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DESIGN AND IMPLEMENTATION OF SMS BASED HOME SECURITY SYSTEM

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ABSTARCT:
The present existing systems are designed for short range PAN applications that possess some limitations as of, the application is conformed to a short coverage area and the system terminates if the range limit crosser certain value next is the number of parameters the system monitors are less and the last one is the system is only a single way or a simplex communication system .i.e., the previous systems are only alert systems and are not controllable. As discussed above the current projects faces certain challenges. Hence to overcome those limitations this paper proposes certain modifications to the original system which tends the system to improve its performance and offer satisfying results that makes the overall system easy to handle, operate and affordable without compromising the security constraints

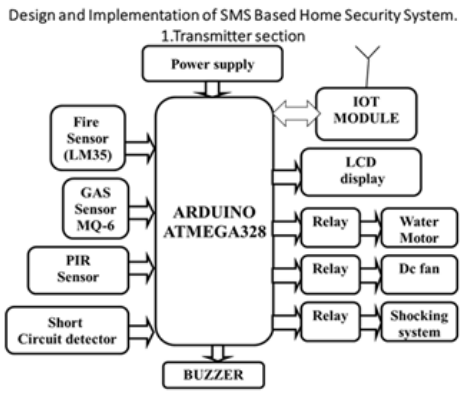
I. INTRODUCTION

Smart Home can be also known as Automated Home or intelligent home which indicates the automation of daily tasks with electrical appliances used in homes. This could be the control of lights, fans, viewing of the house interiors for surveillance purposes or giving the alarm alteration or indication in case of gas leakage. Home security has changed a lot from the last century and will be changing in coming years. Security is an important aspect or feature in the smart home applications. The new and emerging concept of smart homes offers a comfortable, convenient, and safe environment for occupants. Conventional security systems keep homeowners, and their property, safe from intruders by giving the indication in terms of alarm. However, a smart home security system offers many more benefits. This paper mainly focuses on the security of a home when the user is away from the place. Two systems are proposed, one is based on GSM technology and other uses web camera to detect the intruder. The first security system uses a web camera, installed in house premises, which is operated by software installed on the PC and it uses Internet for communication. The camera detects motion of any intruder in front of the camera dimensions or camera range. The software communicates to the intended user via Internet network and at the same time it gives sound alert. The second security system is SMS based and uses GSM technology to send the SMS to the owner. The proposed system is aimed at the security of Home against Intruders and Fire. In any of the above cases happens while the owners are out of their home then the device sends SMS to the emergency number which is provided to the system.

RELATED WORK:

This phase gives the artwork finished earlier on this area. A GSM based really absolutely home automation tool has a very low charge of set up and protection [I]. It is also very bendy and robust. An advantage of the shape of tool is that there may be no hazard of it being hacked since it includes nice a cellular network [I]. But, the ones structures involve each day operation costs due to the fact the client has to pay for each SMS [I]. So, researchers are looking for to simplify the structures and lessen fees of set up and protection. SeveraL SMS primarily based definitely without a doubt home protection systems had been developed in [I], [2], [3], [4]. In [1], microcontroller AT89C55 has been interfaced with GSM module thru RS-232 verbal exchange protocol for interplay the various clients' cellular mobile phone and the safety tool. Rozita, Walah, Chan and Mok in [2], superior a whole control domestic primarily based automation gadget the use of PIC16F887 microcontroller which changed into covered with GSM module speakme at a baud rate of 9600 bps. A few exceptional such tool changed into advanced in [3], wherein a GSM module have emerge as interfaced with a computing device pc. Proper right here, clients had been related to the pc through wi-fi get right of access to factors and the house home system have stressed connection to the pc. Md. Shafiul Islam in [4] used PIC18F452 microcontroller to reveal doors and domestic home home home windows of a domestic a great manner to be accessed great through entering into the right identity

HARDWARE DESCRIPTION



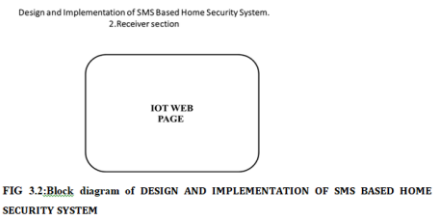


FIG 3.2:Block diagram of DESIGN AND IMPLEMENTATION OF SMS BASED HOME SECURITY SYSTEM

Power Supply

All electronic circuits works only in low DC voltage, so we need a power supply unit to provide the appropriate voltage supply for their proper functioning .This unit consists of transformer, rectifier, filter & regulator. AC voltage of typically 230volts rms is connected to a transformer voltage down to the level to the desired ac voltage. A diode rectifier that provides the full wave rectified voltage that is initially filtered by a simple capacitor filter to produce a dc voltage. This resulting dc voltage usually has some ripple or ac voltage variation. A regulator circuit can use this dc input to provide dc voltage that not only has much less ripple voltage but also remains the same dc value even the dc voltage varies somewhat, or the load connected to the output dc voltages changes.

