INTELLIGENT VENUE FINDER AND RESERVATION (IVFR) SYSTEM FOR UNISEL BESTARI JAYA

Roziyani Setik[1], Saliyah Kahar[2], Mohamad Ashri Abu Hassan[3], Izwan Suhadak Ishak[4]

[1]*Faculty of Computer Science and Information Technology, Universiti Selangor, Malaysia*
roziyani@unisel.edu.my
[2]*Faculty of Computer Science and Information Technology, Universiti Selangor, Malaysia*
saliyah@unisel.edu.my
[3]*Faculty of Computer Science and Information Technology, Universiti Selangor, Malaysia*
ashri@unisel.edu.my
[4]*Faculty of Computer Science and Information Technology, Universiti Selangor, Malaysia*
izwan@unisel.edu.my

Abstract

IVFR uses the concept of intelligent agent. An intelligent agent is software that assists work. Agents can perform repetitive tasks, remember things you forget and intelligently summarize complex data. The intelligent agent can help user to find and filter information. The same concept is being used in the IVFR system. Problem that is faced by Unisel Bestari Jaya is the numerous number of rooms and there were difficulty in searching vacant venues and then to do a booking on it. Every faculty manage their own rooms, a staff from other faculties find it is difficult to do a booking since staff need to come to the dedicated office because staff have to fill up a manual form and then manually check booking records in a booking logbook. The booking is based on first come first serve. Software development methodology use for the system is prototyping. The phases in prototyping overall gives the chance to add features each time a client add requirement. Prototyping is used for this system because there is possibility of changing requirement from many potential users of the system. Features are constantly added during the development. A basic requirement of the system is gathered from the prospective end users of the system via interview and questionnaire. A total number of 30 respondents gave feedback on the system during requirement gathering phase. IVFR is developed using PHP as the front end and MYSQL as the back end. By introducing IVFR, staff able to book venue through online and it is hassle free. No approval from faculty's management is needed. Redundancy booking could be avoided, and staff will be suggested with several venue before proceed with the booking. Cross booking between faculties also allowed in this IVFR.

Keywords: venue finder, intelligent agent, room booking

1   INTRODUCTION

Web Based Applications (WBA) is fast becoming more widespread, larger, more interactive, and more essential to the international use of computers. Web based applications provide cross-platform universal access to web resources for the massive user population (Nabil, Mosad, & Hefny, 2011).

Intelligent systems are nature-inspired, mathematically sound, and computationally intensive problem solving tools and methodologies that have become extremely important for advancing the current trends in information technology (Krishnakumar, n.d.).

This project is about a development of Intelligent Venue Finder and Reservation for Unisel Bestari Jaya. This system aims to replace the current manual booking at the resource counter at each department into an automated booking system. The IVFR enables staff to search available venue in all faculties and then do a booking using this online system. Venue availability is depends on semester timetable that uploaded to IVFR. It might reduce manual procedure and saving more time of approval process. Staffs do not have to travel between departments to make booking and fill up any form. This system will make task for admin staff easier and manageable while managing the booking processes. Information also will be retrieve easily. Proper database is used to ensure records are safe. The interface of the system will be user-friendly to all level of users.

1.1 BACKGROUND OF THE STUDY

In Unisel, there are several departments and faculties control the usage of venue. And currently all room are managed by individual department, faculty and units. Therefore every staff having difficulty to check, find and reserve the available room for any event. User need to go personally to each department, faculty or units to check, find and make reservation. As a result, they need more effort and time to go to all the units, department and faculty in order to check, find and make reservation.

1.2 PROBLEM STATEMENT

The reservation detail is recorded manually in the logbook by the staff in each department. This is a major disadvantage as there is a risk that the admin may write the same reservation twice or make errors while writing the details of reservation. The logbook does not provide the flexibility and efficiency in managing the data as well.

Record of booking made could not be compile since all are in handwriting. Redundant booking are common issues. Auditing on booking record is handle manually by checking every single booking made by staff. Then admin will convert to Microsoft Excel to produce a report.

Traveling from department to department to make a reservation had wasted their times. Phone call somehow not pickup due to absent of person in charge. Waiting for management approval somehow make the process become delayed.

1.3 OBJECTIVES OF THE STUDY

The following are objectives for IVFR:
1. To investigate the factor that effect the problems in searching and finding vacant venue and then do a reservation for any purposes.
2. To develop an online Intelligent Venue Finder and Reservation system for Unisel Bestari Jaya.
3. To provide a manageable booking system through online and avoiding redundant booking by staff.
4. To produce report of booking system based on request by controlling proper database.

1.4 SIGNIFICANCE AND CONTRIBUTIONS OF THE STUDY

The benefits of developing this system are to create a venue reservation more systematic and cross faculties. This system will reduce the staff's effort to find the available rooms manually as they have to travel between departments to check their availability. Redundancy in reservation can be prevented by using this system. Reservation can be booked easily as whole timetable for venue are listed for whole semester. User can check the list by using venue name or lecturer name.

