

## **“Customizing Hotel Services by Mobile Application (CHSMA) “**

Boraq Ahmad Ammourah

Dr. Jamaiah Yahia

STIZ6996 PROJECT

Boraq\_1983@hotmail.com

***ABSTRACT:** Hotel Services are commonly provided by hotels in order to satisfy customer's needs where it usually done by manual or website. Developing systematic ways to improve the hotel services where to relate with the Mobile Application system to the customizing of the hotel service where provide an access to the hotel information and also to help customer to make decision. The ultimate goal is the ability to help customer to customize hotel services by mobile application to arrive at a better overall system. The purpose of this proposal is to take a small step in the direction of developing a unifying approach for reasoning about customizing hotel services by mobile application, however propose to design mobile application for hotel reservation as 85% of Malaysian own hand phone, so in this study a design the application and prototype will be developed using mobile device to help the reservation process in anytime, anywhere, quickly and easily.*

**Keywords:** Wap-Based customizing hotel services, Mobile Device, Wap Protocol Stack.

## **1. INTRODUCTION**

Wireless Application Protocol (WAP) provides a set of open and uniform technology platform, it make it easier that the user's mobile device access and get the various information service of Internet and Intranet, which are presented by the uniform content format. The customizing hotel services has a traditional way to do the reservation process by the manually or website which used now, these process need time and effort from the customer, the most hotels in the world have techniques to do the reservation process such as: The web site, so I will develop a prototype for hotel to help the customer, VIP and staff to reservation in anytime and anywhere through this prototype, just the customer can reserve simply by using his/her mobile/cell phone.

Mobile device such as Personal Digital Assistants (PDAs) a handheld device for managing contacts, appointments and tasks. It typically includes a name and addresses database, calendar, and to-do list and note taker. Handheld Personal device or cellular phone, enjoy enormous popularity. The huge growth and rising demands as well as user's reliance to access internet content anywhere at anytime. Mobile computing device like PDAs, cell phone and wearable are increasingly playing an important role in our daily life. The flexibility and mobility of handheld device make them ideally suited to reservation the room during mobile device.

Mobile- reservation was introduced to provide more flexibility and convenience to the customer by saving the time and effort. So the Mobile-reservation is expected to an alternative the traditional or the manually reservation way to do the reservation process by using mobile devices, the customer can reserve the rooms and for further information about room that how many rooms are available and at which level. The approach of this customer is to save customer time and effort, by developing a WAP application that can be used by mobile devices to provide customizing hotel services by reservation process in anywhere.

## **1.1 PROBLEM STATEMENT**

Malaysia is a tourism country as more and more people from around the world likes come to Malaysia. Malaysia is developing country, but there are strong competitions between hotels to get the tourist to come. University INN hotel has improved the services but may need to do more to get more customers. This study proposes to design a customized hotel services system using a mobile device. The proposed system should be able to serve the hotel, which plays a major role in the tourism in Malaysia. Several methods are available to keep track of hotel records that present hotel services (hotel reservation, checking in, checking out, and room services, restaurant services). However these services are available at conventional way in most hotels in Malaysia, that is face to face or through website. Hotel like University INN should provide better services to give business advantage in hotel. The proposed system should include the conventional way but now the features must be provided such as getting access to the hotel information remotely anytime and anywhere.

Other facilities should also be served by the system such as restaurants, room service and car rent. As a result, customers who stay out in the hotel (guests) can use the system to order whatever service for them and without the support of direct connection with the hotel staff. Guest can play golf outside the hotel and he want any services from the hotel and make order to got that services through a mobile device.

In view of the above problems that exist in the current reservation method, a mobile reservation system will be able to solve such problems. The need of Mobile-reservation system is crucial to facilitate the reservation process and to solve the problems. This solution facilitates access to do reservation process anywhere, anytime, quickly and easily.

## **1.2 RESEARCH QUESTION**

The main question of this research:

- 1.2.1 What are the current problems faced by customer in the process of reservation procedures?
- 1.2.2 What are the basic requirements to design a Mobile application for customizing reservation prototype in hotel?
- 1.2.3 How can the effectiveness of that technique be measured and explained during and after the implementation process?

## **1.3 RESEARCH OBJECTIVE**

The main objectives of this research are:

- 1.3.1 To identify problems faced by customer and the staff in current traditional reservation process.
- 1.3.2 To identify the requirements for WAP based reservation.
- 1.3.3 To develop a conceptual model of WAP reservation system.
- 1.3.4 To design and developing a prototype of the WAP Based reservation.
- 1.3.5 to test and evaluate a a prototype of the WAP Based reservation.

