop at shopping mall because of the comfortable environment whereby it is air-conditioned and they can get everything they need at one stop. Many shops are available in a shopping mall such as boutique, restaurants, bookstores, IT stores and so on. It is good to have a variety of shops under one roof. In addition, it becomes the meeting point for adolescents, a workplace for adult, and an eating destination for families and an entertainment center for kids. It is also a place that appeals for all group, ages and classes to have their gathering at the shopping mall.

2.2 Directory

According to Oxford Dictionaries, directory is defined as a board in an organization or large store listing names and locations of departments, individuals and others [1]. Directory is important as guidance to people because it provides information that is needed and guides them to the correct route. Directory board in a shopping mall contains the information about the mall, list of shops and locations of the shops. The specified directory will be designed in the form of a mobile so that it becomes a mobile directory. Mobile directory is designed to provide easy, real time access to the directory via a mobile device, so it can provide the right solution, quickly and accurately.

2.3 Mobile Application

Mobile application is software designed to run mobile devices such as smartphones and tablet computers. Mobile apps were originally offered for general productivity and information retrieval, including email, contacts, stock market and weather information. However, public demand and the availability of developer tools drove rapid expansion into other categories, such as those handled by desktop application software packages. As with other software, the explosion in number and variety of apps made discovery a challenge, which in turn led to the creation of a wide range of review, recommendation, and curation sources, including blogs, magazines, and dedicated online app-discovery services. In 2014 government regulatory agencies began trying to regulate and curate apps, particularly medical application. Some companies offer apps as an alternative method to deliver content with certain advantages over an official website.

2.4 Mobile Recommender System

Mobile recommender system [3,4] is one of the growing areas of research under recommender system. Recommender systems are information search tools that have been proposed to cope with the "information overload" problem which is the typical state of a web user, of having too much information to make a decision or remain informed about a topic [5]. In order to solve the problem, recommender systems were developed by aiding users in the search for relevant information. Besides that, it also helped users to identify which products are worth for detailed viewing [7]. Recommender systems are classified into 4 main categories which are collaborative-based, content-based , knowledge-based and hybrid . There are 3 fundamental directions for recommender systems. They are user mobility, device portability and wireless connectivity. This project application will consists of all 3 fundamental as it can be accessed by user in different locations. For Android development, Global Positioning System (GPS) and Android's Network Location Provider can be utilized to acquire the location of the user. Mobile recommender system helps user to search for the relevant information. This project will be based on 3 categories from this recommender system which are content-based, knowledge-based and hybrid categories to provide the relevant information of the shopping mall to the user.

2.5 Android

Android is a Linux-based operating system developed by Google [3, 4, 5], which backend financially by Google. It is designed for smart phones and tablet computers which become the most popular mobile platform in the world. Millions of people use Android to make their mobile devices so powerful and useful. Android was developed jointly by Google, HTC, Intel, Motorola, Qualcomm, T-Mobile, and NVIDIA who are members of the OHA (Open Handset Alliance) with the aim of making an open standard for mobile devices.

2.6 iOS

iOS (formerly iPhone OS) is a mobile operating system created and developed by Apple Inc. exclusively for its hardware. It is the operating system that presently powers many of the company's mobile devices, including the iPhone, iPad, and iPod touch. It is the second most popular mobile operating system globally after Android by sales. iPad tablets are also the second most popular, by sales, against Android since 2013, when Android tablet sales increased by 127%. Originally unveiled in 2007 for the iPhone, it has been extended to support other Apple devices such as the iPod Touch (September 2007) and the iPad(January 2010). As of June 2016, Apple's App Store contained more than 2 million iOS applications, 725,000 of which are native for iPads.These mobile apps have collectively been downloaded more than 130 billion times.The iOS user interface is based upon direct manipulation, using multi-touch gestures. Interface control elements consist of sliders, switches, and buttons. Interaction with the OS includes gestures such as *swipe*, *tap*, *pinch*, and *reverse pinch*, all of which have specific definitions within the context of the iOS operating system and its multi-touch interface. Internal accelerometers are used by some applications to respond to shaking the device (one common result is the undo command) or rotating it in three dimensions (one common result is switching between portrait and landscape mode).

2.7 Comparison With Related Systems

Shopping mall directory application development can be seen also from identifying the advantages and disadvantages of some of the current application or something similar on the market several sites. The strength of the existing system can be implemented into the development while the weakness of the system can be avoided during application development. The following is a general comparison between existing system and proposed system:

Table-1: Comparison between two systems.

System	Features	Results
TRADITIONAL SYSTEM	GPS Websites Advertising through Televisions	Information about location Information about Mall Events like concerts, celebrity visits and Other information

PROPOSED SYSTEM	Mobile Application	Mobile application with web-based support system is proposed to make the searching of information of a mall much easier.
	Network's of Mall	With this type of Application N number of Shopping Mall are connected together.
	Pop up Notifications	Events like concerts, celebrity visits, promotions and Other information are given directly through mobile notifications
	Feedback	Provide a space for customer to give feedback on the mall.

