



Faculty of Computer Science and Information Technology

SPORT AND RECREATION UNIT FACILITY MANAGEMENT SYSTEM

Faizol Mohd Suria

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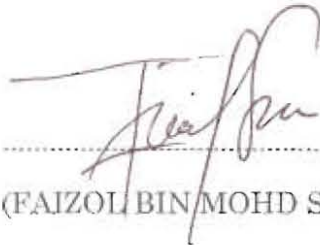
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Abstract

The Sports and Recreational Unit is a unit that is responsible in the planning, organizing, monitoring and implementing of sports activities in Universiti Malaysia Sarawak (UNIMAS). This unit provides facilities and sport equipment that can be used to sharpen the students' skills in order to participate in tournaments held by either the outside organizer or the university itself. There are many events have been held by this unit. The events are involving the student and staff to build good relationship between them. Besides that, all the facilities are free to use and the sports facilities can be used for recreational purpose too in order for the students to keep fit in both their mind and body. The proposed system named Sport and Recreation Unit Facility Management System to provide an online web based system for student make facility and equipment reservation and assist staff of Sport and Recreation Unit in managing sport facility and equipment. The proposed system offer a computerize management system for Sport and Recreation Unit which all bookings and histories will be managed through computerized system. The proposed system also offers a friendly user interface for student and staff in Sport and Recreation Unit to perform reservation and manage booking and inventory. The proposed system generates reports for Sport and Recreation Unit for planning and organizing events in UNIMAS.

Abstrak

Unit Sukan dan Rekreasi merupakan unit yang bertanggungjawab dalam merancang, mengatur, mengawasi dan melaksanakan aktiviti sukan di Universiti Malaysia Sarawak (UNIMAS). Unit ini menyediakan kemudahan fasiliti dan peralatan sukan yang boleh digunakan oleh pelajar untuk mengasah kemahiran bagi mengambil bahagian dalam pertandingan yang diadakan sama ada dianjurkan oleh pihak universiti atau penganjur luar. Terdapat pelbagai acara telah diadakan oleh unit ini yang melibatkan pelajar dan kakitangan bagi membina hubungan yang baik antara mereka. Di samping itu, semua kemudahan yang disediakan adalah bebas untuk digunakan dan kemudahan sukan boleh digunakan untuk tujuan rekreasi serta membolehkan pelajar untuk menjaga kesihatan di kedua-dua minda dan badan mereka. Sistem yang dicadangkan ialah Sistem Pengurusan Fasiliti Unit Sukan dan Rekreasi bagi menyediakan satu sistem berasaskan web dalam talian untuk pelajar membuat tempahan kemudahan dan peralatan serta membantu kakitangan Unit Sukan dan Rekreasi dalam mengurus kemudahan sukan dan peralatan. Sistem yang dicadangkan menawarkan satu sistem pengurusan berkomputer untuk Unit Sukan dan Rekreasi yang mana semua tempahan dan rekod akan diuruskan melalui sistem berkomputer. Sistem yang dicadangkan juga menawarkan system yang mesra pengguna bagi pelajar dan kakitangan di Unit Rekreasi Sukan dalam melakukan tempahan dan menguruskan tempahan dan inventori. Sistem yang dicadangkan dapat menjana laporan untuk Unit Sukan dan Rekreasi untuk merancang dan menganjurkan acara di UNIMAS.

Chapter 1: Introduction

1.0 Introduction

The Sports and Recreational Unit is a unit that is responsible in the planning, organizing, monitoring and implementing of sports activities in Universiti Malaysia Sarawak (UNIMAS). The unit was located at East Campus of UNIMAS until 2011 where the whole unit have been transfer to the West Campus of UNIMAS after the complete construction of the new stadium was finished. This unit has two subunits which are Operation and Services subunit and Development and Encouragement of Recreational Sport subunit. The unit provides opportunities and supports to the student and staff to participate in variety of sports activities at various levels, including sending them off to tournaments held by different organizer. This unit provides facilities and sport equipment that can be used to sharpen the students' skills in order to participate in tournaments held by either the outside organizer or the university itself. There are many events have been held by this unit. The organised events are involving the student and staff to build good relationship between them. Besides that, all the facilities are free to use and the sports facilities can be used for recreational purpose too in order for students to maintain healthy in both their mind and body.

1.1 Problem Statement

Sports and Recreational Unit in UNIMAS is currently providing a manual system to book their sports facilities and equipment. As we all know, in order to reserve a court, students or members of staff have to follow certain procedures that normally take about a week in order to know the booking result. Those procedures are applied on the student or members of staff who want to reserve facilities for an event. For daily usage of the sport facilities, students and members of staff can use them freely from given time if they are not reserved by anyone. There are no system that can update the current status of the availability

of facilities so they need to go to the court and check it by themselves either it is being reserved or not.

