

UNIVERSITI TEKNOLOGI MARA

**LOOKOUT: AN IOT-BASED MOBILE
APPLICATION FOR HOME
SECURITY BY USING PASSIVE
INFRARED (PIR) MOTION SENSOR**

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ABSTRACT

Home security is essential for occupants 'convenience and protection. With the exponential growth in the number of internet users over the past decade, the Internet has become a part of life, and IoT is the current and evolving internet technology. Nevertheless, not everyone can afford home security due to the affordability of the cost and maintenance. Thus, the purpose of the project is to help the house owner to have an affordable home security system with the aid of mobile application using IoT technologies. The objective of this project is to identify user requirements for mobile application development, design the mobile application, and develop the home security mobile application. A short survey using Google Form was conducted to identify the user requirement. The project's methodology used Mobile Application Development Life-cycle (MADLC) for mobile application development. The project will use the framework of Android Operating System. For this project, the target user would be people who lived in Shah Alam that uses the mobile application. The mobile application has the feature of switching on/arm and switching off/disarm the security system. Besides, a warning message will be sent to nearby family members and neighbours if the house owner does not want to notify directly to the police station nearby. A real-time result from the sensor was displayed on the mobile screen via the Internet. Additionally, it can also directly call the police station nearby with a single button, and the mobile application could control the light and the sound to switch off if needed. There is still some limitation in the project where the sensor detects all electromagnetic radiation emitted from objects, animals, and humans. In the future, this mobile application can provide a weekly report based on the statistic of which the sensor had detected and extended the compatibility of this application on other mobile platforms such as iOS. Therefore, mobile home security system with the aid of IoT technologies reduces the number of housebreaking cases in the user respective area.

Keywords: Home Security System, Passive Infrared Motion Sensor, Mobile Application, Mobile Application Development Life-cycle, Internet of Thing

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CHAPTER 1

INTRODUCTION

This chapter covers the project background and the problem statement for Lookout development, an IoT-Based Mobile Application for Home Security by Using Passive Infrared (PIR) Motion Sensor. The project's objectives, project's aim, scope and project's significance are described in this chapter.

1.1 Project Background

Figure 1.1 below shows the Crime Statistic Malaysia in the year 2018. It stated that the crime index ratio per 100,000 populations for Malaysia in the year 2017 had improved to the crime index figure of 309.7 against the year of 2016, the crime index figure of 355.2. In the year 2017, three states had recorded crime index above the national level threat: Wilayah Persekutuan Kuala Lumpur, Selangor and Negeri Sembilan with the respective crime index figure of 716.9, crime index figure of 408.6 and lastly crime index figure of 356.6 (Mahidin, 2018).