



Faculty of Applied and Creative Arts

**IMPROVING RECYCLING EXPERIENCE THROUGH
MOBILE APPLICATION**

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**Bachelor of Applied Arts with Honours
(Design Technology)
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Grade: _____

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Final Year Project Report

Masters

PhD

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ABSTRACT

The environmental pollution has becoming more and more serious. Recycle activity is important to practice in our daily life. Hauler app act as a user's personalise waste management helper. By having, Hauler app recycling experience can be improve with easy and simple steps. The Hauler app have interfaces for user and for the service provider. This functions allow them to update notifications at the same time. Qualitative method is used in this research to obtain data and find out the problems from participants. The aim of Hauler app is to improve the recycling experience of user and thus create awareness and motivate public to recycle having a sustainable lifestyle.

Key Words: Recycle, Mobile App, Recycling Experience, Awareness, Motivate, Sustainable life style

ABSTRAK

Pencemaran alam sekitar menjadi semakin serius. Aktiviti mengitar semula penting untuk diamalkan dalam kehidupan seharian kita. Aplikasi ini bertindak sebagai pembantu pengurusan sisa pengguna. Dengan memilik aplikasi, pengguna dapat menikmati pengalaman mengitar semula yang baik. Pengalaman kitar semula dapat ditingkatkan dengan langkah yang mudah. Aplikasi ini mempunyai antara muka untuk pengguna dan penyedia perkhidmatan. Fungsi ini membolehkan mereka mengemas kini notifikasi pada masa yang sama. Kaedah kualitatif digunakan dalam penyelidikan ini untuk mendapatkan data dan mengetahui masalah dari peserta. Tujuan aplikasi ini dibuatkan adalah untuk meningkatkan pengalaman kitar semula pengguna dan memberi kesedaran serta memotivasi orang ramai untuk mengitar semula menjalani gaya hidup yang lestari.

Kata Kunci: Kitar Semula, Aplikasi Mobil, Pengalaman Kitar Semula, Kesedaran, Motivasi, Gaya Hidup Lestari

CHAPTER 1

INTRODUCTION

1.1 Research Background

Waste is overflowing in Malaysia from United State, United Kingdom, Australia and New Zealand ever since China refused to import foreign garbage which category with 24 type of recyclable solid waste. With only a small town in Malaysia, it has already produced 19,000 tonnes of waste (Brendix, 2019) . The huge amount of waste imported is overshadow with the waste that produced by Malaysian . Solid waste is defined as unwanted goods under a solid state created from human activities that discarded by the society. As the top three major issues in Malaysia, it is crucial with its ability to sustain life within its capacity (“ Solid Waste In Malaysia”, n.d.). Overall, 23,000 tonnes of waste is produced daily in Malaysia where it is expected to reduce to 30,000 tonnes by the year of 2020. However, the amount of the waste generated by the society is believed to increase along with the rising of population and development.

The waste mostly generated from household with the rate of 65%. Moreover, household waste composition produced 45% of organic waste as the largest whereas 16% of others such as textile, glass, etc and 13% of glass (Performance Management and Delivery Unit, 2015). Generally, the total solid waste per capita in Malaysia is about 1.1 kg per day (Kamaruddin et al, 2017). Over 26,500 tonnes of solid waste is disposed almost reaching to 166 operating landfills daily. Following by the introduction of landfill by the municipal solid waste (MSW) disposal in developing countries, including Malaysia. This method is highly practiced in Malaysia that is believed to be the easiest operational mechanism and lowest

cost of production. However, it has its disadvantage that the rising of environment pollution due to the typical dilemmas of landfilling method.

The standard of waste management in Malaysia is still poor due to poor waste management and system. Therefore, it is crucial to introduce a complete and intermediate treatment and waste management provide an effective recovery and environment protection. The implementation of recycling among the society is important to achieve from the successful practice, mindset and human behaviours especially from the stakeholders in the value chains. This is due to several initiatives driven by the government to sustain waste management model (Mentek, 2017). Moreover, the outdated collection system, insufficient storage, documentation of waste management rates and its composition, disposal of several wastes and disposal site space should be renewed by the government. This is to improve the standard of waste management in Malaysia and reduce the massive amount of the solid waste. The recycle waste has gone up to 24.6% in 2017 and it is consider low compare to other countries (Sim, 2019).