For event reservation, the student or staff who managing the event would have to go to the main office, fill up some paper based forms and wait for 3-4 days for the application to be reviewed. The requirement to do the application is the event's paperwork need to be approved or their application will not be process. Then again students need to go to the main office by themselves in order to check the status of their application, whether it has been approved or not. This situation shows that the efficiency of the current system is low. The status of the application is not being updated to the applicants immediately, not until they check it by themselves at the main office. Having to check the result manually is very inconvenient for the students or members of staff as Sports and Recreational Unit is located quite isolated from any college and other buildings. Apart from that, the current application is in paper based form. Application forms have the tendency to be lost. Searching process would be hard too if the sport officers want to find some forms with certain names. In order to solve these problems, an online management system is proposed.

1.2 Objectives

The objectives of this project are:

- To develop a web based booking system to enable students and staffs to reserve sport facilities and equipment in Universiti Malaysia Sarawak (UNIMAS).
 - Student and staff can reserve sport facilities as long as they have internet access.
- To increase the efficiency of the booking process via online booking system.

- Reduce the application process by replacing the manual search on the paper based application form to online query that will give the result instantly. It also help the applicant to check the status of their application anytime, if possible after it have been approved, applicant can see it on the website.
- To prepare a database for storage and easy record tracking of booking history.
 - Staff of the Sport and Recreational Unit can store all the booking history into database and it will prevent the tendency of lost data rather than using paper based form. Furthermore, it is easy to search and track the record by using query function in the database.
- To generate reports for planning and organizing sport events purpose.
 - Generate the availability of equipment and facility reports so that the unit can plan the event well which it will not clash with the other event held by student or staff.

1.3 Methodology

Methodology is a set of procedures and guidelines that is required in developing a system. The common methodology that always been used is System Development Life Cycle (SDLC). For this project, the methodology is based on the Waterfall Model to develop the system. The model is easy and simple to understand and it can be implemented to the project. The waterfall model has a clear project objective and uniform project requirement. There are 6 phases or stages in Waterfall model, which are requirement gathering and analysis, system design, implementation, testing, deployment of system and maintenance.

Project Phases:

1. Planning and Requirement Analysis

This phase is describing about finding the purpose and objective of the project. During this phase, all information about the Sports and Recreational Unit is gathered to determine the current problems they are facing. Besides that, all user requirements and system functions that are needed to be included into the system are identified and analysed. The potential user of the system is also identified through this phase.

2. System Design

During this phase, the system layout is designed according to the list of functions to be implemented into the system. All the designs must meet the user requirements so that it meets their expectations. This includes the position of the buttons, what should the system have and so on. After the layout or the user interface is finalized, it will be reviewed by the users to know whether the system can be accepted or not.

3. Implementation

After the GUI is approved and finalized, the code is implemented to develop the interface and functions of the system according to the designs made. This phase is focusing on building up the system from the scratch until the system is finished.

4. Testing

At this stage, the system will go through testing phase to check either the code that has been implemented to the system is functional or not. All the error handling is tested to ensure that the system take the correct input and give out correct output. This is important to check the quality of the system. If the code is not working well, the system will undergo debugging process until the code is working correctly.

5. Deployment

After the testing phase is done, the system is ready to be deployed to the target market. The system will fully interact with the real users. The system will deal with real data in daily operation. At this stage, all functions should run properly and minor bugs or errors will be directly reported to the developers to fix and maintain the functionality of the system.

6. Maintenance

This is the last phase for Waterfall model. In this phase, all the issues that have been reported by the users after the deployment of the system will be fixed. All performance faults and bugs of the deployed system will be solved. In addition, if there are relevant suggestions for the features of the system, the features will be developed and implemented on the next update of the system's patch.

1.4 Scope

An online web based system that supports the students and staff in Universiti Malaysia Sarawak (UNIMAS) by UNIMAS Sport and Recreation Unit.

1.5 Significance of Project

This project will be able to help staffs and students in booking sport facilities and equipment without filling up paper application forms manually at the main office. Besides that, they can check their application status via online system at anytime and anywhere. Apart from that, this project will help the staffs in the Sport and Recreational Unit to keep their record safely in database. The record will be able to be retrieved faster than the current method used, which is by searching it manually through the paper based forms. The system also helps the Sport and Recreation Unit in planning and organizing events at suitable times and activities by analysing the reports generated by the system.

