International Journal of Research in Computer & Information Technology (IJRCIT),
Vol.8, Issue 3, June 2023
E-ISSN: 2455-3743
Available online at www.ijrcit.co.in

Home Security Alarm System

[1]Ms. Priyanka Chikhale, [2]Drushti Sarode, [3]Tanvi Kapse, [4]Sumedha Motghare, [5]Pratiksha Gajghater

Abstract— A home security alarm system is a device designed to protect homes and properties from intruders and unauthorized access. The system typically consists of sensors that detect motion, door and window openings, glass breaks, and other disturbances. When a sensor is triggered, the system sends an alert to the homeowner and/or a monitoring centre, which can then dispatch law enforcement or security personnel. Many modern alarm systems also include features such as remote access and control via smartphone apps, video surveillance, and integration with other smart home devices. The goal of a home security alarm system is to provide peace of mind and protection for homeowners, while deterring potential intruders and minimizing the risk of property loss or damage.

Keywords— Arduino, AT Mega 328 P, IR Sensor, RFID Reader.

I. Introduction

A home security alarm system is an electronic system designed to detect unauthorized entry into a building or area. It is typically comprised of sensors placed at entry points such as doors and windows, as well as motion detectors and sometimes cameras. When the sensors detect movement or a breach, the system will emit a loud alarm to alert the occupants and potentially notify a monitoring service or emergency services.

Home security alarm systems are an effective way to deter burglars and other intruders from entering a property, and can also provide peace of mind for homeowners who may be away from their homes for extended periods of time. They can also include additional features such as smoke detectors, carbon monoxide detectors, and even home automation capabilities such as controlling lights and thermostats remotely.

Manuscript Received April 5, 2023; Revised 25 April, 2023 and Published on June 02, 2023

Ms. Priyanka Chikhale, Drushti Sarode, Tanvi Kapse, Sumedha Motghare, Pratiksha Gajghate, Department of Computer Engineering Suryodaya College of Engineering and Technology, Nagpur, Maharashtra, India.
Mail Id: *priyankachikhale0@gmail.com, drushtisarode30@gmail.com, tanvikapse04@gmail.com , sumedhamotghare@gmail.com, pratikshagajghate8@gmail.com*

There are a variety of home security alarm systems available on the market, ranging from DIY options to professionally installed systems. The right system for a particular home will depend on factors such as the size and layout of the property, the level of security desired, and the homeowner's budget.

II. Prospective Application

Prospective applicants for a home security alarm system may include:

1. Homeowners who want to protect their property and belongings from burglaries and thefts.
2. Homeowners who want to ensure the safety and security of their family members.
3. Homeowners who live in areas with high crime rates or who have experienced previous break-ins.
4. Homeowners who have valuable items or collections they want to protect.
5. Homeowners who travel frequently and want to monitor their homes remotely.
6. Homeowners who want to reduce their home insurance premiums by having a security system installed.
7. Elderly or disabled individuals who may be more vulnerable to home invasions or break-ins.
8. Parents who want to ensure the safety of their children while they are at home.

These are just a few examples of the types of people who may be interested in installing a home security alarm system. Ultimately, anyone who values the safety and security of their home and loved ones can benefit from a security system.

.

III. Home Security Alarm System

A. Architecture

The method of Home Security Alarm System
Is categorized into following stages:

1. Buzzer on Entry

2. Detect motion

3. Alerting

Firstly, we take A square box then attach the LCD at the one point and attach the PIR motion sensor at side of LCD so

that it detects any motion and on the other side we have attach the switch for switch ON or switch OFF the circuit whenever we want.

So, devices now are processing data now it says differencing motion and then whenever a person or anything pass the sensor the buzzer start and LCD print the message .so whenever there is different in motion then it start and buzz ring the buzzer.

Summary for Home Security Alarm System

A home security alarm system is a set of interconnected devices that detect and alert homeowners of potential intruders, fire, or environmental hazards. These systems typically consist of sensors placed on doors, windows, and other entry points, as well as motion detectors, cameras, and other monitoring devices.