Transformer A transformer is a static piece of which electric power in one circuit is transformed into electric power of same frequency in another circuit. It can raise or lower the voltage in the circuit, but with a corresponding decrease or increase in current. It works with the principle of mutual induction. In our project we are using a step down transformer to providing a necessary supply for the electronic circuits. Here we step down a 230volts ac into 12volts ac.

Rectifier A dc level obtained from a sinusoidal input can be improved 100% using a process called full wave rectification. Here in our project for full wave rectification we use bridge rectifier. From the basic bridge configuration we see that two diodes(say D2 & D3) are conducting while the other two diodes (D1 & D4) are in off state during the period t = 0 to T/2.Accordingly for the negative cycle of the input the conducting diodes are D1 & D4 .Thus the polarity across the load is the same. In the bridge rectifier the diodes may be of variable types like 1N4001, 1N4003, 1N4004, 1N4005, IN4007 etc… can be used. But here we use 1N4007, because it can withstand up to 1000v.

Filters In order to obtain a dc voltage of 0 Hz, we have to use a low pass filter. So that a capacitive filter circuit is used where a capacitor is connected at the rectifier output& a dc is obtained across it. The filtered waveform is essentially a dc voltage with negligible ripples & it is ultimately fed to the load.

Regulators The output voltage from the capacitor is more filtered & finally regulated. The voltage regulator is a device, which maintains the output voltage constant irrespective of the change in supply variations, load variations & temperature changes. Here we use fixed voltage regulator namely LM7805.The IC LM7805 is a +5v regulator which is used for microcontroller

Voltage Sensor

Description This module is based on resistance point‟s pressure principle, and it can make the input voltage of red terminal reduce 5 times of original voltage. The max Arduino analog input voltage is 5V, so the input voltage of this module should be not more than 5Vx5 = 25V (if for 3.3V system, the input voltage should be not more than 3.3Vx5 = 16.5V). Because the Arduino AVR chip have 10 bit AD, so this module simulation resolution is 0.00489 V (5V/1023), and the input voltage of this module should be more than 0.00489 Vx5 = 0.02445V.

Gas Leakage Sensor MQ-6 Sensitive material of MQ-6 gas sensor is SnO2, which with lower conductivity in clean air. When the target combustible gas exist, the sensor‟s conductivity is higher along with the gas concentration rising. Please use simple electro circuit, Convert change of conductivity to correspond output signal of gas concentration. MQ-6 gas sensor has high senility to Propane, Butane and LPG, also response to Natural gas. The sensor could be used to detect different combustible gas; it is with low cost and suitable for different application.

LCD Display Liquid crystal displays (LCDs) have materials which combine the properties of both liquids and crystals. Rather than having a melting point, they have a temperature range within which the molecules are almost as mobile as they would be in a liquid, but are grouped together in an ordered form similar to a crystal. An LCD consists of two glass panels, with the liquid crystal material sand witched in between them. The inner surface of the glass plates are coated with transparent electrodes which define the character, symbols or patterns to be displayed polymeric layers are present in between the electrodes and the liquid crystal, which makes the liquid crystal molecules to maintain a defined orientation angle. One each polarisers are pasted outside the two glass panels. This polarizer‟s would rotate the light rays passing through them to a definite angle, in a particular direction. When the LCD is in the off state, light rays are rotated by the two polarisers and the liquid crystal, such that the light rays come out of the LCD without any orientation, and hence the LCD appears transparent. When sufficient voltage is applied to the electrodes, the liquid crystal molecules would be aligned in a specific direction. The light rays passing through the LCD would be rotated by the polarisers, which would result in activating / highlighting the desired characters. The LCD‟s are lightweight with only a few millimeters thickness. Since the LCD‟s consume less power,

they are compatible with low power electronic circuits, and can be powered for long durations. The LCD does don‟t generate light and so light is needed to read the display. By using backlighting, reading is possible in the dark. The LCD‟s have long life and a wide operating temperature range. Changing the display size or the layout size is relatively simple which makes the LCD‟s more customer friendly. The LCDs used exclusively in watches, calculators and measuring instruments are the simple sevensegment displays, having a limited amount of numeric data. The recent advances in technology have resulted in better legibility, more information displaying capability and a wider temperature range. These have resulted in the LCDs being extensively used in telecommunications and entertainment electronics. The LCDs have even started replacing the cathode ray tubes (CRTs) used for the display of text and graphics, and also in small TV applications.

CONCLUSION

This security home feature become draws much attention in the future. People getting more concerned to protect their house from unauthorized people. This system can monitor a house by use of sensors that integrated with a microcontroller and a GSM unit. SMS use to alert users via mobile phone when a possible intrusion occurs. Today almost everyone using mobile phone so by use this system user will not have to carry additional device to monitor their house this system is design using modularity to become a flexible system that can be add more sensors without change the whole system, only add some sensors to increase systems functionality. So this system is a modular home security system by using SMS function to communicate between system and user

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