

## ***Aplikasi Mudah Istilah Teknikal (AMIT): Empowering the Bahasa Malaysia Technical Terminology using Electronic Application***

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**Abstract:** Most technical students in this country, especially in the engineering field, have little exposure to technical terminology in Bahasa Malaysia (BM). This is because the term references are mostly available in English. The only bilingual reference published by Dewan Bahasa dan Pustaka (DBP) is in the hard copy version, which is bulky, therefore, inconvenient, and outdated. Students, thus, often face difficulties in expressing themselves, both in writing and speaking, in BM as technical terms in BM seem to be alienated during their academic terms. Likewise, engineering practitioners and those involved in the field (in Malaysia) often find it difficult to explain the terminology when they need to communicate with the locals. With the ardent availability of technological application these days, one of the fastest ways to retrieve information is through apps software. However, to date, available electronic dictionary apps for engineering terms are all in English. Thus, the need of Bahasa Malaysia apps is anticipatable. An electronic bilingual dictionary named, *Aplikasi Mudah Istilah Teknikal (AMIT)*, is proposed as a solution to the situation. This paper focuses on the development of AMIT. Supported by mobile application development life cycle method (MADLC), software, such as PHP and Eclipse, together with Java programming language, was used in developing the application. Other important requirements such as target audience, user interface, accessibility and the use of search-keyword were implemented in this application.

**Keywords:** AMIT, Engineering Terminology, Mobile Application, Online Application

### **1. Introduction**

In Malaysia, technical students, especially engineering students, are exposed more to the technical terminology in the English language compared to its technical equivalent in Bahasa Malaysia (BM). This is because (due to many social, linguistic and content reasons) most technical courses are usually carried out in English. As available references are mostly in English, technical terms in BM seem to be alienated during these students' academic years. In addition, the technical BM terminology is not abundantly available. For example, the only bilingual reference available for engineering terminology is published by the Dewan Bahasa dan Pustaka (the country's Literary Agency); '*Buku Istilah Kejuruteraan*' (Engineering Terminology). This book has been widely used as terminology reference by engineering students and instructors in this country. It is only available in hardcopy version, which is bulky, making it rather inconvenient to carry around. Furthermore, it is also outdated, as the latest edition dates back in 2002.

The researchers have observed that students face difficulties when they need to write report in BM. This is particularly observed when they write report for their industrial training. Students

often find it challenging to seek for the English equivalent terms in BM. Likewise, engineering practitioners and those involved in the field (in Malaysia) relate that they often find it difficult to explain the terminology when they need to communicate with the locals. Both students and practitioners often find themselves switching from BM to English during their communication when it comes to technical or engineering terms. An easy and quick reference to the BM equivalent terminology is, thus, needed.

With the ardent availability of technological application nowadays, one of the fastest ways to retrieve information is through apps software. However, to date, available electronic dictionary apps for engineering terms are all in English. Thus, the need of apps in BM in empowering our students' knowledge of the engineering terminology in the language is foreseeable. This study proposes an electronic bilingual glossary and dictionary of the engineering terminology, named *Aplikasi Mudah Istilah Teknikal* (AMIT), as a solution to the situation. As the study is still at its infant stage, this paper only focuses on the framework and the development stages of AMIT as a mobile application.

## 2. Mobile Learning, Technical Terminology and Concept

The education scenario in the 21st century has changed rapidly since the advancement of technology and communication. Mobile devices, such as smart phones, have enabled the use of computer application for educational purposes. Noraini Mohamed Noh et al. (2013) in their study discussed the increasing use of electronic media for teaching and learning. They find that this type of media provide sophisticated educational and futuristic environment, and are also apt in keeping up with the current technology. The very substance of the change is that the applications can be easily downloaded from the internet using smart phones.

Along the same line, Kukulska-Hume and Sheild (2008) reported that mobile learning tend to propose activities that are carefully crafted by educators as well as technologists and learners are increasingly motivated by their personal learning needs, including those arising from greater mobility and frequent travel. At the same time, it is also suggested that mobile devices are particularly suited to support social contacts and collaborative learning. These are the claims that have obvious relevance for learning, particularly, language learning.