2 LITERATURE REVIEW

Intelligent agent have been used by human in technology for long times. It have be used in many different field for many different proposes. Intelligent agent has helped the user to reduce their effort to perform work that is time consuming. Intelligent agent can be categories into different agent like the collaborative, mobile, interface, information, reactive, hybrid and smart agents. Each of the agents has their own advantage when perform their job.

A software agent or intelligent agent which works toward goals (as opposed to discrete tasks) in a dynamic environment (where change is the norm) on behalf of another entity (human or computational), possibly over an extended period of time, without continuous direct supervision or control, and exhibits a significant degree of flexibility and even creativity in how it seeks to transform goals into action tasks (Mishra, 2012). Agents has their own origins in four different research areas, robotics, artificial intelligence, computer graphics and distributed systems.

Saleem (2012) defines an agent is a program that assists people and acts on their behalf. Agents can perform function by allowing people to delegate work to them. They can look at a situation and choose from a number of possible courses of action to pick one that solves that problem.

According to the article intelligent agent based hotel search and booking system by McTavish (2010), discuss about the current booking system and about the new system that replace the old system. Scope of the system is enabling the user to easy find and make room reservation without waste of time.

Nwana (2009) mentioned that the agent can be categories into different type. The agent consists of collaborative, mobile, interface, information, reactive, hybrid and smart agents. Collaborate agents emphasize autonomy and cooperation with other agents in order to perform tasks for their owners in open and time constrained multi-agent environments. The class of collaborate agents may itself be perceived as a broad grouping.

While an article about smart agent based hotel search systems by Wayne (2012), have discuss on the software agent system that overcome the weakness in the previous system and agent possesses learning capability of search. Scope of the system is to enable the user to use Google maps to find and make room reservation.

Responsive web design that mentioned by Ethan Marcotte (2010) explain about the approach that suggests the design and development should respond to the user's behavior and environment based on screen size, platform and orientation. As the numbers of mobile device users are constantly increasing, responsive web design has become an important method to improve mobile device user experience and accessibility in browsing the web. Responsive web design provides a website with a flexibility to adapt to any of the devices by automatically scale and adjust content to various screen sizes.

For this project, the intelligent agent concept will be used in booking field. The intelligent agent can reduce the job that done by the user to find and reserve room. Type of agent that can be used is the project is search

agent, where the search agent can search information based on the user input data and provide the user will the good information. Other agent can be the database agent. Database in an important storage to save and retried data. The database agent will query all the input for the search agent. The system is based in web application, this can enable the user to perform different function rather than simpler search

3 METHODOLOGY

Prototyping, as a methodology is important in building fast, better, more reliable, and a better quality system. By using this prototyping, the client can get an "actual feel" of the system, since the interactions with prototyping can enable the client to better understand the requirements of the desired system.

The prototyping is usually not complete systems and many of the details are not built in the prototype. The goal is to provide a system with overall functionality. Prototyping helps developers gain insight into the users work tasks and problems, and helps to identify the user perceptions and needs into the requirements for an initial system.
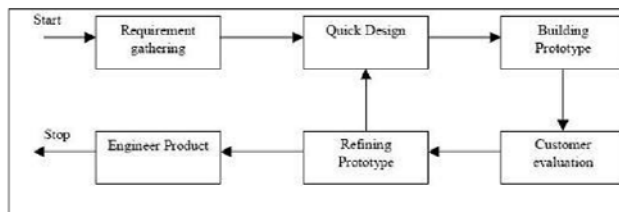

Figure 1: Prototyping Methodology

3.1 DATA COLLECTION METHODS

Data collection method is used to collect data that can be used for the development of the method. Interviews are the formal meetings held between two or more people, face to face, especially for consultations. It can also be defined as a meeting or conversation in which a writer or reporter asks questions to one or more persons from whom information is sought. For this project, face-to-face interview sessions have been conduct with staff that manage the room reservation on the current system and with the user of the system. By conduct interview session, it has help to provide clear problem that consist in the current system.

4 SYSTEM MODELING

System modelling describes about the system design that compare all the architecture design, interface design and database design. Output and user interface design is the first task in the systems design. Output design focuses on user needs for screen and printed forms of output, while user interface design stresses user interaction with the computer, including input design and procedures. However, it is acceptable on occasions, to make the table cover the entire width of the page.

4.2 INTERFACE DESIGN

Figure 2 shows the login interface of the system. Staff and admin can login into the system using the correct username and password. If the user enters wrong username and password, error message will be display. In addition, if the user forgets user name and password, they can click the link and send email to the admin to alert them.
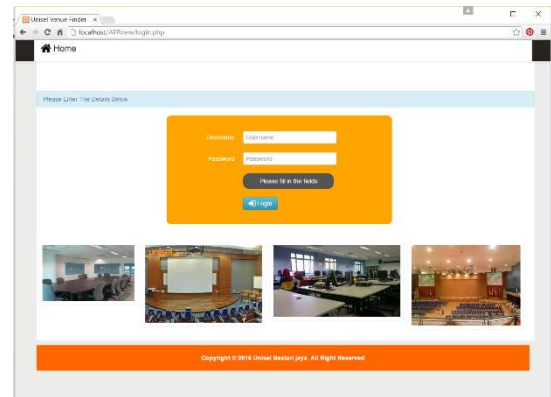

Figure 2: Login Interface

Figure 3 show the search venue interface. Staff needs to enter the date, type of room, venue and capacity in order to search venue. The result of the search will be display at the right side, and the user can straight book the venue from the search result.