When a sensor is triggered, the alarm system alerts the homeowner and/or a central monitoring station, which can then dispatch authorities if necessary. Some systems also include features like remote monitoring and control through a smartphone app.

Home security alarm systems can vary in price and complexity, with options ranging from basic DIY setups to professionally installed, fully integrated systems with advanced features like video surveillance and home automation. Ultimately, the right system for you will depend on your budget, lifestyle, and security needs.

IV. Challenges And Future Scope

False alarms: The system should be designed to minimize false alarms, as they can be costly and cause unnecessary disruptions.

Power outages: The system should have backup power in case of a power outage, to ensure that it remains operational.

Connectivity: The system should be connected to a reliable communication network to ensure that alarms are transmitted to the monitoring centre in a timely manner.

V. Feature

1. Sensors: The system should have motion sensors, door and window sensors, and glass break sensors to detect intruders and trigger alarms.
2. Monitoring: The system should have 24/7 monitoring by a professional monitoring centre to ensure that alerts are addressed quickly and efficiently.
3. Remote access: The system should have remote access through a mobile app or web portal to allow homeowners to arm and disarm the system, view live camera feeds, and receive alerts from anywhere.
4. Integration: The system should be able to integrate with other smart home devices, such as smart locks and lights, to create a more comprehensive security solution.
5. Panic button: The system should have a panic button that can be easily triggered to alert the monitoring center and dispatch emergency services in case of an emergency.
6. Pet-friendly: If you have pets, the system should have pet-friendly sensors that can distinguish between pet movement and human movement to avoid false alarms.

VI. Conclusion

Thus, we have designed a home security alarm system using Arduino and PIR motion sensor, which is handy, portable, cost-effective and highly effective as well. Such alarm systems are hugely in demand for security purposes, and thus the given system can be proved useful and effective in view of the above features.

References

[1] Ahmad AdamuGaladima. “Arduino as a learning tool”. IEEE 978-1-4799-4106-3/14/$31.00

[2] Chetana Nayyar, B. Vallarmathi and K. Santhi. “Home Security and Energy Efficient Home Automation System using Arduino”. Internation Conference on Communication and Signal Processing, April 6-8, 2017, India. Pp-1217-1221.

[3] Drijesh Singh Butola, Piyush Kumar Sharma, Yashika Singh, Yabrin Amin. “Arduino Uno and GSM based wireless health monitoring system for patients”. International Conference on Intelligent Computing and Control Systems-2017”

[4] GONG Shang-fu, YIN Xiao-quing. “ Solution of Home Security based on ARM and ZIGBEE”, International Symposium on Computer, Consumer and Control 2016. pp- 89-91

[5] Rozita Teymourzadeh, Salah Addin Ahmed, Kokwaichen, Mok Vee Hoong. “Smart GSM based home automation”. IEEE conference, system and control-2013 pp-306-309

[6] https://store.arduino.cc

[7] http://en.m.wikipedia.org/wiki/GSM

[8] Khusboo Dhiman, Amit Sharma, AbhinayChaudhary, Farheen Fatima, Deeksha Singh Rajut. “Zigbee Based Home Sutomation and Security System”. DOI- 10.4010/2016.905. pp- 3921-3925

[9] P. Pawan Kumar, G. Tirumala Vasu. “Home Automation and Security System using Arduino Android ADK, IJETER 2015 vol.3No.6 Pages-190-194

[10] P. Satya Ravi Teja, A. Sai Srikar, V. Kushal, K. Srinivasan. “Photosensitive Security System for Theft Detection and Control using GSM technology”. SPACES-2015. pp- 122-125

[11] Suresh S, J Bhavya, S. Sakshi, K. Varun and G. Debarshi. “Home monitoring and Security System”. 978-1-5090-5515-9/16/$31.00