

CHAPTER 1

INTRODUCTION

1.1 Introduction

In houses, lamp switches normally located at a high location and it is hard to reach for the switches without help for kids and disable person including people who unable to move a lot due to accident cases. For example; paralyzed and wheeled chaired person. Furthermore, closing gates might be a problem for disable people, elders and it might be dangerous for kids or ladies for social problems like kidnapping and rape cases in this country increases. These problems can be overcome by using the Home Automation System Using Power Line Communication (PLC) at home which is user friendly and cost efficient. It requires only electricity to run the system. Hence this system is very simple and cheap.

Nowadays, most houses already installed the automatic gate system using remote control. With this additional installation of this Home Automation System Using PLC to the original automatic gate system, user can control the gates by using their personal computer at home besides the remote control. Hence, the remote control can be leaved in the car while during at home, user can automate the gate using the computer. Besides the gate, user can also automate the lamps around the house.

Basically the project is about using the Power Line Communication (PLC) in a home automation system and applying PIC in the system to control and automate

lamps and gates to make life easy at home where users control the systems only by using the computer.

1.2 Objectives

The objective of this project is to build a home automation system using a PLC modem and applying PIC microcontroller to control and automate variable home appliances (lamps and gates).

1.3 Scopes of Project

Several scopes proposed in this project are:

- i) To design and fabricate a transmitter module using TDA5051A modem.
- ii) To design and fabricate a receiver module using TDA5051A modem.
- iii) To design a controller system using PIC16F877.
- iv) To design the Graphical User Interface (GUI) using Visual Basic 6.0.
- v) To integrate the GUI with the hardware by using power line communication.

1.4 Problem Statement

In houses, lamp switches normally located at a high location and it is hard to reach for the switches without help for kids and disable person including people who unable to move a lot due to accident cases such as being paralyzed or wheeled chaired. Furthermore, closing gates might be a problem for a disable people, elders and also might be dangerous for kids and women as we heard lots of kidnapping cases happened in this country these years.

A home automation system using power line communication is proposed to solve these problems. The system is friendly user and required only electricity to drive the system therefore it is a low cost type of system.

1.5 Thesis Overview

The Home Automation System using Power line Communication thesis is a combination of 5 chapters that contains and elaborates specific topics such as the Introduction, Literature Review, Methodology, Results and Discussions, Conclusion and Further Development that can be applied in this project.

Chapter 1: Introduction of the project.

Chapter 2: Literature review for the development of the Home Automation System Using Power Line Communication.

Chapter 3: Methodology of the project.

Chapter 4: Results obtained, the limitation of the project based on the performance of the modules fabricated, the costing and the commercialization of the project.