

LABVIEW BASED ALARM SYSTEMS IN HOME

Guneet Kour^{#1}, Jaswanti^{*2}

[#] Department of Electrical Engg., Baba Bhandu Singh Bhadur Engg. College, Fatehgarh Sahib, Punjab, India

^{*} Department of Electrical Engg., Chandigarh College of Engg. Chandigarh, India.

Abstract— This paper presents the LABVIEW software based home alarm system which act as a security guard of the home. The basic purpose of a home alarm system is to keep us and our family safe, and keep our home safe from crime. When the alarm is triggered, it emits a loud sound design to frighten away intruders. An alarm security system is absolutely essential for anyone who wants to protect their property from those who might try to steal it. Similarly it can protect anyone who is living in the home.

Keywords— Block diagram Alarm system, Buzzer, Front panel, Labview, Sensor.

I. INTRODUCTION

The purpose of home alarm system is to alert the homeowners to unauthorized entry attempts into the houses. Home security systems should be evaluated by and installed in regard to the areas in which burglars are most likely to enter your residence. Studies have shown that most intruders or would be intruders will enter through a front door, by either forcing it open or simply kicking it in. Others enter through ground floor windows or the back door of the home which may offer more privacy and less lighting than a front door entrance. Home security is all about keeping your home, your loved ones, and your property safe from robbery. The loss of costly items is only one aspect of home security. Perhaps even more important is the prevention of personal violation, injury, and danger, which a home security system can go a long way toward preventing. Home security systems are a valuable, vital asset to keep your family and your valuables from harm. Remember that security systems can provide protection from fire, flood, and medical emergencies along with protection from robbery as well. With the development of new electronic technologies and their integration with older, traditional building technologies, smart house is at last becoming a real possibility.

A smart home security system offers many more benefits. A smart home or building is a home or building, usually a new one that is equipped with special structured wiring to enable occupants to remotely control or program an array of automated home electronic devices by entering single command. For example, a homeowner on vacation can use a Touchtone phone to arm a home security system, control temperature gauges, switch appliances on or off, control lighting, program a home theatre or entertainment system, and perform many other tasks [1]. Possibly the

first "home computer" was an experimental system in 1966. The Smart House Project was initiated in the early 1980's as a project of the National Research Center of the National Association of Home Builders (NAHB) with the cooperation of a collection of major industrial partners [2]. The motivation is to facilitate the users to automate their homes having ubiquitous access. The system provides availability due to development of a low cost system. The home appliances control system with an affordable cost was thought to be built that should be mobile providing remote access to the appliances and allowing home security. Home security has been a major issue where crime is increasing and everybody wants to take proper measures to prevent intrusion. In addition there was a need to automate home so that user can take advantage of the technological advancement in such a way that a person getting off the office does not get melted with the hot climate [3]. There are many other reasons why people need security at their homes.

The first reason that this system is established is to create a peace of mind for people. So that they can feel safe inside or outside their homes. This will help them to execute their work without any fear of their security. The other reason is to help in getting timely information about visitors at house. Through the use of security cameras users are able to monitor the situation at their homes and get timely information about persons visiting their homes [4]. Conventional security systems keep homeowners, and their property, safe from intruders. A smart home security system, however, offers many more benefits. Home automation technology notifies homeowners of any problems, so that they can investigate. Artificial intelligence programs keep track of the homeowner's habits, and other important information, and notify emergency personnel when necessary [6].

This paper proposes a Labview based Home alarm system that allows user to protect home from all sides and also provide security on detection of intrusion via alarm signal using Buzzer.

II. PROBLEM FORMULATION

To protect home from unauthorized entities, three possible cases are taken as shown in Figure1 .First case considers entry from front door only where keypad is connected. Other two cases consider the possible entries

from side doors or side windows. The home alarm system is created in lab view by setting a suitable code for alarm to work. The code for actual alarm is fixed. To run the home alarm system in lab view, the setup made as shown in Figure 2, we assume that a person can enter the home either through front door, side door or windows. In first case, the person will enter the code through keypad; if the code is not matched with the fixed value of code then a written warning will be displayed. If again the code is not correct then buzzer alarm will ring. It is noted that after 3 seconds, our system automatically clears the code which we enter earlier. In second case, the person will enter through side doors or the windows. The side door and side windows have sensors with them. Sensor senses the signal and transmits it to the alarm. In this way when any person comes from any of the entry zone, the whole procedure is followed in a similar manner.