Figure 3: Search Venue Interface

System will cater it as timetable and will show in blue color. While booking venue will indicated in green color. Manage timetable will list lecturers' timetable and venue used. Staff may check the availability of the venue directly form the list. Figure 9 show individual display for timetable venue.

Figure 4: Timetable for individual venue

5   CONCLUSION

Intelligent venue finder and reservation way successful developed by through research on current problem faced in finding and do a room reservation. This system was developed to computerize the manual system. Through the manual system, staff need to go through much process in order to find and reserve room event. This current system provide and easy way for the staff to find available venue in a faculty, able to select venue type , then easy conduct the reservation without waiting for approval. Booking are made by staff themselves may reduce human error. Redundancy booking could be avoided. IVFR replaced the manual system in handling booking process. Record are safe and easier to retrieve and review.

6   FUTURE WORK

IVFR has a scope for enhancement. Any type of enhancement on the future is possible as the system is designed to be scalable. As for now, the future enhancement that can be thought about is doing this system as a template that can be customized according to need by any client. That will be easier in that case to apply the system for both the campuses.

ACKNOWLEDGMENTS

REFERENCES

Amiri, A. M. (2013). An Intelligent Diagnostic System for Congenital Heart Defects, 4(7), 93–97.

Anckar, B. (n.d.). Agents as Agents : A Virtual Assistant for Self-bookings in Travel, (McCartney 2000).

Bowman, L. T. C. M., Jr, A. M. L., & Donlon, M. A. J. J. (2001). Teaching Intelligent Agents : Software Design Methodology, (June).

Jensen, S. S. (n.d.). Responsive Web Design as a Wicked Problem.

Jonkheer, K. (1998). Intelligent agents , markets and competition, (December). Knight, B. K. (2011). Responsive Web Design : What It Is and How to Use It.

Krishnakumar, K. (n.d.). Intelligent Systems For Aerospace Engineering--An Overview
1 Abstract 2 Defining Intelligent Systems 3 Role of Intelligent Systems in Aerospace Engineering, 1–15.

Lawrence, W., & Sankaranarayanan, S. (2012). Smart Agent Learning based Hotel Search System- Android Environment. International Journal of Information Technology and Computer Science, 4(9), 9–21. doi:10.5815/ijitcs.2012.09.02

Livshits, B. (n.d.). End-to-end Web Application Security, 2–7.

Maalal, S. (2011). A new approach of designing Multi-Agent Systems, 2(11), 148–157.

McTavish, C., & Sankaranarayanan, S. (2010). Intelligent agent based hotel search & booking system. 2010 IEEE International Conference on Electro/Information Technology, 1–6. doi:10.1109/EIT.2010.5612121

Mishra, P. (2012). Focused Web Search Agents : A Critical Study, 2(2), 81–84.

Nabil, D., Mosad, A., & Hefny, H. a. (2011). Web-Based Applications quality factors: A survey and a proposed conceptual model. Egyptian Informatics Journal, 12(3), 211–217.

Nandorf, J. (2013). Evaluation of Techniques to Optimize Load Time.

Ndumu, D. T., Collis, J. C., & Nwana, H. S. (n.d.). Introduction : Towards a Software
Personal Travel Assistant Challenges for the Creators of a Personal Travel Assistant.

Padgham, L., Thangarajah, J., & Winikoff, M. (2005). Tool Support for Agent
Development using the Prometheus Methodology, (September), 19–20.

Padgham, L., & Winikoff, M. (2012). Prometheus : A Methodology for Developing
Intelligent Agents.

Saarinen, E., & Hämäläinen, R. P. (2010).
Chapter 1 The Originality of Systems
Intelligence, (Holland 1998), 9–26.

Saleem, H., Khan, M. Z. A., & Afzal, S. (2012).
Mobile Agents : An Intelligent Multi- Agent
System for Mobile Phones, 6(2), 26–34.

Sankaranarayanan, S., & Cox, L. (2012).
Intelligent Agent based University Search &
Admission System- Android Environment, 4, 35–
42.

Web, M. (1999). ORIENTED WEB
APPLICATION DEVELOPMENT Most Web
applications are still developed ad hoc .,
(February), 60–68.

Wu, Y., & Offutt, J. (n.d.-a). Modeling and Testing
Web-based Applications.

Zhu, W. (1996). Designing and Evaluating a Web-
Based Collaboration Application : A Case Study.

Ziemer, S. (2002). An Architecture for Web
Applications, (section 3), 1–1