

CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter present an overview of the research. It begins by discussing the background of the study and highlighted the main issue under exploration in the problem statement. The next section addresses the objectives of the research followed by the scope for the study. A summary of the research methodology and significance of study was described.

1.2 Background of Study

In project management in construction, planning and managing projects play a crucial part in ensuring that the construction projects reach a conclusion but, despite the much-acquired knowledge in project management, problems such as project delays, design errors and cost overrun seems very common in most projects. This is supported by Ahmed *et al.* (2003) that project construction delay and the inability to complete the project within the budget have been a continual worldwide problem and is worsening in construction industry.

As construction projects become larger and more complex, an efficient way to surmount these kind of deficiencies is through the use of useful technology that can integrate all the key activities of each phase of the project. Augmented Reality (AR) technology suggests a new solution to the noted issues.

The Augmented Reality (AR) can be treated as advanced evolution of Building Information Modelling (BIM) and adoption of this technology will lead to a great construction industry towards efficiency through increased collaboration between different project participants.



Figure 1.1 Using AR application, a printed drawing of a house can be overlaid with an interactive 3D model.

Source: <http://www.augment.com>

1.3 Problem Statement

The capability of AR in transforming actual construction and its ability to execute complex structures through portable displays such as tablets and smartphones, opens up new expectancy for project planning and management. However, although there are so many ways AR can benefit the construction industry, the implementation of this technology in Malaysian construction is still highly questionable. Even though, in Malaysia there are many local and multinational companies that depend on the technology to advertise their business or to enhance the product information to the customers, the adoption rate of technology is still below satisfaction (Tam *et al.*, 2001).

There are many factors that hinder the utilization of AR in Malaysian construction. In the perspective of industry, the less participation towards change among organizational member somehow contributes to this slow movement in adapting technology in current practice. To implement the progressive use of AR, it is therefore important to address the actual factors that hold up the implementation of AR in Malaysian construction.

1.4 Objective of Research

Objective of the research are:

- To study on the usage of technology in current practice in Malaysia construction industry.
- To identify the barriers of implementing AR in construction industry in Malaysia.
- To analyse the most influence factor that limiting the implementation of AR in Malaysian construction industry.

1.5 Scope of Research

The research focuses on Augmented Reality (AR) Technology and its applications in the construction industry. For the purposes of this research, an interview and a set of questionnaires targeted to 90 respondents among construction players generally focused on the barrier factors of implementation of this technology AR regarding their CIDB registration grade. This is because some companies with higher grade usually undertake large volumes of works employ qualified professionals and hence, have the capability to engage and apply technology ICT in their operations. The study areas to be covered are within Malaysian construction.

1.6 Methodology

The research instrument for this study is an interview and survey questionnaires that are targeted to 90 respondents from client, consultant and contractor companies in Malaysia. Gaith, Khalim and Ismail (2009) stated that survey is one of the most economical ways to get information and data from large pool of people given better result which is more specific, accurate and faster.

In the beginning of this research, thorough literature exploration from electronic media and hard copy resources were carried out which providing better understanding of recent development and implementation of technology in construction sector. This contributes into the preparing of research questions and objectives within the research