

**TOUCHPOINT: AUTHORIZING TOOL FOR CREATING  
ANDROID BASED INFORMATION DOCUMENTS**

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**Bachelor of Computer Science with Honours  
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**TOUCHPOINT: AUTHORIZING TOOL FOR CREATING ANDROID BASED  
INFORMATION DOCUMENTS**

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**TOUCHPOINT: ALAT PENGARANGAN UNTUK MENGHASILKAN ANDROID  
INFORMASI MAKLUMAT**

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Projek ini merupakan salah satu keperluan untuk  
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## ABSTRACT

There are many mobile applications in the market that provides information to users, but to create such application is difficult because it requires someone with good programming skills. For this reason, an authoring tool application called TouchPoint was developed so that it can be used by users who have no programming skills and the application's output later can be used by illiterate elderly people, an underserved group. This study has two major purposes: (1) to develop authoring tool application that can be used by users without programming skills (2) to ensure the application output can be used by the illiterate elderly people. This thesis first gathered the user requirements to design user interface for the illiterate elderly people by reviewing research papers to identify interface design guidelines for illiterate elderly people. Then, the interviews were conducted with four illiterate elderly respondents by asking them to evaluate a paper brochure. The user requirements collected from the illiterate elderly users then become the choices of layout that were included inside the application. Finally, the authoring tool was tested by two groups of user. The authoring tool was tested on the first group which consists of four users that have no programming knowledge (author). Meanwhile, the application's output was tested on four illiterate elderly people aged 50 years and above who understands *Bahasa Malaysia*. They were evaluated on several aspects in order to know their feedback. It was concluded that the authors were able to use the application because of the simple and usable interface design. As for the illiterate elderly user, they were able to understand the application's output that was delivered to them because the information were presented to them in an interactive way.

## ABSTRAK

*Terdapat banyak aplikasi mudah alih di pasaran yang memberi maklumat kepada pengguna tetapi untuk membuat aplikasi tersebut adalah sukar. Ia memerlukan seseorang yang mempunyai kemahiran pengaturcaraan yang baik. Oleh sebab itu, penulis memutuskan untuk menghasilkan aplikasi alat pengarangan, TouchPoint untuk pengguna yang tidak mempunyai kemahiran pengaturcaraan dan output aplikasi tersebut kemudian boleh digunakan oleh orang tua buta huruf. Kajian ini mempunyai dua tujuan utama: (1) untuk menghasilkan aplikasi alat pengarangan untuk pengguna tanpa kemahiran pengaturcaraan (2) untuk memastikan output aplikasi boleh digunakan oleh orang tua buta huruf. Kajian ini dimulakan dengan mengumpul keperluan dalam menghasilkan reka bentuk antara muka pengguna untuk orang tua buta huruf. Ia telah dilakukan dengan mengkaji kertas penyelidikan untuk mengenal pasti garis panduan reka bentuk untuk orang tua buta huruf. Kemudian, temu bual telah dijalankan dengan empat responden dengan meminta mereka menilai kertas risalah. Keperluan pengguna yang diperolehi dari pengguna warga tua buta huruf kemudian menjadi pilihan susun atur untuk dimasukkan dalam alat pengarangan. Alat pengarangan kemudian diuji ke atas empat pengguna yang tidak mempunyai pengetahuan pengaturcaraan (pengarang). Output aplikasi pula telah diuji ke atas empat orang tua buta huruf berumur 50 tahun dan ke atas yang memahami Bahasa Malaysia. Mereka dinilai berdasarkan beberapa aspek. Penulis membuat kesimpulan bahawa pengarang dapat menggunakan aplikasi ini kerana reka bentuk antara muka pengguna yang mudah. Bagi pengguna warga tua*

*buta huruf, mereka dapat memahami output aplikasi yang ditunjukkan kerana maklumat disampaikan dalam cara yang interaktif.*

## CHAPTER 1: INTRODUCTION

### 1.0 Introduction

Authoring tool can be defined as software that assists user to write using hypertext or multimedia applications and enable users to create a complete application simply by linking together objects, such as paragraph of text or an illustration (Authoring Tool, 2012). Author (the one who uses authoring tool) is able to produce attractive and useful applications by defining the objects relationship to each other and then organizing them in a correct order (Authoring Tool, 2012). This authoring tool should allow people without a background in technical knowledge, such as programming, to build their own applications.

The existing tool provides many choices of features such as editing features, organising features, programming features, interactive features and so forth. The existing authoring tools are usually developing applications that are used by literate people. There are no authoring tools that are used to develop applications for illiterate elderly people. Therefore, there is a need to design authoring tool that support the author to create the learning materials for illiterate elderly people.

