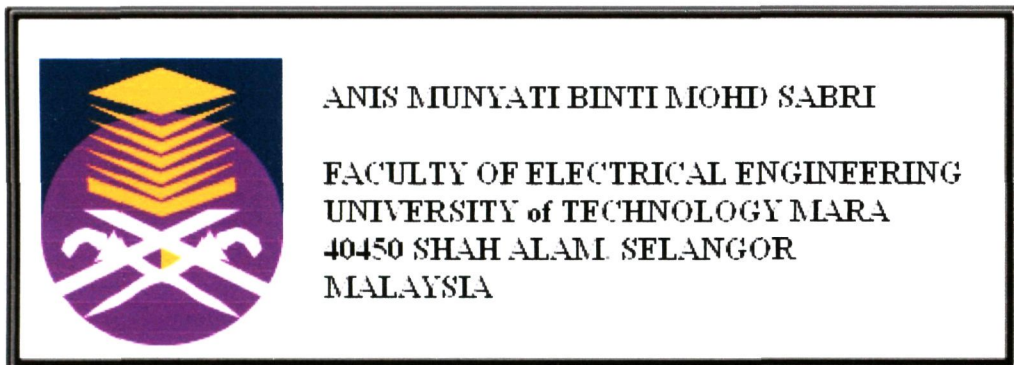# IMPLEMENTATION OF REAL TIME HOME SURVEILLANCE AND AUTOMATION USING GSM MODEM FOR DUAL COMMUNICATION

This thesis is presented in partial fulfillment for the award of the Bachelor of Engineering (Hons.) in Electrical Engineering

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ABSTRACT

Abstract—the focus of this paper is to present the design and implementation of real time home surveillance using GSM modem for dual communication, application for home security system. The concepts of this system using two way communications are mobile-to-machine and machine-to-mobile communication. The system provides security against intrusion as well as automates various home appliances through SMS over GSM technology. Motion, magnetic and vibration sensor are defined as input variables and the fan, lamp and buzzer is defined as output variable. This system offers a complete and user friendly way of 24 hours real time monitoring and controlling of a home security. First, develop a general purpose electronic circuit design that can monitor and control a variety of home appliances with interface that can be plugged into GSM hand phone unit which is Sony Ericsson E300i. The design has been described using PIC (Programmable Interface Controller) comprises microcontroller, adaptation circuit, power circuit, MAX 232 and RS232 interface. Then, develop prototype home security as an application example of the designed PIC system. The system is completely built and tested and showed perfect operation.

Keywords- Short Message Service (SMS), Programmable Logic Controller (PIC), Global System for Mobile (GSM), AT Commands, Automation, Home Security System

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INTRODUCTION

1.1. HOME AUTOMATION AND SECURITY SYSTEM

Nowadays, the communications becomes very simple, fast, interactive and more compact, that makes the global as a small village. So it is very easy of anyone to subscribe in the local or global telecommunication networks with individual mobile phone device [1]. Mobile devices, such as mobile phones, are becoming multipurpose devices. These devices are capable of storing data as well as running custom application. As more people adopt these devices and begin to use them for personal or business tasks, the need for controlling access to the data stored within the devices will become vital.

Automation is today's fact, where more things are being completed every day automatically, usually the basic tasks of turning on or off certain devices and beyond, either remotely or in close proximity. The control of the devices when completely taken over by the machines, the process of monitoring and reporting becomes more important. Automation lowers the human judgment to the lowest degree possible but does not completely eliminate it. Depending on the location of its usage, automation differs in its name as industrial automation, home automation [1][2]. With the development of low cost electronic components home automation migrated from being an industrial application to home automation. The home automation, our point of concern deals with the control of home appliances from a central location. Market researches claim that most of the homes will be equipped with home automation systems in the very near future.

The main principle of this project is to develop a module for Home Automation and Security system mainly in a Home and Industry using Industrial Sensors and transfer the related sensed data using the latest *Global System for Mobile Technology* (GSM) [9].. The Embedded -Controller maintains the security system, so its present information sends to the user for further investigation. The