El-Hussein and Cronje (2010) explained that the evolution of handheld portable devices and wireless technology has resulted in radical changes in the social and economic lifestyles of modern people. Advanced mobile devices such as 'smart' cellular telephones are very popular among people primarily because they are wireless and portable. Smart phones can be used as educational tools that involve with digital content. Hanover Research (2013) put forward the advantages of digital contents or e-books as:

- i. digital content can act as text books (this includes e-book, electronic dictionary, thesaurus, application and etc.)
- ii. cost saving,
- iii. easy to be used as references, and
- iv. easy to update new information

Thus, this technology is seen as a convenient tool that can help students in learning specific terminology such as those in the engineering field. In the same vein, Zaidatun Tafsir et al.(2013) in their study found that students often face problems in understanding technical terminology. They do not seem to understand the meaning of the terms and how to use or apply the terms in relevant context(s). Along the same line, Furnas et al. (2013) examined the problems faced by multimedia students at higher learning education (HLE) that hinder their use of multimedia terminology, which

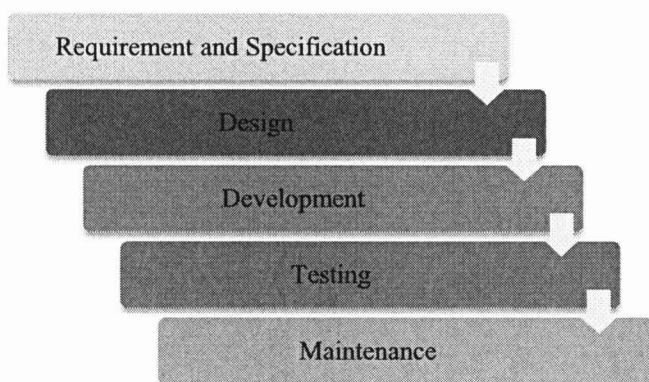
in due course, may impede learning. Furnas et al. found that students have the tendency to understand the terms based on their own perception and do not refer to the real multimedia concept. Such phenomenon is known as Vocabulary Problems (Furnas et al., 2013).

Learning vocabulary is important. As put forward by Rivers (1983), sufficient vocabulary acquisition is crucial for the use of second or foreign language. This is because students will not be able to employ the structures and functions that they have learned for comprehensible communication if they lack extensive vocabulary. Based on their observation, Zaidatun Tafsir et al. (2010) claimed that students were not able to imagine the real meaning of the terminology unless they use the explanation (of the terminology) given by the lecturers, or they, the students themselves, take the initiative to understand the meaning using available references. Failure to imagine the real meaning of the terminology will result in the misunderstanding of the concept of the subject (Dale, 2000). In order to understand a subject, students should be able to translate the technical term and comprehend the concept to find solutions for any related problems (Cockcroft, 1982). Finding solutions for a problem needs proper understanding of the related structural concept. If the students do not understand the terminology used, they may not be able to find solutions to the problem (Cockcroft, 1982).

Besides depending on the lecturers' explanation on the technical terms, engineering students in Malaysia tend to refer to the '*Buku Istilah Kejuruteraan*' produced by the Dewan Bahasa dan Pustaka for the equivalent terminology in BM. As it is the only reference available for engineering terminology in BM, it becomes a source of reference for students and instructors alike. As mentioned earlier, this book is only available in its hardcopy version. This makes it bulky and heavy, thus, inconvenient for students and engineering practitioners who are always on the move. The electronic version of the book is still not available in the internet application. Hence, the proposed development of *Aplikasi Mudah Istilah Teknologi* (AMIT) is seen as a useful tool in assisting engineering students understand the technical terminology both in BM and English, as well as facilitating the practitioners in their work.