1.6 Project Schedule

Refer to Appendix A.

1.7 Project Outcome

At the end of this project, a web based booking system for the Sports and Recreational Unit called “Sport and Recreational Unit Facility Management System” that can be used by students and members if staff to reserve any facilities and sport equipment and track on their application status.

1.8 Summary

In this chapter, we have outlines the objectives and benefits of the system to the students and staff. The system will be able to reduce the workload of staff and help them to manage all the operations and processes despite it can encourage the communication between student and staff in UNIMAS via online.

Chapter 2: Literature Review

2.0 Introduction

In this chapter, the literature review will focusing on web based services, online reservation system, programming language and reviews about the existing system.

Today, people want to improve their system by migrating from manual system to computerize system. The motivation is to get an efficient and effective system that could ease and reduce workload of management staff and user.

2.1 Overview of Sport Recreational Management System

The management of the Sport and Recreational Unit in UNIMAS is focusing on giving service to the students. They are managing events, planning events, provide facilities and utilities and manage them. The popular service which always been high demand from students and staff in UNIMAS is making reservation for the sport facilities and equipment. The reservation system is a part of the service provides by Sport and Recreational Unit from the whole management system. Besides, the management system also consists of inventory system, reporting system and customer service system. All the system is done manually or partially manual and taking a large tolls on the management staff's burden.

Currently, there are two situation happened for the facility usage and facility reservation. First, walk in service that occur when the student come to the court and use them if it is available and second is event reservation service where student as the organizer need to go through many procedure to get a facility reservation. The current system just support the event reservation meanwhile there no system that can keep track the walk in service.

2.2 Online Reservation system

Online reservation or booking system is about a computer that connected to other computer via wide network coverage and the computer consist of configured processor and memory to enable the storing of programming function and data (Armstrong et al.,2014).

2.3 Recommended Website feature/ Web service

Nowadays, it is a common thing that everyone wants to use the computer-based application in web-based application form (Wang, 2006). Many programmers and developers keep upgrading their knowledge, skills and try to develop new things to improve the web-based platform. This platform is kindly popular when it comes to information system and e-commerce systems to use the web as user interface (Wang, 2006). On the other side, web based application is also part of web features and it refer to any program that is accessed via network connection through HTTP protocol (Technopedia, 2014).

According to Wang et al.(2008), for commercialization purpose, web service is the most suitable platform to be use and implement to achieve business or organizational objectives. Web based system is cost effective and can be outsource with low cost with good business strategies and surveys.

The developed web based system and application induce a sector called e-service where it is important in business to customer (B2C) e-commerce because it provides on-demand solution and support to the customer which improve firm's customer service, creating transactional efficiencies and improve the customer satisfaction towards their product and services (Ruyters et al., 2001). The acceptance of the customer to the new platform of service is gaining the trust and loyalty from them to the firm's product or services. On the other hand,

the web features and its advantages encourage peoples to implement them as a business tools to operate their business.

2.4 Programming Language and Tools

Nowadays, PHP language is very popular platforms for web programming. This is due to it characteristics which is simple, easy to learn and use, fast, open-source distributed and can cross to many platforms (Cholakov, 2008). There are many Application Programming Inteface (API) frameworks based on the PHP language which make the process of developing of system easier and faster because programmers do not need to do the back end so much such as scripting from the scratch to do connection between interface file and database. Example of open source of API Framework is Codeigniter which is a powerful framework that can be modify by programmers to develops large system.

PHP language can be integrated with other language such as JAVASCRIPT, HTML, JQUERY, CSS and so on to make the web page interactive and dynamic. Example of tool that can be used to code the PHP and other languages is Netbean IDE which contains error checking embedded in the software.

To design the database, XAMPP software can be used to store the data for the system. It also has wizard function or can use SQL command to design the database. This option can ease the programmer who already used to wizard or to manual SQL scripting.

2.5 Reviews of Existing Systems

2.5.1 Tennis Booking System

Tennis Booking System is an online booking system providing booking services for user to use tennis court. For this system, user needs to register an account and login into the account to use system's features. The interface for this system is simple and yet full with features and information like in Figure 2.1.



Figure 2.1 Interface for user after login

User needs to choose available slots and then fill up some details before reserve the slot. It is an instant booking where the slot will turn to grey colour with name of person on the slot such as shown in Figure 2.2. After that user will be prompt to print out the booking slip or can email to his or her email. There is information dashboard to inform user for upcoming events or currently achievement in tennis competitions.

