SMART HOME SECURITY SYSTEM

PROJECT SYNOPSIS

OF MAJOR PROJECT

SUBMITTED IN PARTIAL FULFILLMENT REQUIREMENT FOR THE AWARD OF DEGREE OF

Bachelor Of Technology

(Computer Science & Engineering)

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Table Of Contents

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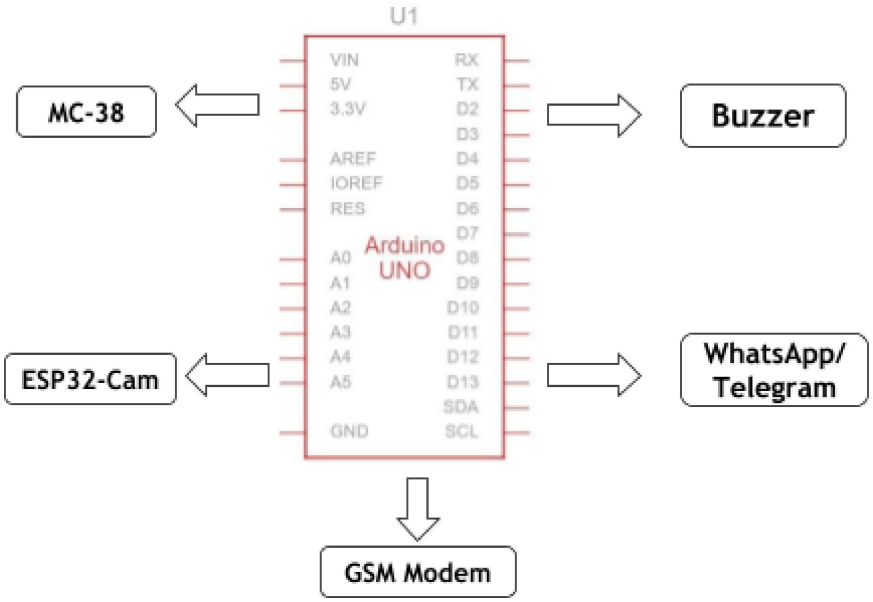
1. Introduction

Home security made drastic changes in the past few decades and continue to advance much more in the coming years. Previously home security systems meant having an alarm that would go off when somebody would break in but a smart secure home can do much more than that. Security hardware includes doors, locks, alarm systems, lighting, motion detectors, and security camera systems. Personal security involves practices like ensuring doors are locked, alarms are activated, owning a Dog, windows are closed, and extra keys are not hidden outside. As per the most recent statistics, the average burglary in the United States takes about 90 seconds to 12 minutes, and on average, a burglar will break into a home within 60 seconds. Most target cash first followed by jewels, drugs, and electronics. Common security methods include never hiding extra keys outside, never turning off all the lights, applying small CCTV stickers on doors, and keeping good tabs with neighbors. If your security system is professionally monitored by an alarm company, they are alerted when a security problem arises in your home. Along with the high-decibel alarm that sounds, the monitoring company is alerted. A trained security expert might attempt to communicate with the homeowner via the control panel if it's set up for 2-Way Voice communication, or will call the emergency contact number listed on the account. Numerous studies show homes without security systems, when compared to those with professionally monitored systems, are up to three times more likely to be burglarized because burglars are opportunistic by nature and are on the hunt for easy targets.This project aims at giving the user an assurance of instantaneous alert in the form of SMS notification on users registered cell phone number for any form of threat to the security of the home of the user.Threat to security can be in the form of trespassing, burglary etc. If the door magnetic sensor **(MC-38)** is on then, if anyone opens the door then the owner will get an alert SMS and if they enter the room then **PIR** will detect the motion and send their picture to the owner. This security system will be more effective if owner gone out for some days and anyone try to bulgery or trespassing Because in this project 3 layers of security.

2. Objectives

- To design and implement the circuit layout of Laser Security Alarm System(LSAS) as an interface.
- To build and develop the framework for a door security system using Arduino.
- To capture the images of the intruder and send it to the owner's mobile phone as a text message.

