Faculty of Computer Science & Information Technology

Thesis: E-Sport News and Event Mobile Application in Sarawak

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Bachelor of Computer Science with Honours (Software Engineering)
2023

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A thesis submitted

In fulfillment of the requirements for the degree of Bachelor of Computer Science with Honours (Software Engineering)

Faculty of Computer Science & Information Technology
UNIVERSITI MALAYSIA SARAWAK
2023

UNIVERSITI MALAYSIA SARAWAK

THESIS STATUS ENDORSEMENT FORM

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ACADEMIC SESSION: __2022/2023_____

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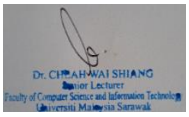

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ACKNOWLEDGEMENT

First and foremost, I would want to express my heartfelt thanks to my supervisor, Dr Cheah Wai Shiang, who provided valuable suggestions, direction, inspiration, and supervising during my Final-year project. Next, I'd like to thank Prof. Wang Yin Chai, the Final Year Project coordinator, for providing helpful lessons and knowledge during lectures. Finally, I'd like to thank my examiner, Ts. Syahrul Nizam Junaini, for providing helpful remarks and suggestions on my Final Year Project. Furthermore, I would want to express my gratitude to the people who provided good input and helped to our effort. Last but not least, I'd want to thank my parents and all of my mates for providing love, support and guidance during my studies. My heartfelt thanks to the Centre for Graduate Studies for the advice and assistance provided throughout my time at Universiti Malaysia Sarawak. Thank you very much.

ABSTRACT

E-Sport is hitting the world with a significant impact upon the work-life situations of people world-wide as well as the specialisation of production and the profits that go along with it. E-sport has a large and prosperous market in Malaysia, particularly in Sarawak. It has great potential since eSports athletes are now considered as Malaysian athletes and not to mention that eSports has been acknowledged as a sport at the SEA Games. In this study, two mobile applications that delivers E-Sport News and Events was created using a mix of Flutter and Firebase technologies. One application for user and another one for admin. The main goal was to develop a prototype that enables users to discover, view and take part in admin-organized E-Sports-related activities. Rapid Application Development Methodology (RAD) was the methodology used, and its stages included collecting user requirements, creating the application interface, going on to the programming stage, and concluding with the implementation stage. Subsequently, the prototype had usability, efficiency, and satisfaction evaluations utilizing a sample of 18 participants for both the user and administrator roles. According to the results of the participant surveys, the application received an overall user rating of 3.07 and an overall admin rating of 3.50, reflecting the participants' experiences with it. Based on the presented findings, it can be concluded that the participants expressed a general sense of satisfaction with the prototype and agreed that it well performed the intended objectives and purposes.

Keywords: E-Sport, Sarawak, flutter, Malaysia, mobile gaming

Tesis: Aplikasi Mudah Alih E-Sukan Tentang Berita Dan Acara di Sarawak

ABSTRAK

E-Sport sedang melanda dunia dengan kesan yang ketara ke atas situasi kehidupan kerja orang di seluruh dunia. E-sukan mempunyai pasaran yang besar dan makmur di Malaysia, khususnya di Sarawak. Ia mempunyai potensi besar memandangkan atlet eSukan kini dianggap sebagai atlet Malaysia dan apatah lagi eSukan telah diiktiraf sebagai sukan di Sukan SEA. Dalam kajian ini, dua aplikasi mudah alih yang menyampaikan Berita dan Acara E-Sport telah dibuat menggunakan gabungan teknologi Flutter dan Firebase. Satu aplikasi untuk pengguna dan satu lagi untuk pentadbir. Matlamat utama adalah untuk membangunkan prototaip yang membolehkan pengguna menemui dan mengambil bahagian dalam aktiviti berkaitan E-Sukan yang dianjurkan oleh pentadbir. Rapid Application Development Methodology (RAD) ialah metodologi yang digunakan, dan peringkatnya termasuk mengumpul keperluan pengguna, mencipta antara muka aplikasi, pergi ke peringkat pengaturcaraan, dan membuat kesimpulan dengan peringkat pelaksanaan. Selepas itu, prototaip mempunyai penilaian kebolehgunaan, kecekapan, dan kepuasan menggunakan sampel 18 peserta untuk kedua-dua peranan pengguna dan pentadbir. Menurut hasil tinjauan, aplikasi menerima penilaian keseluruhan sebanyak 3.07 dan penilaian keseluruhan pentadbir sebanyak 3.50, mencerminkan pengalaman peserta dengannya. Berdasarkan dapatan yang dibentangkan, dapat disimpulkan bahawa para peserta menyatakan rasa kepuasan umum terhadap prototaip dan bersetuju bahawa ia melaksanakan objektif dan tujuan yang dimaksudkan dengan baik.