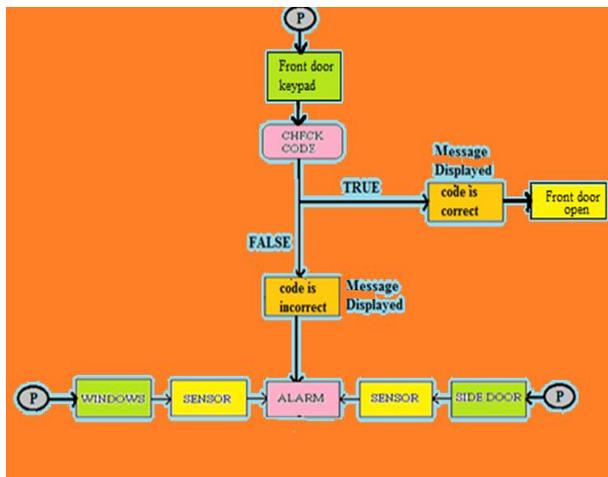


Fig.1 Flow chart of home-alarm system where P stands for person.

III. LABVIEW

LABVIEW is a development system for industrial, experimental, and educational measurement and automation applications based on graphical programming, in contrast to textual programming-however, textual programming is supported in Lab VIEW. LAB VIEW has a large number of functions for numerical analysis and design and visualization of data. LABVIEW is a development system for industrial, experimental, and educational measurement and automation applications based on graphical programming, in contrast to textual programming - however, textual programming is supported in LABVIEW. LABVIEW has a large number of functions for numerical analysis and design and visualization of data. LAB VIEW now has several toolkits and modules which brings the LABVIEW to the same level of functionality as MATLAB and Simulink in analysis and design in the areas of control, signal processing, system identification, mathematics, and simulation, and more.

LABVIEW (short for Laboratory Virtual Instrumentation Engineering Workbench) is easy platform and development environment for a visual programming language from National Instruments. The purpose of such programming is automating the usage of processing and measuring equipment in any laboratory setup. LABVIEW programs are called virtual instruments or VIs. Each VI has two windows-Front Panel and Block Diagram. Front Panel is user interface which has controls and indicators. Block Diagram is program code which shows data travels on wires from controls through functions to indicators.

IV. RESULTS

If the person will enter the code through keypad at front door and the code is not matched with the fixed value of code then a written warning will be displayed i.e. code is incorrect as shown in figure 2 and buzzer alarm will ring. If entered code is matched with fixed code then a message will be displayed that code is correct and buzzer alarm will not ring. If the person will enter through side doors or the windows then side door and side windows sensors sense the signals and transmit it to the alarm and buzzer alarm will ring at that time.

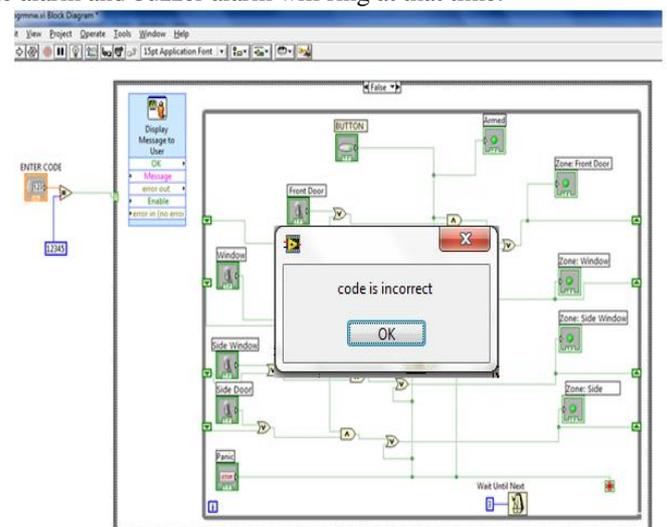


Fig.2 Block Diagram of home-alarm system.

V. CONCLUSIONS

This paper represents importance of home alarm system for home security. Installing home security systems are not status symbols anymore but rather they have become a great necessity in today's environment. A properly secured and monitored home can definitely give you that peace of mind for you and for our family. The fear of theft and burglary always annoys many people. When lock and keys become less safe, one can seek the help of electronic security systems or Home Alarm System. Various applications of Home Alarm Systems are in: Buildings, Hospitals, Banks, Electrical control rooms, Heat treating furnaces, Data and telecommunication etc

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