

Universiti Teknologi MARA

**IoT-Based E-Learning for Student
Progress Monitoring**

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ABSTRACT

In this new era, digital devices such as smartphone or tablet are man's essential things that must be brought together anywhere at any time. Simple applications have been used widely around the world compared to mobile websites because of the simplicity of itself. Besides, mobile application has been implemented in education. Although there are systems that can monitor student progress using e-learning platform, those solutions might cause some students will "slips through the gaps". Because of that, most lecturers might face a problem where understanding of students in topics cannot be assessed outside the classroom. Furthermore, lectures might be boring and the surroundings can be dull. Thus, this project is developed to design element that can gain assessment of students' understandings. This project aims to develop a mechanism that applies sensor-based technology in order to observe students' progress and to develop a system that implies augmented reality (AR) that makes study more unique. For that reason, this project will be developed by using Internet of Things (IoT) technology that includes AR. The expected result is to ensure that e-Learning through IoT technology can be developed and regularly used by university students.

TABLE OF CONTENTS

| CONTENT | PAGE |
|-------------------------------------|-------------|
| SUPERVISOR APPROVAL | ii |
| STUDENT DECLARATION | iii |
| ACKNOWLEDGEMENT | iv |
| ABSTRACT | v |
| TABLE OF CONTENTS | vi |
| LIST OF FIGURES | |
| LIST OF TABLES | |
| LIST OF ABBREVIATIONS | |
| | |
| CHAPTER 1: INTRODUCTION | 1 |
| 1.1 Project Background | 1 |
| 1.2 Problem Statement | 2 |
| 1.3 Objective | 3 |
| 1.4 Scope | 4 |
| 1.5 Significance | 4 |
| 1.6 Summary | 4 |
| CHAPTER 2: LITERATURE REVIEW | 5 |
| 2.1 Technology Consideration | 5 |
| 2.1.1 Internet of Things (IoT) | 5 |
| 2.1.2 Bluetooth | 6 |
| 2.1.3 Beacons | 9 |
| 2.2 Assessment | 12 |
| 2.2.1 What Is Assessment? | 12 |
| 2.2.2 The Purpose of Assessment | 13 |
| 2.3 Quiz | 14 |
| 2.4 Multiple Choice Questions | 16 |
| 2.5 Bloom's Taxonomy | 17 |
| 2.6 Feedback | 18 |

CHAPTER 1:INTRODUCTION

This chapter briefly explains about an IoT-based e-Learning for Student Progress Monitoring mobile application. It provides the overview of the whole system includes background and rationale for the study. It also gives details of the issues and problems that lead to this research and explains the scope and significance of the project.

1.1 Project Background

In higher education, digital technologies have been included in teaching methodologies and training processes where there are many things can be done such as sharing information, disseminating information and interacting with knowledge (Osma, Marín et al., 2016). Exchange of information, distribution of resources and observation of learning process in developing virtual learning methodology can be implemented through Learning Management System (LMS) (Osma, Marín et al., 2016) which have the ability to look over the contents and mechanisms and capability to construct unique and better choices for students and lecturers in higher education (Abbas Abdoli Sejzi and Baharuddin Aris, 2013).

At the end of the term or semester, teachers usually assess their students using traditional methods ((BCIT), 2010) by giving questions and analyze them (Jabbarifar, 2009) to evaluate the instructional materials quality and whether the quizzes and test are fair or not ((BCIT), 2010). Even though this type of methods can measure the student progress, it utilizes more time in assessing the understanding of students (L. Gunter, Callicott et al., 2003) and this direct monitoring can cause inefficiency in collecting data used by teachers (Hintze and Matthews, 2004). Due to the technology advancement, platform like E-learning is implemented to solve these problems. E-learning platforms such as Moodle (Oproiu, 2015) (Costa, Alvelos et al., 2012) can be used in order to evaluate student progress about subjects and topics that have been learnt in classroom. Nevertheless, this solution still has some limitations in monitoring