### 3. Methodology

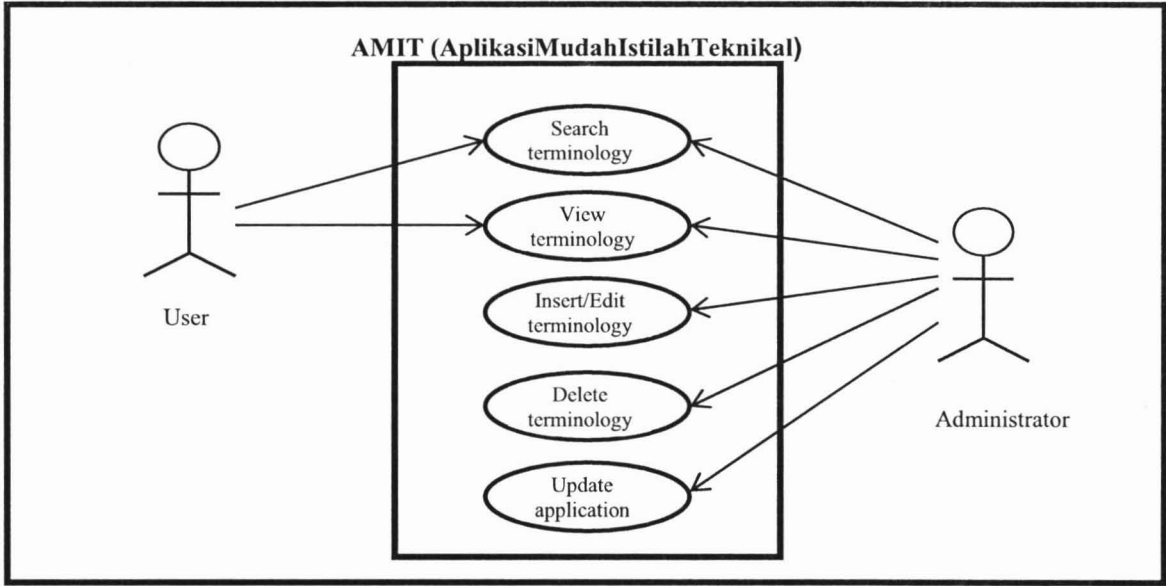
The development of AMIT follows the Mobile Application Development Life Cycle (MADLC), using the framework proposed by Inukollu et al. (2014), Vithani and Kumar (2014) and Murdianto et al. (2015). According to Vithani and Kumar (2014), the development of mobile applications is different from the desktop applications as far as complexity is concerned. MADLC has been chosen for AMIT as it can assist in developing projects efficiently and can be completed on time. **Fig. 1** shows the process of MADLC, which involves five (5) stages/phases (Inukollu, et. al., 2014).



**Fig. 1** The Process of Mobile Application Development Life Cycle (MADLC)

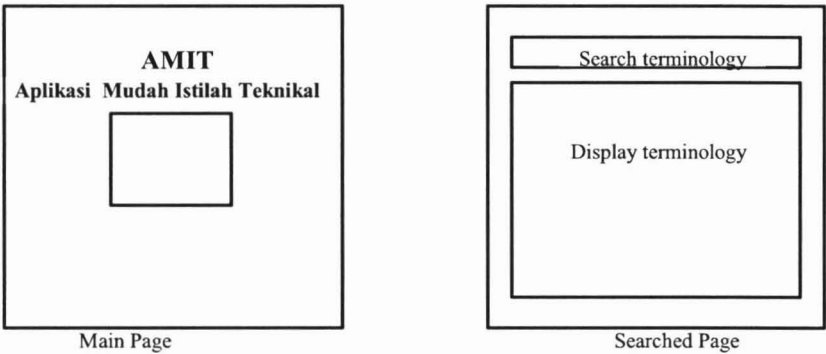
Each stage in the MADLC consists of several steps and requirements that need to be carried out before moving on to the next stage. During requirement and specification stage, the objectives and scope of the application are identified to ensure the effectiveness of the application. During the brainstorming session, the ideas are discussed and filtered to ensure the feasibility of the application.

During the design stage, the potentiality of developing the application on all mobile platforms is identified. The conceptual design of the application is, then, drafted. Some criteria are discussed in order to produce an easy and user-friendly, yet, very informative application. It is suggested that the interface of the application should have a clean design. In addition, the accessibility to search the terminology should be straightforward. **Fig. 2** shows Use Case Diagram that describes the major events involved in AMIT.