Kata kunci: *E-Sukan, Sarawak, Flutter, Malaysia, permainan mudah alih*

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

CGS	Centre for Graduate Studies
UI	User Interface
UNIMAS	Universiti Malaysia Sarawak

CHAPTER 1

INTRODUCTION

1.1 Study Background

The growth of numerous applications in the market, whether web-based or mobile, clearly indicates the evolution of our world towards a digitized state. This transformation is particularly evident in the gaming sector (Janusz et al., 2018). Nowadays, gaming has become one of the most popular ways of spending time in modern society (Wardaszko et al., 2019). Moreover, the Covid-19 pandemic has led to a significant increase in online gaming and other activities, like watching e-sports and live streaming (Dipa Kalyani Sujata et al., 2022). Online gaming not only serves as a form of entertainment but also as a means of communication and a globally recognized sport.

Esports refers to professional and competitive video gaming in the form of contests (electronic sports) (Yu et al., 2021). However, video game that allows internet interaction with several other gamers is referred to as online gaming. Online gaming or mobile gaming is now a mainstream sport thanks to E-sports. The experience of watching e-sport is like watching a professional athletic event, only difference is that viewers see computer gamers compete against each other rather than actual physical contest. In addition, Formosa et al. (2022) also found that the mobile application of Player Unknown's Battlegrounds (PUBG MOBILE), a popular online multiplayer game, recorded 27.9 million hours of viewed competition, surpassing the standard application's 26.8 million hours.

According to E-sports Market Report released by NewZoo (Tristão, 2022), the audience for e-sports worldwide grew by 8.7% from the previous year. Not only has E-

Sport become a trending hobby in younger generations, but it has also led to the emergence of professions in the field, resulting in the occurrence of flexible jobs (Walkowski & Kempińska, 2020). E-Sport is hitting the world with a significant impact upon the work-life situations of people world-wide as well as the specialisation of production and the profits that go along with it. E-sport has a large and prosperous market in Malaysia, particularly in Sarawak. It has great potential since eSports athletes are now considered as Malaysian athletes and not to mention that eSports has been acknowledged as a sport at the SEA Games.

Based on our experience, there is lacking of lawful and verified information in the E-Sport field in Sarawak. Most Sarawak E-Sport audience are found to be seeking for news updates such as recent E-Sport winners, E-Sport Workshop information, E-Sport competition schedule and etc, via newspaper, websites or web platform (Norizam et al., 2020). However, most of the information is not up to date and the managing of the gamers records is not yet being developed.

This thesis presents the design and development of an e-sport mobile application using Flutter. With the E-Sport app, users now can find verified and up-to-date information regarding electronic sports in just a single application using their mobile devices without worrying the news being a fraud.

1.2 Problem Statement

The definition of eSports is "a form of sport where the fundamental elements of the game are made possible by electronics devices and system; users' input, and system output are facilitated via human-computer interfaces". Even if e-sports are becoming more and more popular elsewhere, Sarawak's e-sport market is still not well-known (Norizam et al.,

2020). There is currently a dearth of pertinent data gathered regarding actual e-sport athletes. There is also lacking platforms for these gathered data to be displayed and shared to public.

It is obvious that E-sports news is still not frequently aggregated and concentrated on a single platform in Sarawak; instead, it is dispersed around the internet, with some of the content being false or fraudulent. This fraudulent news could cause misleading information to spread on the internet, affecting the reputation and image of e-sport which then causing loss of interest by Sarawakians. Since updates and information are not centralised on a single platform, it can be challenging for interested parties: individuals or companies from Sarawak to look for the relevant information.

With that, having an application created specifically for E-Sports, whether for news updates or competition schedule announcement etc is crucial for the sake of concentrated, reliable, and accurate news delivery.

1.3 Objectives

i. To design and develop E-Sport mobile application with complete functionality for concentrated and accurate information checking.

ii. To evaluate the E-Sport mobile application system.