According to the Oxford Dictionary, illiterate means unable to read or write. In this report, we are going to discuss on illiterate elderly people. Elderly people refer to people who advanced in age (more than sixty years old) have a tendency to be slower in adapting new skills or have problem in learning and responding to instructions. Illiterate

elderly people are part of the group who are deemed information poor. Information poor in this context refers to the difficulty of illiterate elderly people to understand information from various written sources due to their inability to read or write. Mediums such as audio, pictures and video might be helpful to them as these are non-text elements. This authoring tool should support the creation of applications which the contents consists of audio, picture, texts and video.

The illiterate elderly people also need to be presented with information. As they cannot read, the information should be provided in the form of audio, video or image. The possible solution is to provide the information in an interactive way and then implemented on a tablet. We can call it as an **information application**. However, to create such applications is difficult because it requires someone with good programming skill to develop these information applications. Therefore, there is a need to design authoring tool that can support users without programming skills to create information applications which later can be used by illiterate elderly people.

## **1.1 Problem Statements**

Nowadays, there are many mobile applications which were developed with the purpose of providing information to the user. The problems occur when the programmer need to create applications for users such as illiterate elderly user. They have to design everything from the beginning for example, the layout of the applications itself. They have to design where to put the text, image and other components needed for the



applications. In Android authoring tool itself, it contains layout, but no specific layout created for illiterate elderly user.

The concept of this authoring tool is taken from the PowerPoint slide application. Users can input text and other multimedia components such as image, audio or video. The slide contains information to be presented and can be saving into file. The same idea goes for the proposed authoring tool which,users can choose specific layout for illiterate elderly people, insert multimedia components and finally save the slides that have been created. These set of slide is called an information document.

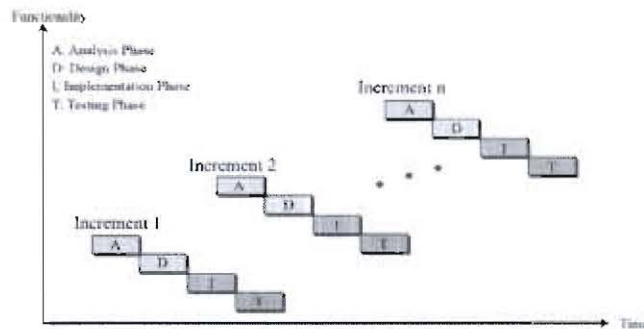
## **1.2 Objectives**

The objectives for this project are as shown below:

1. To identify design guidelines for illiterate elderly community.
  - To review the existing systems for illiterate elderly community especially in the domain that requires providing information.
  - To review the existing authoring tools.
2. To develop authoring tool that can be used by users without programming skills.
3. To ensure that the application output can be used by the illiterate elderly people.

### 1.3 Methodology

The project is developed using Incremental Life Cycle Model. This model is an adaptation of waterfall model. In the incremental model, the system is developed in a series of steps which includes analysing, designing, implementing and testing. The incremental model produces the system incrementally until the whole system is completed.



**Figure 1.1: Incremental Model**

### 1.4 Scope

The scope for this project includes:

1. The target groups of the system are people who do not have programming knowledge.
2. Target audience for information applications are illiterate elderly people above 50 years old who understand *Bahasa Malaysia*.
3. The authoring tool should be able to provide information application to be used by illiterate elderly people.
4. The authoring tool will be implemented in tablets.

### **1.5 Significance of Project**

The significance of this project is that the authoring tool should be able to allow the non-programmers to create information application that can be used by the illiterate elderly people.

### **1.6 Project Schedule**

This project is a one-year project which is starting from Semester 1, 2012/2013 until Semester 2, 2012/2013. Refer to Appendix A.

### **1.7 Expected Outcome**

The expected outcome is a prototype of an authoring tool that helps the non-programmer users to create information documents. The authoring tool should be able to integrate the such as text, graphics, audio and video.

### **1.8 Project Outline**

This dissertation consists of seven main chapters which provides the information about the existing authoring tool, design guidelines for illiterate and elderly people, methodology, flow in developing the authoring tool and overall schedule.

### **1.8.1 Chapter 1: Introduction**

This chapter briefly introduces the project, problem statement, objectives, methodology, scope, significant of project, project schedule, and the expected outcome.

### **1.8.2 Chapter 2: Literature Review**

Chapter 2 consists of a review of literature that is pertinent to the project topic. The review on the existing authoring tool, interface of systems for illiterate and design guidelines for elderly people were done.

### **1.8.3 Chapter 3: Methodology**

In Chapter 3, the methodology used to develop the authoring tool application is reported. Each task involved when developing the application will be briefly explained in this chapter.

### **1.8.4 Chapter 4: Analysis and Design**

This chapter is focusing on the analysis part. The user requirements are briefly explained in this chapter. The design of the proposed work is also included in this chapter.

