

FACULTY OF ELECTRICAL ENGINEERING

UNIVERSITY TEKNOLOGI MARA

PULAU PINANG

FINAL YEAR PROJECT 2 (EEE368):

‘SMART HOME’

MOHAMAD AMIRUL BIN MOHAMAD HUSSIN

IZZAT YAZID BIN ZULKIFLEE

SEMESTER JUNE - OCTOBER 2016

This report is submitted to the Faculty of Electrical Engineering,

Universiti Teknologi MARA (UiTM).

In partial fulfillment of the requirement for the award of Diploma in Electrical Engineering.

This report is approved by:

.....

Supervisor's name

(SUPERVISOR)

Date: 8/9/2016

ABSTRACT

Lifestyle in the modern society along with human behaviour and thinking is changing dramatically with the advancement of technology, and the concept of a simple home is changing into a smart home. The advancement of technology has increased the safety and security of people along with their belongings and lead to the necessity of keeping surveillance over their homes. There are different types of built smart home systems, and they do not have flexibility over choosing the types and number of sensors used and the cost of the system. These systems are prebuilt devices with a limited number of sensors, with a limited area of coverage.

The application consisted of two units, Arduino Uno and the mobile unit. The mobile unit acted as a recipient to get responses from the Arduino Uno. Different operations were performed based on the given instructions. In addition to this, the Arduino Uno was responsible for reading input from the sensors. The Arduino Uno was used as the system platform as the microcontroller board while the SIM900 GPRS/GSM module was used to communicate between the microcontroller unit and the mobile unit.

The system could be installed at any place and could be controlled by any mobile phone supporting the SMS service. The mobile phone neither needs to have any special features nor hardware nor any special application to use the system. The system consists of two sensors which are used as heat detector, motion detector to detect motion as the presence of intrusion.

ACKNOWLEDGEMENTS

All praises to Allah, we finally successfully completed our Final Year Project. We pray to Allah hoping my journey is in His bliss. We also would like to extend our thankfulness to the most precious persons in life, our father and mother for all their moral support, financial support. A special thanks to our final year project supervisor, Puan Siti Sarah whose help, stimulating suggestions and encouragement, helped us to coordinate our project especially in writing this report and given her full effort in guiding the team in achieving the goal as well as her encouragement to maintain our progress in track. We would also appreciate to all the panels especially in our project presentation that has improved our presentation skills by their comment and tips. We thank you for all the reprimand and guidance as it is very helpful for us in completing our Final Year Project. I am very lucky to have such a helpful colleagues and I never felt left out in any situation. and also to our friends for never ending reminding me to always be honest and trustworthy during my training here I very much appreciate for their entire kindness helping and teaching me when I'm working there. Last but not least, we are very lucky to have such a helpful friends and never felt left out in any situation. Very much appreciate for their entire kindness helping and teaching us during the project.

We are entrusted to undergo our Final Year Project in order to graduate. During the project, we are exposed to many new things which are very valuable for us to learn and carry out with devotion when facing the real world of working in the future. It is also to prepare students to face the real challenge and learn how to find solution when problem encountered. The exposure not only will prepare the students but it is also a great opportunity to gain knowledge at industry. Besides that, it can prepare students on how to polish more their soft skill especially on how to communicate with others and learn to do work in a group.

Therefore it is important to make use of the chances given and make the best out of it as this experience is priceless hence students have to carry big responsibility in order to complete their Final Year Project.

TABLE OF CONTENT

ACKNOWLEDGMENTSI

ABSTRACTSIII

LIST OF FIGURES.....III

LIST OF TABLES IV

LIST OF ABBREVIATIONS V

CHAPTER 1 INTRODUCTION1

 1.1 BACKGORUND OF STUDY 1

 1.2 PROBLEM STATEMENT2

 1.3 OBJECTIVES OF RESEARCH3

 1.4 SCOPE OF STUDY3

CHAPTER 2 MATERIALS AND METHODS.....4

 2.1 METHODOLOGY4

 2.1.1 DESIGN OF FLOW CHART5

 2.2 EXPERIMENTAL SETUP..... 6-7

 2.2.1 SOFTWARE OVERVIEW 8-12

 2.2.2 HARDWARE OVERVIEW..... 13-18

 2.2.3 LISTS OF EQUIPMENT AND COMPONENTS19

 2.3 ALGORITHM 20-24

CHAPTER 3 CIRCUIT DESIGN AND OPERATIONS25

 3.1 CIRCUIT OPERATIONS 25

 3.1.1 SOFTWARE DEVELOPMENT 25

 3.1.2 HARDWARE DEVELOPMENT 26

 3.2 PCB DESIGNS 27-28

 3.2.1 PCB PROCESS..... 29-30