Paper ID: IOTTSF12

HOME ACCESS CONTROL AND ALARM SYSTEM USING LABVIEW

Rushikesh Munje,Suraj Phadtare,Sagar shilvant, M.R.Pangaonkar

Electronics And Telecommunication Engineering

Marathwada Mitra Mandal's college of Engineering Pune[1]

ABSTRACT

This paper presents the basic purpose of a home access control and alarm system is to keep us and our family safe, and keep our home safe from crime. This system is based on the LABVIEW software and can act as a security guard of the home.

Access Control system is set at the door to give access only to family members. When other persons are trying to enter then 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 - LabVIEW, Electromagnetic Lock, RFID, NI-ELVIS II Board , Vibration Sensor

I. INTRODUCTION

In early days people want their home safe from intruders so they want continuous security of there homes. hence embedded based security system came in market but many people cannot afford these systems.so we are working on security system based on labview which everyone can afford.

An alarm system has following components- the input devices (which trigger the alarm), the output devices (which communicate the alarm like speakers) and the control panel (networks between the devices and is an interface for user).

This system has keypad at front door and sensors at back doors and side windows which activate or deactivate the alarm based on programming in LabVIEW software.

NI ELVIS-II Board is manufactured by National Instuments.NI ELVIS II Board has analog and digital input output, function generator, digital multimeter, data acquisition etc. we mounting all components on NI ELVIS II Board.

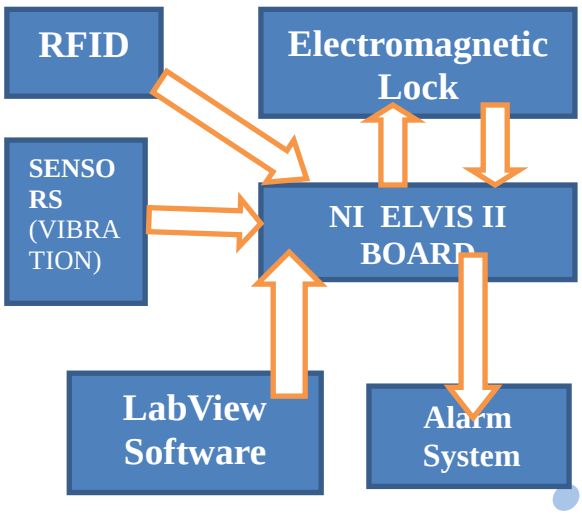
For developing security system we are using LabVIEW software. It uses a graphical programming. LabVIEW is widely used in automation industry, educational measurements.LabVIEW has large set of functions for design ,numerical analysis, storing and visualization of data.

II. LITERATURE SURVEY

- HP researchers recently tested ten new connected home security systems and found that the Internet of Things (IoT)-connected security systems were full of flaws. According to the researchers, you may be more vulnerable and less secure than before you bought these security systems.
- The study showed that due to lack of proper protection mechanisms, malicious parties could easily access the system. What's worrying about this issue is that all of the systems allow the use of weak passwords—most of them required only six alphanumeric character passwords with no auto-lock function after a number of failed authentication attempts. Additionally, since connected home security systems use a cloud service, several of the tested systems allowed account enumeration through cloud-based web interfaces and a mobile application interface.
- There are several projects based on labview software. Intelligent home monitoring system and home automation are commons in this field but uniqueness of this paper is that it provides home security using labview.

- Embedded based security system uses microcontroller such as ARM, PIC etc.It requires additional PCB board, power supply.

III. BLOCK DIAGRAM



LabVIEW: LabVIEW is a graphical programming language that uses icons instead of lines of text to create applications. In contrast to text-based programming languages, where instructions determine program execution, LabVIEW uses dataflow programming, where the flow of data determines execution.
In LabVIEW, you build a user interface with a set of tools and objects. The user interface is known as the front panel. You then add code using graphical representations of functions to control the front panel objects. The block diagram contains this code. In some ways, the block diagram resembles a flowchart.
NI ELVIS II: The National Instruments Educational Laboratory Virtual Instrumentation Suite (NI ELVIS) is a hands-on design and prototyping platform that integrates the 12 most commonly used instruments – including oscilloscope, digital multimeter, function generator, bode analyzer, and more – into a compact form factor ideal for the lab or classroom. It connects to your PC through USB connection, providing quick and easy acquisition and display of measurements. Based on NI LabVIEW graphical system design software, NI ELVIS offers the flexibility of virtual instrumentation and the ability of customizing your application.

RFID: Radio-frequency identification (RFID) is the wireless use of electromagnetic fields to transfer data, for the purposes of automatically identifying and tracking tags attached to objects. The tags contain electronically stored information.

ELECTROMAGNETIC LOCK:

An electromagnetic lock, magnetic lock is a locking device that consists of an electromagnet and an armature plate. There are two main types of electric locking devices. Locking devices can be either "fail safe" or "fail secure". A fail-secure locking device remains locked when power is lost. Fail-safe locking devices are unlocked when de-energized

Vibration Sensor – It is used to detect the vibration/motion of objects.

. IV. SUMMARY

- Many security systems are based on embedded. but the cost of hardware is more hence we switch to labview software. if user want to upgrade his security system then he have to spend more money on embedded based system.
- In labview based system user only need to upgrade programming hence it is easy to use labview over embedded system.

V. ACKNOWLEDGEMENT

- We would like to thank our project guide Prof.Mrs.M.R.Pangaonkar for her continous help in forming our paper.
- Also we would like to thank our head of department Prof P.S.Sawant for informing and supporting us in our efforts for writing this paper.

VII. FUTURE SCOPE

Adding GSM system to send message to nearest police station and owner.

IoT (Internet of Things) can be executed to have remote access to security system.

VIII.CONCLUSION

Home access control and alarm system can bring user friendly security system for people's .future home security will be linked with internet of things(IoTs)

The main objective of this paper is to design and implement better home security based on labview software.after connecting system through internet so to access remotely from any corner of the world.

IX. REFERANCES

- LabVIEW user manual
- NI ELVIS II user manual
- LabVIEW Graphical Programming By Gary Johnson
- LabVIEW For Engineers By Ronald Larsens
- Intelligent Home Monitoring System Vol 3, Issue 1,
  By chetana Sarode, prof.Mr.H.S.Thakar