## **1.4 SCOPE OF THE RESEARCH**

This study focuses on the designing of the WAP Based reservation model in hotel with Wireless Application Protocol (WAP). And focuses on developing a prototype application based on the proposed model in order to test and evaluate the usability of the proposed model and ensure that it can be used implemented successfully by UNIVERSITY INN hotel.

## **1.5 RESEARCH OUTCOMES**

The first outcome is the WAP system which is user friendly with simple user interfaces to enable customer to make a reservation process easily and quickly, anywhere, anytime. Second outcome is the conceptual model of mobile reservation system. The conceptual model can be used at any hotels with slightly modification.

## 2. LITERATURE REVIEW

### 2.1 Mobile Computing and Mobile Device

The mobile computing offers users to access information anywhere at anytime. Due to the growth of wireless and portable devices, such as cellular phones, palm computers, PDAs (Personal Digital Assistants), people enjoy the freedom and convenience they provide in their daily lives. Today there are some works carried out particularly on applications' in mobile computing such as using proxies to tailor the applications to fit into the environment and using component based software engineering to develop the mobile applications.

(Tang & Cao, 2006).

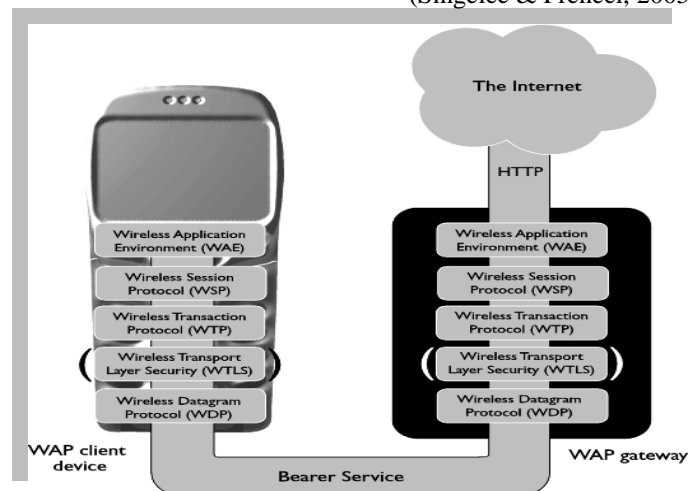
### 2.2 The WAP Protocol Stack

The Mobile devices contain the tiny mobile devices such as mobile phone, and devices which need special operating systems such as the pocket PC, which can be able to provide many applications. In another hand mobile devices include the most competitive technology such as the Personal Digital Assistants (PDAs) with or without networking capabilities and mobile phones that may or may not be able to access the Web.

(Nesmith , Lonsdale, Vavoula, and Sharples, 2004).

The WAP application can be used to reduce the processing operation on the client side effect, which embraces the client and server approach in order, where a mobile phone equipped with other communications technologies such as a micro browser communicate with a WAP Gateway reside on a server, therefore only a simple browser that capable of displaying contents were placed in the phone while all the intelligent and processing done by the server.

(Singelee & Preneel, 2005) (WAP Forum, 2001).



*Figure 1: WAP Protocol Stack (WAP Forum, 2000).*

According to figure 2.1, the WAP layer stack contains the following:

- **Wireless Application Environment (WAE):** This protocol embraces the tools that the wireless Internet content developers utilize. These tools include WML and WMLScript, which is a scripting language used in combination with WML.
- **Wireless Session Protocol (WSP):** This protocol provides two types by work with WTP to provide connection oriented service and connectionless service that provides above WDP.
- **Wireless Transaction Protocol (WTP):** This protocol organizes the traffic. It also classifies the request of the transaction into three classes, the reliable two-way, reliable one-way, and unreliable one-way.
- **Wireless Transport Layer Security (WTLS):** This protocol provides an optional layer. It related to the security, data integrity and the user authentication, and this will be important for some applications like WAP-banking.
- **Wireless Datagram Protocol (WDP):** This protocol manages the transmission and makes it easy to adapt WAP to a diversity of bearers (network carriers) from the network layer.

### 2.3 Mobile reservation

Mobile reservation allows customers to make their orders by SMS, through browsers on their mobile. This makes it very effective service (when shoppers go on-or do not have access to Internet-connected PC). On-line is no longer just for computer users. For instance (mobile reservation service, this can be accessed (from <http://mobile.goindigo.in>.) This service not only allows customers to reserve and pay for airline tickets, but also gives them and domain to check flight information also. Mobile reservation tickets will be easier and, therefore, suitable for all.