1.4 Brief Methodology

This E-Sport mobile application will be design and develop using a methodology namely Rapid Application Development Methodology (RAD). RAD is chosen because the project prototype developed has requirements that may be unpredictable and the timeframe for project planning is limited. Since this technique emphasises quick prototyping and

iterative delivery, it will help boost the usability of the final product with the aid of user input and expectations. The Requirements Planning Phase, User Design Phase, Construction Phase, and Implementation are the four phases of RAD.

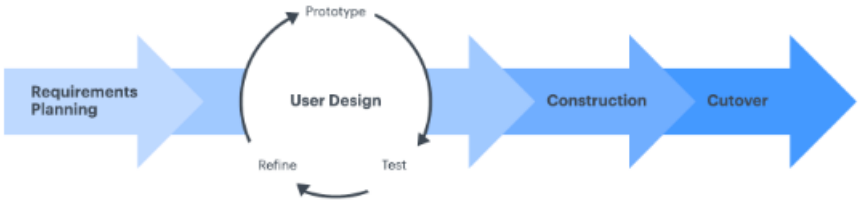

Figure 1.1: Rapid Application Development Methodology (Lucidchart, 2023)

The phases involved in the project are stated as below:

1.4.1 Requirement Planning Phase

Gather and analyse the needs and requirements by surveying using questionnaire. It has been known that there is currently a shortage of meaningful evidence gathered from genuine eSports athletes, as well as a deficiency of infrastructure that may be utilised for data collecting and subsequent analysis (Korotin et al., 2019). Questionnaire given will focus on asking question related to opinions towards the information delivery type of mobile application in e-sport industry and the source of e-sport related information update among different age group of E-Sport Sarawakian player or athletes. Analyse the requirements needed in designing and developing this project by looking through the needs and topics searched when scratching through E-Sport related information. Based on the concluding needs, the developer and stakeholders will reach an agreement.

1.4.2 User Design Phase

Design the mobile application so that to allow it being compatible in most mobile platform. Design the application in such a way to allow user to feel comfortable and

friendly using the application while browsing through it. Design the application in such to allow easy navigation for better user experience. Design user interface in sections of five: homepage, upcoming events, user profile, application members and notifications. Design the user interface in a dark colour vibe. Prototypes are built and revised throughout this phase depending on stakeholder needs and input. Each prototype will be delivered to users for testing, and input will be collected to develop the prototypes so that to ensure it meets their expectations.

1.4.3 Construction Phase

Development and testing will be focused. After developing the E-Sport mobile application, it will be run on android mobile for testing purposes. Testing is carried out as it is important and crucial in making sure that the risk of faults and failures are reduced and at the same time, all functions of the application work how it supposed to. The testing process will be repeated so that it achieves the requirements and are truly user-friendly to the users of the application. The front-end of this application mostly being developed using Flutter, an open-source cross-platform development toolkit to create mobile applications with Dart as the programming language used. Whereas the back end of this application will be developed using Firebase, which act as backend services and database server to provide services such as real-time database and cloud storage. Following the successful completion of the prototype, the model will be evaluated by groups of testers. All comments will be evaluated, and the prototype will be improved to guarantee that the functionality of the end product meets the user's expectations as well as the objectives of the project.

1.4.4 Cutover/Implementation

After ensuring the quality of the application, making sure that the application can run optimally and at the same time has gotten approval from stakeholders to release the

prototype, the APK will be deployed and released into the market for download. Market released include Google Play Store and App Store. The application will only be compatible on Android device with Android 4.1 (API 16) and above.

1.5 Scope

The scope of this project involves develop an E-Sport mobile application that can be executed in Android devices. The targeted user are people who passionate in getting to know about e-sport as well as e-sport athletes. The application develop will focus on information display and events updates. Function involving money matter such as online transaction, online payment and personalised recommendation function is not developing in the current version of the system.

1.5.1 System Environment

Table 1.1 shows the details of used hardware and in design, develop and implementation for the E-Sports Mobile Application:

Table 1.1: System Environment table

Hardware	**Software**
• Desktop or laptop A device that serves as a platform used in design and develop the application. • Mobile devices or Tablet A device that serves as a platform for testing the functionality of the	• Android Studio An official integrated development environment (IDE) for Android application development. • Firebase An open-source cross-platform web server for backend development of project. • Figma