

UNIVERSITI TEKNOLOGI MARA

**SmartCare: an IoT-based Senior Care
System with Emergency Alert**

AMIR HADI BIN SUHAIMI

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ABSTRACT

There has been an increase in the percentage of aging population in Malaysia, which has implications in all sectors from workforce, housing, and care needs. This report aims to design a senior care system using ESP32 Microcontroller which helps facilitate the monitoring process of senior citizens. In this study, I designed a smart home system which includes low-cost sensor parts which are ultrasonic sensors. This system can be used to detect and monitor if any abnormal activity happens such as spend too long in the bathroom or sleep in a long period of time. Without the need of additional sensors only by using Millis function, this system can provide information such as the room resident is , or if he/she is actively doing his/her daily routine.t As a result, I show a working system and the ultrasonic sensors are able to detect the position of the resident, and we are even able to send an alert signal to the caretaker if any abnormal activity detected. In my opinion I believe my study can contribute to serving the elderly community which provide a monitoring system for the caretaker that is low cost. Therefore, this project helps to ease the load on nursing homes and welfare employees.by creating an IoT based senior care system.

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CHAPTER ONE

INTRODUCTION

1. INTRODUCTION

1.1 Research Background

In Malaysia elderly people has reached to 2 million which is 7 percent out of the total of 27.6 million population. This percentage is higher compared to some ASEAN countries like Brunei (5%), the Cambodia (5%) and Philippines (6%). However, it is low as compared to countries like Singapore (15%), Thailand (11%) and Indonesia (9%) The study shows that 75 percent of the elderly were living with other family members, 15 percent with their spouses and the remaining 10 percent living alone. In Peninsular Malaysia, the percentage of elderly living alone is much higher among the women.

The number of older adults is increasing much faster than the other age groups in the world. According to this report, there are at least 900 million older adults who are more than 60 years old, and this number was already near 12% of the total population in 2015. By 2050 this number will further increase, becoming more than 21% of the total population. Especially for Japan, population ageing is already becoming a major challenge. According to data from a 2016 report of the Statistics Bureau of Japan, the