### **1.8.5 Chapter 5: Implementation**

In this chapter, the implementation of the authoring tool in Android platform will be discussed. The cycle that is involved during the development is also discussed in this chapter in order to improve the quality of the application.

### **1.8.6 Chapter 6: Testing and Evaluation**

This chapter will discuss the responses given by the users after user testing is completed. Analysis on the result of user testing is also included in this chapter.

### **1.8.7 Chapter 7: Conclusion and Future Work**

This chapter focuses on the conclusion and future enhancement of the project. The most important thing is to confirm whether the objectives that stated in the chapter 1 are accomplished or not.

## **1.9 Summary**

In short, overview of the project was briefly explained in this chapter. The overview includes problem statements, objectives of the project, methodology use to develop the project, scope, the significant of project, project schedule and the expected outcome of the project. The goal of this project is to help the non-programmer users to develop information applications.

## **CHAPTER 2: LITERATURE REVIEW**

### **2.0 Introduction**

This chapter is all about the review on the existing authoring tools, the interface of existing system for illiterate and user interface design for elderly people.

### **2.1 Definition of Authoring Tool**

Authoring tool is a system that enables creating digital learning systems (Ryane, Idrissi, & Bennani, 2011). These tools allow its author (the one who use the authoring tool) to integrate an array of media such as text, images, audio, video or animation in order to create customized, professional, attracting and interactive content.

#### **2.1.1 Examples of Authoring Tool Application**

Table 2.1 shows several examples of existing authoring tool application. The tools are App Inventor for Android, DroidDraw and PhoneGap.

**Table 2.1: Authoring Tool Application**

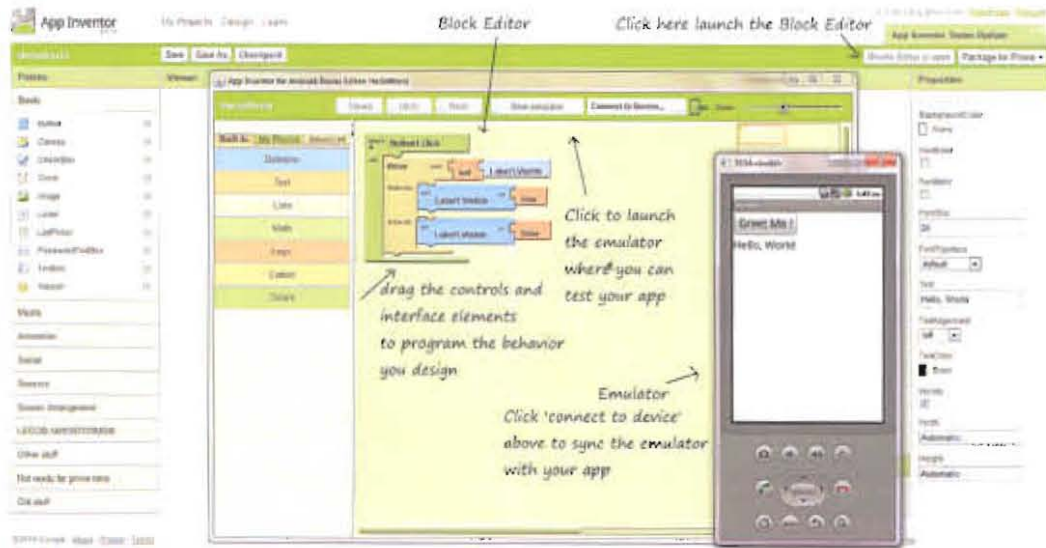
| <b>Tools</b> | <b>Description</b>   |
|--------------|--|
| App Inventor | This tool consists of friendly graphical user interface that allow user to build and code Android application. |
| DroidDraw    | This tool creates graphical user interfaces (GUI) in Android platform only.                                    |
| PhoneGap     | This tool is an open source development framework and the mobile apps are built in HTML and JavaScript.        |

App Inventor enables anyone who knows computer programming to create software applications for Android operating system (OS). It enable user to create the applications that can runs on Android OS mobile devices by using drag and drop components.

DroidDraw is a Graphical User Interface editor for Android applications. User can generate the XML code of layout that have been designed and then can copy or save the code in a file.

PhoneGap allows user to create applications using HTML, CSS and Javascript. It is then wrapped into native app code and displayed using PhoneGap libraries (Rowberg, n.d).

## 2.1.2 Examples of Authoring Tool Interface



**Figure 2.1: Interface of App Inventor**

Figure 2.1 shows interface of App Inventor's block editor. The tool allows user to design how the apps look. By using block editor, user can set the app's behaviour. The concept of using block editor is same as fitting together puzzle pieces. Through connection between computer and mobile phone, the app will appear on the mobile phone.