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DESIGN AND DEVELOPMENT OF ANDROID APPLICATION FOR FLUID PROPERTIES EBOOK AND CALCULATOR

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A report submitted in partial fulfillment of the requirements
for the award of the degree of
Diploma of Mechanical Engineering

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ABSTRACT

Generally, this thesis was about designing and developing an Android application for Fluid Mechanics subject, with the Properties of Fluid subtopic. The main objective was simple, to help students understand Fluid Mechanics subject in the most effective way. This application dealt with colourful simple notes and effectual calculator to bring best out of student's understanding. There had been a number of applications related to Fluid Mechanics subject in Android App Store but it did not match student's need. A simple study was then conducted and the result came out. The prototype version of Fluid Properties was formally launched to get the response among the students and lecturers. The survey did resulting in positive feedback and the final version of the application was then introduced.

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

This chapter will provide the introduction of the thesis alongside with problem statement.

1.2 OBJECTIVE

The objective of this thesis is to design and develop an Android application of Fluid Mechanics with e-book and calculator.

1.3 PROBLEM STATEMENT

For the last century, books have been the primary source for reference study and revision. The characteristics of the book itself help people to compile all the documents, journals, theses and many more because of its resilient, reliable and firm nature. Book is the most fundamental way for storing knowledge that can be shared throughout generations. Until today, in the millennium era people still using book as the main source of knowledge. But, it is not practical for today's generation. Students nowadays are easy to get bored when reading books because of its dragging texts. They tend to searching for other sources in the web, because it is shorter and easy to understand. For example, Fluid Mechanics book written by Frank M. White is 400 pages thick. Students will not read or study the whole book because they have no time and they will always find an easy way to solve their problems. Although conservative book is now available in electronic book or also known as e-book, it still stuffed with texts and shamble explanations.

In the web there is plenty of trustworthy website such as Wikipedia.org, Answers.com and Britannica.com. Most students now have their own smart phones, so they will read it anytime they want and anywhere they can. This happens because they are no longer attracted to traditional book. On top of that, the book is heavy to carry and sometimes does not fit on small space. The web serves the best reference from numerous authors around the world, so students have choices on selecting the best reference point. The most important is, it is free. Despite this technology shockwave, book is not fully abandoned.

When Android first unveiled back in 2007, it subsequently revolutionised the whole reference book thing. An application market known as Google Play provides thousand of applications and some of them are free. Android is an open source and it allows various developers and manufacturers to modify it. A mini research was conducted to find the application related to Fluid Mechanics subject in the whole Google

Play. The result was a bit disappointing because there are only five applications affiliated to Fluid Mechanics subject. Three of them are free and the rest is paid version. Generally, the content of the application is merely calculator without notes. Turns out, students need to study in the first place before using the application. The calculator is not too advanced in solving the problems because every question is different in values and parameters. Another limitation of the existing application on Google Play are not user friendly, boring, dull and developers are not fixing the bug. This may lead to consequences that students will no longer attracted to Android application related to Fluid Mechanics subject. Thoroughly, there is no Android application that helps students to understand and master the Fluid Mechanics subject comprehensively.

A diminutive oral survey was carried out among students on how they would like to see in the forthcoming Fluid Mechanics on Android application. The oral survey aimed to assemble the information regarding student's need and demand. They want an application that provides them a simple note but yet persuasive, an attractive application that may contains pictures and videos, a convincing calculator that actually solves the problems and also a bunch of helpful tutorial questions. They also stated that the main problem is they get bored easily when reading Fluid Mechanics textbook so they need an alternative. All the problems were then noted. Another problem is students will always find a way to get something for free. They will not throwing money on a fat reference book that costs RM80.00. They will download the book from the web in e-book form. Otherwise, it is free.

From the observation, lecturers tend to use Microsoft PowerPoint slides to present the notes. This trend is worldwide because it is simple and easy to handle. For the most part, lecturers fail to attract student's attention. The slide is uninteresting, dull, boring, flat and dry. This may lead to students fall asleep in class, not paying attention and eventually fail to master the subject. Occasionally, their smart phones are much more alluring, tempting and fascinating than lecturer's slides in front. They will fall into the abyss that they are no longer in the class, rather playing games or surfing the web. The result came months later that they will fail in tests or quizzes held by the lecturers.