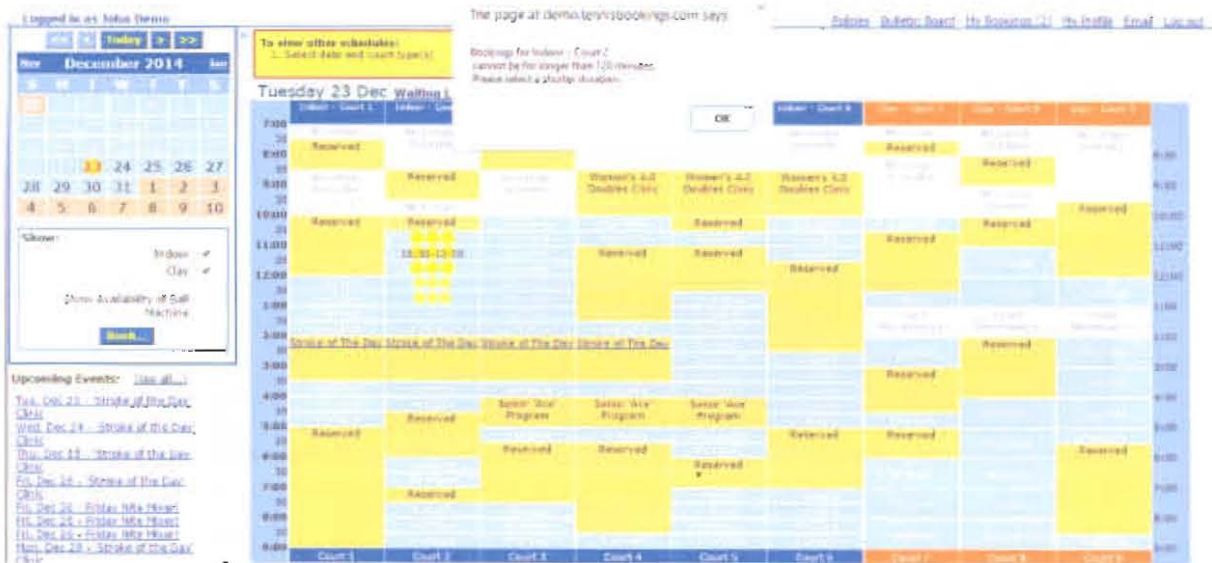


Figure 2.2 Booking timeline slots for Tennis Booking System

Figure 2.3 is showing the booking form for tennis court reservation. User need to fill up the details and then tell the system how many people will be using the court. User can book after all necessary information is entered.

The screenshot shows the booking form for the Tennis Booking System. At the top, there is a header with the 'Dennoville Tennis' logo and the text 'Tennis Booking System'. Below the header, a message says 'Please review the booking details shown:' followed by a box containing 'John Demo', 'Indoor (Court 2)', and 'Tuesday December 23 11:00 AM-12:30 PM'. Below this, another message says 'Please provide the following information:' followed by a form with a 'Players' dropdown menu (options 1, 2, 3, 4) and a 'Court Use' dropdown menu (option 'Select One'). There is also a 'Guests' field with a value of 0. At the bottom of the form, there is a checkbox for 'Display my name (John Demo) on this booking when schedule viewed by other users.' and two buttons: 'Book' and 'Cancel'. A small note at the bottom states: '(The data-collection fields above can be configured to prompt the user for any required information, e.g. whether the booking is for a league match, etc., etc.)' and a footer note says 'Recorded time of booking will be 10:20:23'.

Figure 2.3 Booking form for Tennis Booking System

The Tennis Booking System will generate the slip after the booking confirmation such in the Figure 2.4. User has three options to print the slip immediately, email the slip to their email or return to the court schedules.



The screenshot shows a confirmation page for the Demoville Tennis Booking System. At the top right, there are links for [My Bookings \(3\)](#), [My Profile](#), [Email](#), and [Log out](#). The header features the Demoville Tennis logo on the left and the text "Tennis Booking System" on the right, set against a background of a tennis court and a tennis ball. The main content area is enclosed in a light blue border and contains the following information:

Thank you, the following reservation has been made. Confirmation #: 1553

 John Demo
Indoor - Court 2
Tuesday, December 23 11:00 AM-12:30 PM

Court Use: Singles
Guests: 0

{ {This space can be used to display a custom message, such as a description of your club's policy on cancellations, etc.. To customize/remove this message see option ConfirmedPageMessage.} }

At the bottom of the confirmation area, there are three buttons: [Print Booking](#), [Email Booking](#), and [Return to Court Schedules](#).

Figure 2.4 Successful Booking Information for Tennis Booking System