Besides that, the initiatives towards recycling and environmental clubs among the schools are importance for the long-term ramifications of the 3R events. In contrast, the corporation between the government and public private partnership in solid waste management industry lead to an integrated waste management services (Mentek, 2017). At the same time, the awareness and knowledge among Malaysian community about the issues of solid waste management (SWM) needed to be increased.

On behalf of that, mobile phones as the daily usable device has now becoming a trend among the society. The people used their personal phone for working tasks as indicated

by the popular topic in Information Technology (IT) (Baharuddin, Razali & Singh, 2013). In order to build a better user experience (UX) and user interface (UI) design, this research will target on the public user. A great accessibility and capability of the UX and UI design helps to improve the recycling experience for the user. The usability is also important to make sure the users to understand, learned, operated and appeal to the technology to strike for goals in an effective and efficient ways (Baharuddin, Razali & Singh, 2013).

1.2 Problem Statement

The huge amount of solid waste has caused serious environmental pollution resulting from industrial, commercial, mining, agricultural operations and households. This worsen the pollution rate of the environment which lower the quality of life. Besides that, the massive amount of the solid waste produced in Malaysia due to poor waste management, lack of social awareness and knowledge especially among Malaysian. Thus, this research will collect all the data analysis from the public to improve the recycling experience through mobile application.

1.3 Research Questions

1. What is the method to encourage public to recycle solid waste through mobile application?
2. What is the existing mobile application on recycle?
3. What is the feature to include mobile application need to proposed to encourage public recycle?

4. How to identify the usability of the proposed mobile application prototype?

1.4 Research Objectives

1. To Identify method to encourage public to recycle solid waste through mobile application.
2. To analyze the existing mobile application on recycle.
3. To propose a more effective mobile application prototype help to encourage public recycle.
4. To validate the usability on the mobile application prototype

1.5 Research Scope

The research scope is about topics that related with designing a mobile application to reduce solid waste. Due to fast pace of lifestyle in this modern era, the people requests for easier and faster services. However, the damage to the environment has increased at the same moment. Therefore, it is important to encourage the public recycle among Malaysian. As a result, the UI,UX and knowledge of usability testing mobile application is being studied to create a platform for the people to understand the importance of a healthy environment. Moreover, this study will focus on building a mobile application prototype to assist the public to practice recycle.

1.6 Target audience

Target audience for this research will be public with both male and female in the age group of 20 – 50 years old but mainly will be focus on female as the household waste consumption is rated as the highest.

1.7 Media

The media in this research will be include the user interface, user experience of a mobile application. The system of recycling is to introduce as the function of mobile application and as the advantage of the mobile application.

1.8 Limitation of research

The limitation of this research is there are not many mobile applications develop regarding for this issue in Malaysia. Therefore, existing mobile application develop for other country will be use to analyze.

1.9 Significant of research

The significance of this research is to improve the recycling experience through mobile application and collect all the data. All the data will be determined, analysed and applied on a new mobile application design to encourage them to reach the recycling platform in a more convenience way. At the same time, improving the practice of recycle among the Malaysian.

1.11 Conclusion

As a conclusion, the goal of this research is to improve recycle experience and create a mobile application which serves as a platform to encourage public to recycle their recyclable and reusable waste. Furthermore, this research will study ways to create the attractive user interface and good usability of mobile application prototype.

CHAPTER 2

LITERATURE REVIEW

2.1 Solid Waste

Estimated of 1.3 billion tons of solid waste was generated from worldwide each year. The amount of solid waste collected were expect by year 2025 reaching 2.2 billion tones every year (Hoornweg and Bhada-Tata, 2012). Solid waste has been an alarming issue with the increasing rate even though Malaysian government has been encouraging solid waste separation with different campaign, policies, rules and regulation (Alias, Manaf, Ariffin, & Abdullah, 2018).

The rapid urbanization and the improvement of living standards among Malaysia with the total population of approximately 32 million ("Malaysia Population (2019) - World meters", 2019) based on World meter elaboration from United Nation data is the main reason of the increasing rate of solid waste generated. Thus, Malaysian has produced more and more waste compare to the past few years ago. These growth rate of population can influence the solid waste generation shown in Table 1. The table show Malaysian waste generation increased from 2000 to 2010 by 3.18%. (Ali, Ho, Mokhtar, & Talmizi, 2018) . The population of state of Selangor itself increased every year and has indicated the quantity of solid waste increased dramatically. Thus, based on table 1 has shown the waste produced by state Selangor, it has increase from 1,250,00 tons every day in 2000 to 1,617,000 tons every day in 2010. Moreover, Selangor has generated the highest rate of solid waste.