Figure 2: mobile flight reservation system (Espherical, 2007)



Figure3: <http://www.airasia.com>

## 2.4 Wireless Application Protocol (WAP)

Several companies organized an industry group called the WAP Forum in 1997. This group produces the WAP specification, a series of technical documents that define standards for implementing wireless network application. WAP has been created by a consortium of phone.com, Ericsson, Motorola and Nokia (Parekh, 2000). WAP is a wireless communication protocol having various components similar to the current-based protocol, such as Hyper Text Transfer Protocol (HTTP), the propose of WAP is to provide operators, network infrastructure, terminal manufactures, and content provides a common environment for the development of value added services of mobile phone or other wireless device.

## 3. RESEARCH METHODOLOGY

Research methodology is more than just collections of method to perform a research; it is a systematic way to solve the research problem. The research methods refer to the methods and techniques used by the researcher in doing the research, for example, data collection technique, data processing techniques and instruments. The research methodology used in this study is a General method, excellently chosen, described and accepted among many researchers in Information System Research Design (Vaishnavi & Kuechler, 2007).

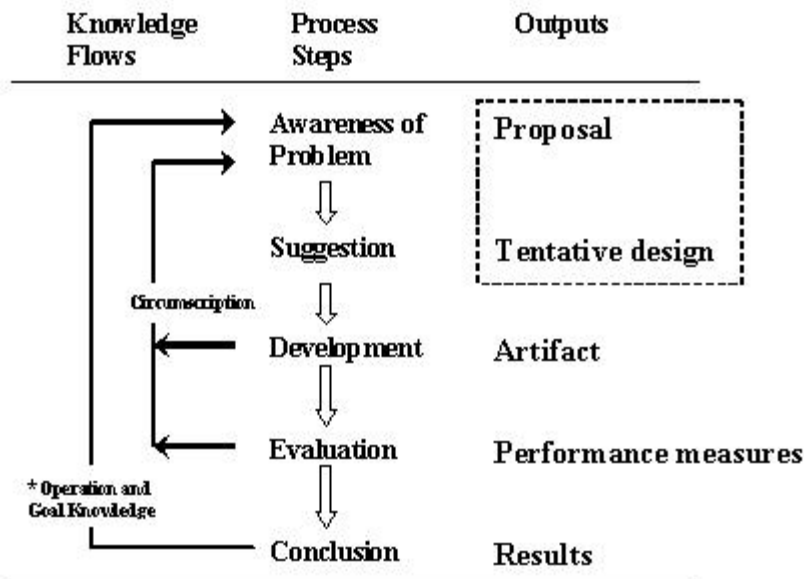


Figure 3.1: The General Methodology of Design Research (Vaishnavi & Kuechler, 2007).

**3.1 Awareness of Problem:** research Awareness of Problem is a phase of exploring potential topics in a chosen domain, and the understanding of the problem which needs to be solved. In fact, the selection of domain was decided during this phase through discussion and related reviews of similar WAP Application for hotel reservation. Data gathering is also part of awareness of the problem; first, to come up with the objectives of this study, we have to understand the research domain. For this research, literature review will be carried out. During the literature review stage, ideas, information, issues and problems related to the reservation procedure will gather. Further information will be collected and reviewed from interview, conference proceedings, and books. Journals, etc....

**3.2 Suggestion:** In order to develop a well-design for WAP application to customizing hotel services in UNIVERSITY INN , one of the major influences on the quality of the systems developed is the software development approach adopted. A methodology consists of an approach to software development for instant " object orientation", a set of techniques and notation for example," the Unified Modeling Language-UML", that support the approach to structure the development process and unifying set of procedures to structure the proposed requirements model. In this system prototype development, the object oriented approach will use. As information systems requirements are becoming increasingly complex, the use of object orientation approach is more necessary. Object oriented offers conceptual structures that support the sub-division in the system. It also aims to provide a mechanism to support the reuse of program code, design and analysis design.

**3.3 Development:** The model is a simplification of the transactions, which will use a precisely defined signs and notifications to represent and simplify a structure and the relationships of the system. The model will create to avoid complexity and to act as a guideline in developing the system prototype in order to make the prototype easier to understand and reusable. The system prototype will develop using .NET technology, and use C#.net language. Microsoft SQL Server 2005 (the evaluation version) will be use to build the prototype database to store all users and customizing reservation information, customer in the hotel can use the prototype to see the services in the hotel, conditions on this customizing hotel, etc...