**Fig. 2** Use Case Diagram Describing Major Events Involved in AMIT

Storyboard is created to describe the interface of the application as shown in **Fig. 3**. The function of the storyboard is to visualize the flow of the application. The storyboards below show the interface design of the application. The database of AMIT is compiled and checked for any grammar errors.

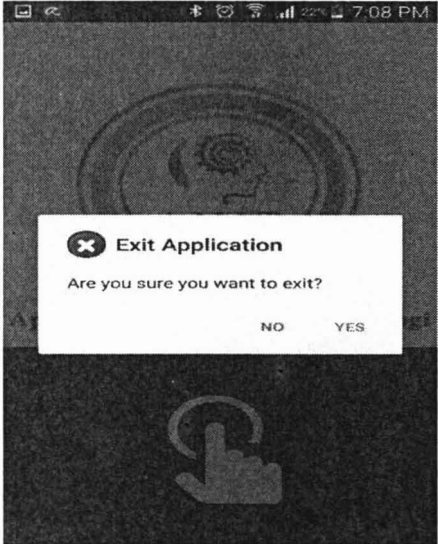


**Fig. 3** Storyboard for interface of the application

The development stage of AMIT not only involves coding the application but also with finding the appropriate technology (programming language) and choosing the platform to develop the application, such as Windows, Mac or Linux. Inukollu et al. (2014) also mentioned that the development of mobile application is the same as a traditional software application with some challenges due to the hardware and software issues. Some of the software that support AMIT are Android SDK (Software Development Kit), Java Development Kit (JDK), Eclipse IDE and XML (Extensible Markup Language). A personal computer (PC) with minimum of 2GB RAM is used to carry out the coding of the application. **Fig. 4** and **Fig. 5** show the front screen and exit screen of AMIT. The application is successfully run on Samsung smartphone.

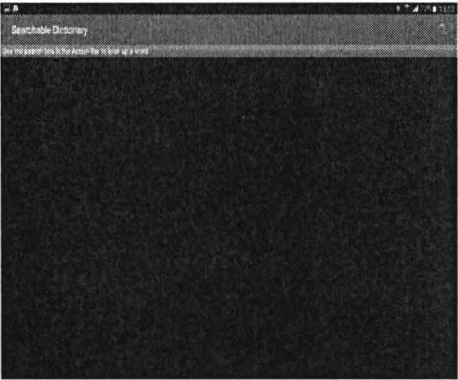


**Fig. 4** Front screen

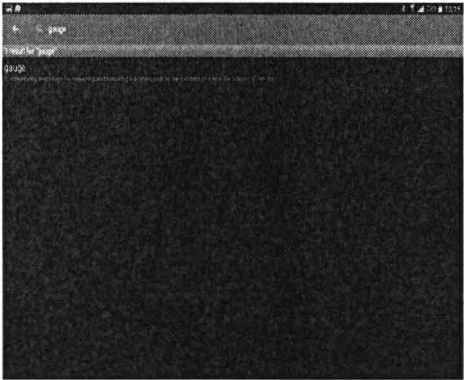


**Fig. 5** Exit screen

The screenshots in Figure 6 and 7 show AMIT being run on Samsung Galaxy Tablet 4 which is supported by the Android operating system.



**Fig. 6** Search page



**Fig. 7** Searched terminology

Testing is one of the most essential stages in any development of lifecycle. The quality and the performance of the application are determined during this phase. After the completion of AMIT



development, the researchers will carry out the testing on the real device that is on the Android operating system. Real users will also be involved in testing the application to ensure its accuracy and effectiveness.

Maintenance is the final stage in MADLC and it is an on-going process. Feedback from users will be collected and analyzed. Any required changes such as errors or improvements will be applied to the application and updates will be carried out frequently. New terminology will also be added into the database.

#### 4. Conclusion

The development of AMIT has set out to assist students and practitioners in finding the equivalent English terminology in BM in a much quicker, more efficient and convenient way compared to the conventional hard copy terminology book. As AMIT is an electronic dictionary, it can aid learning, since it can be used as education tools and digital content for engineering students. Engineering practitioners may also find AMIT useful as they can benefit from this application when dealing with the locals. The fact that AMIT is mobile, compatible and easy to be downloaded for any android smartphones makes it convenient for people in the field.

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