After comparing the systems, it is cleared that some of the features are important and must have in the development of mobile application. Hence, the development technologies that would be used in the development of this new application have been decided. The following section describes the development technologies that will be used to develop shopping mall directory mobile application.

3. METHODOLOGY

The Above Literature explains about step-by-step processes are to ensure the project is running systematically and successfully. There are three main steps design system, development and testing.

3.1 Analysis and Design System

Analysis and design system is a process based on specified requirements which defines the architecture, components, modules, interfaces and data for a system. System design is important as it is critical for consistency and ease of use. This section will discuss about the use case and the class diagram for mobile application. Use-case diagram is a diagram which represents the user's interaction with the system and depicting the specification of a use case. Different types of users of a system can interact with the system in various ways. This can be portrayed by the use case diagram. In this application project, there are 2 actors which are user and admin to achieve the goal.

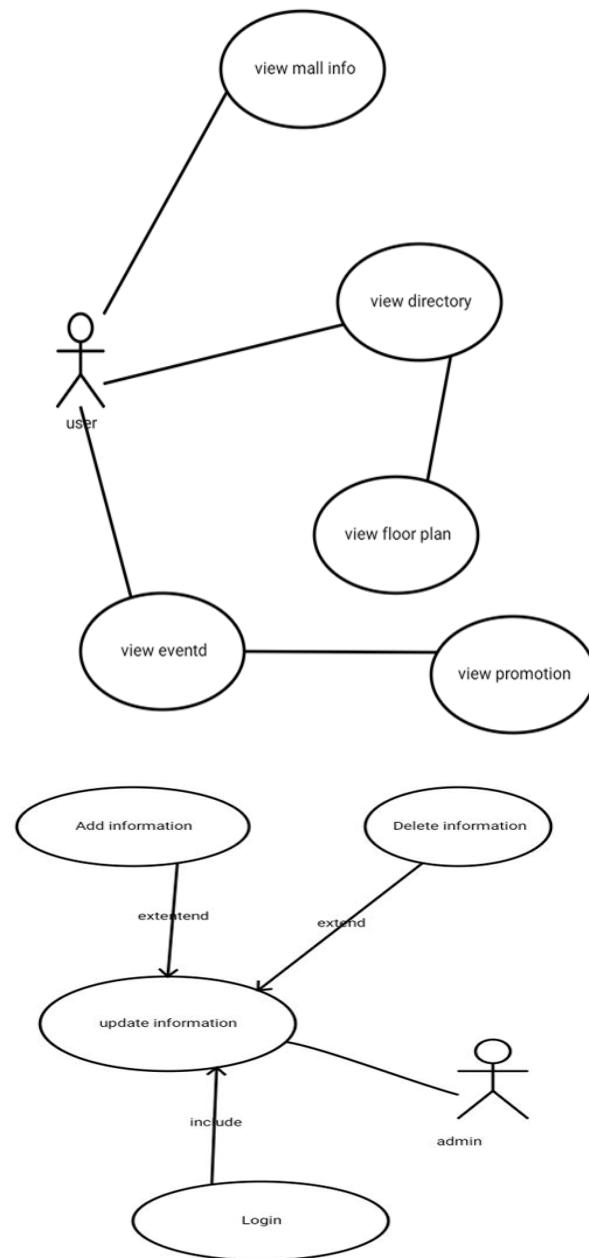


Fig-1: overall use-case diagram for shopping mall directory mobile application.

3.2 Development

The results will be the application that is developed in this project. The following subsections will discuss on the interface of Shopping Mall Directory Mobile Application with the functions of each modules. The modules include mall info, store, event, promotion and floor plan. This application will be used by the customer. There are some great functions in this application like home function, store function, event function, promo function and plan function.

3.3 Testing

Usability testing is a technique to evaluate a product or service by testing it with users and used in user-centered. Software testing is an investigation conducted to provide stakeholders with information about the quality of the product or service under test. software testing can also provide an objective, independent view of the software to allow the business to appreciate and understand the risks of software implementation. Test techniques include the process of executing a program or application with the intent of finding software bugs (errors or other defects).

4. CONCLUSION

This paper tell about the shopping mall directory mobile application. This acts as a guide for user in the shopping mall. The directories are divided according to their category such as fashion, food and beverages, health and fitness and much more. When user tap on one of the category, for example, fashion, a list of all fashion shops and boutiques that are available in the mall will be displayed on the screen. User can tap on the shop or boutique to view the details and the location of the shop. Apart from that, user can view the floor plan for each level of the mall. There is also a section for events and promotions in this application. Through this application, user can view the events and promotions that are held in the mall. As overall, it can be summarized that application gives a lot of advantages to mobile users who like shopping very much. Besides that, this application can help those who have no sense of direction to locate the store that they desire to go. User can save their time in finding the shops which are available at the mall. This is because all the information can be obtained from this application without having to search for the directory board in the mall. Hence, we hope that this project can be continued in future to give more benefits to the users.

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