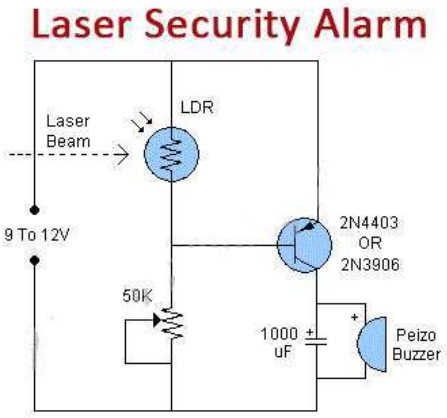
3. Methodology



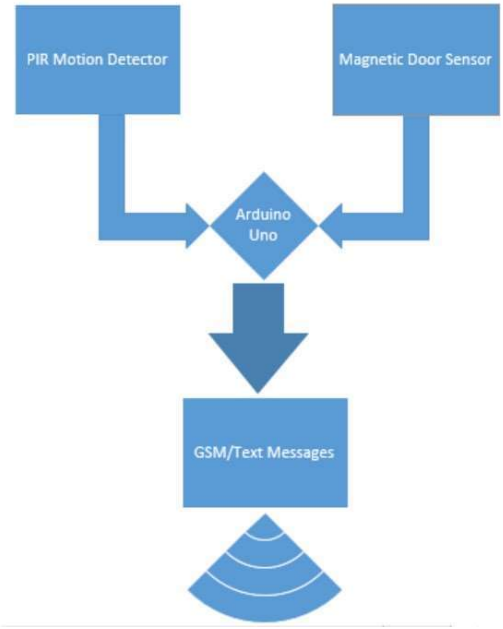
The methodology used in the proposed model is to develop a prototype model of a house, in the prototype an interface of motion detectors, and GSM modules are being developed with an arduino. The communication between the arduino and other components of the system takes place serially. The proposed system contains PIR sensors in the monitored rooms and connected camera modules to the ESP32 microcontroller.

The main aspects of the whole system are the following:

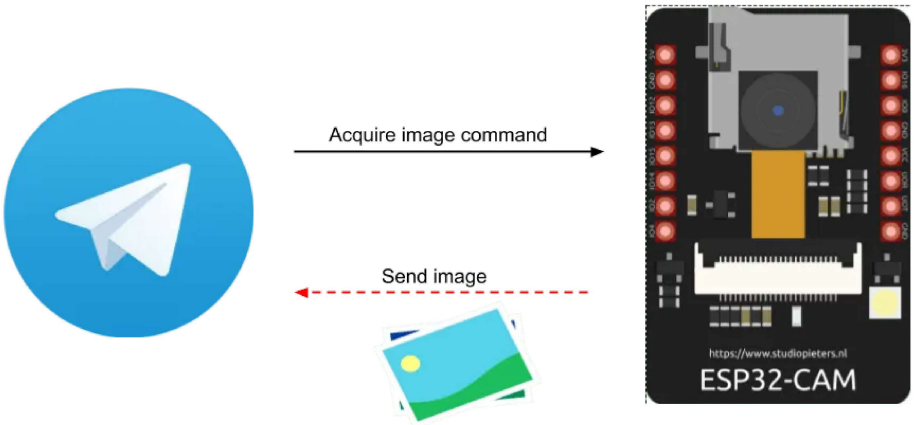
- In this circuit we are using LDR (Light Dependent Resistor) which is actually a variable resistor. Normally LDR has high resistance and when light falls on its surface , its resistance decreases and this allows the transistor to conduct and as a result of this change in resistance the buzzer will be turned on. We are using a 9V to 12V DC battery for this circuit.n Sensitivity of this circuit will be adjusted by 50K resistor.



- Pir motion detector and magnetic door switch sends their respective status to arduino. Arduino then decides what to do next with the inputs from the pir and door sensor. If the arduino finds both the sensors transmitted the positive status. It alerts the gsm module to activate and send a text sms on hard coded single sim number.



- If PIR detects the motion then ESP32 Cam sends a picture of intruder or trespassing to the house owner.



4. Facilities Required For Proposed Work

❖ Minimum Hardware Requirement:-

- ➢ Arduino UNO R3
- ➢ MC-38
- ➢ GSM SIM900A
- ➢ BC 547 (NPN)
- ➢ Buzzer
- ➢ LDR
- ➢ Laser LED Light
- ➢ Resistance
- ➢ BreadBoard
- ➢ Battery (Power Supply)
- ➢ EPS32 Cam
- ➢ Switch
- ➢ PIR Sensor
- ➢ Jumper Wires

❖ Minimum Software Requirements:-

- ➢ Arduino IDE
- ➢ Operating System (Windows/Linux/MacOS)

5. Feasibility Study

5.1 Economic Feasibility

Low cost GSM based wireless home security system which includes wireless security sensor nodes and a GSM gateway.
It has the following features:

- Low cost,
- Low power consumption,
- Simple installation,
- Fast Response

In general, GSM modem acts as the interface between the users and the sensor nodes. The owner will be notified with a short messaging service (SMS) from the server via the GSM module system in a few seconds.

5.2 Technical Feasibility

The project is technically feasible as it will be made with proper & prior knowledge of IoT and coding development.

5.1 Legal Feasibility

The project is legally feasible as the data (In the form of text or video or Image) which will be provided by the arduino will be completely confidential with the owner.

6. Expected Outcome

The security system described in this project is capable of detecting intruders. The system informs the authorized owner of an unauthorized intrusion via SMS or WhatsApp Or Telegram Message no matter where the person is, except if the person is in the region where there is no network coverage at the time of intrusion. The commonly available systems today are one where the intrusion is detected via alarms making out sounds.

The system is very beneficial for people who want to safeguard their properties and restrict access. This system is very affordable and easily operated, so that anybody whether rich or comfortable, young or old can make use of this system.

7. References

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