**3.4 Evaluation:** evaluation will be performing to determine the level of functionality and operability of the system prototype after the prototype has been developed; it is tested based on the list of requirements. The aim is to see the level of functionality and operability of the prototype system. The research will employ two techniques to evaluate and test of the prototype: the first technique is the use of case testing to minimize prototype from bugs and errors; this technique is necessary since the use of case testing will be performed on the interaction of the entire dialog components when all the components are combined for the first time. The second technique is User Testing (questionnaire) to rate the user satisfaction with the mobile application for customizing hotel services system and to evaluate the system in many dimensions.

To measure the reliability and usability for it. The prototype will be evaluated by Users such as customer and Staffs'.

**3.5 Conclusion:** WAP applications for hotel reservation will be develop in order to enhance the reservation performance and increase the user’s satisfaction. Implementing this prototype will return in many benefits for users, through this prototype the user save time and effort and keep them informed of their information details anywhere anytime. Some work and further studies still need to be conducted for this WAP application in order to make it more functional and reliable such as expanding and generalizing the model to include all procedure reservation in the hotel a prototype will be developed for a WAP based browsing and reservation system which would expand the applicability of the system to other services in UNIVERSITY INN .

#### 4. SIGNIFICANCE OF THE STUDY

This study is considered as a starting point in mobile reservation applications to implement reservation process, which could open the way for everyone to use these services anywhere. The significance of this research is to designing a prototype for the reservation process of customer in hotel through the use of WAP and thus get rid of the manual method. And this study will help hotel to notice the points of weakness in its customizing hotel reservation, And in which ways is could be developing to make the reservation process easier, effective for the customer, And they will gain the satisfaction while conducting the reservation process and save the effort.

Some work and further studies still need to be conducted for this WAP application in order to make it more functional and reliable such as expanding and generalizing the model to include all procedure reservation in the hotel.

#### 6. GANT CHART:

Methodology	Two weeks	Three weeks	From	To
1.Awareness of problem		➤	16/Jul/2009	5/Aug/2009
2.Suggestion	➤		6/Aug/2009	19/Aug/2009
3.Development		➤	22/Aug/2009	14/Sep/2009
4.Evaluation	➤		15/Sep/2009	29/Sep/2009
5.Conclusion		➤	2/Oct/2009	22/Oct/2009



## References:

- Barker, D. (2000). Requirements Modeling Technology: A Vision for Better, Faster, and Cheaper Systems. *IEEE Computer Society*. Retrieved: July 23, 2009.  
From: <http://www.ittc.ku.edu/Projects/rosetta/downloads/barker-viuf00.pdf>
- Hevner, A., March, S., Park, J. and Ram, S. (2004). Design Science in Information Systems. *MIS Quarterly*. Vol. 28. Retrieved: June 22, 2009,  
From: <http://myresearchspace.grs.uwa.edu.au/files/folders/224/download.aspx>
- ESpherical (2007). Mobile Travel Tools. Retrieved: June 19, from: <http://www.espherical.com/MobileTravel.pdf>
- Naismith, L., Lonsdale, P., Vavoula, G., & Sharples, M. (2004). Literature Review in Mobile Technologies And Learning: Future lab Series. Retrieved: June 24, 2009,  
From: [http://www.futurelab.org.uk/resources/documents/lit\\_reviews/Mobile-Review.pdf](http://www.futurelab.org.uk/resources/documents/lit_reviews/Mobile-Review.pdf)
- Tang, M. & Cao, J. (2006). A Dynamic Mechanism for Handling Mobile Computing Environmental Changes. *ACM International Conference Proceeding Series*. Vol. 152. Retrieved: June 22 from <http://portal.acm.org/citation.cfm?id=1146854>
- WAP Forum (2001). WAP Architecture. *Wireless Application Protocol Architecture Specification*. WAP-210-WAPArch-20010712. Retrieved: June 25, 2009,  
From: <http://www.openmobilealliance.org/tech/affiliates/wap/wap-210-waparch-20010712a.pdf>
- Vaishnavi, V., & Kuechler, B. (2007), Design research in Information Systems Retrieved: June 22, 2009. From: <http://www.isworld.org/Researchdesign/drisISworld.htm>
- WAP Forum (2000). Wireless Application Protocol White Paper. Retrieved: June 20, 2009. From: [http://www.wapforum.org/what/WAP\\_white\\_pages.pdf](http://www.wapforum.org/what/WAP_white_pages.pdf)