

Designing security and Surveillance System Using GSM Technology

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Abstract – We suggest a new mechanism to secure common access area control, the present mechanism keeps a recording of all the events happening in area but does not have a provision to inform about the real-time event happening in case of burglary. To make the system relevant in real-time we have used the GSM technology. GSM technology is mainly used for the purpose of mobile communication. This new system makes the security system more real-time relevant

Index Terms– Global system for mobile communication (GSM), passive-electric infrared sensor.

INTRODUCTION

Security system is crucial for any business. Having a reliable security system gives the owner and its employees a guarantee and assurance that they are working in a safe and secure environment. Any security system should be able to provide a mechanism to detect external threat and to also provide enough evidence if any employee has any intention of wrong doing. In this project we have used an IR sensor and a PIR sensor. An IR sensor can detect any object which passes its way and because it is an infrared ray the light is not visible, there is only one shortcoming of IR sensor. They work on principle line of sight. So if any one crosses through an air vent it would be difficult for the IR sensor to detect it. To over this shortcoming we have used PIR sensor. A PIR sensor has a convergent ray which will detect intrusion in any direction. To check whether there is anyone who has hacked into these two sensors we have a feedback sensor. This sensor will monitor proper functioning of these two sensors. A LCD display which is used to display the entry of an authorized person into the vault also a buzzer to alarm if an unauthorized person as entered into the vault. RS/AS this is where we check the authority of a person. An authorized person has a smart card which will be detected before the entry into the vault. This detection will be use to check whether an

authorized person has entered or not, at vault there will be a receiver device which will receive a confirmation about an entry of authorized person.

EXISTING TECHNOLOGY FOR SECURITY SYSTEM

A security and surveillance system passively records the events happening in local area network, wide area network or any computer networks. These recording provide us evidence in case of any unusual activity that has occurred in that particular area. Many a times this fails because the orientation of the camera and the angle in which this camera is set to does not cover the actual area where the theft has occurred. The resolution of the camera is also a deterrent sometimes where it may not be able to provide clear image of the culprit, this makes identification of the culprit more difficult.

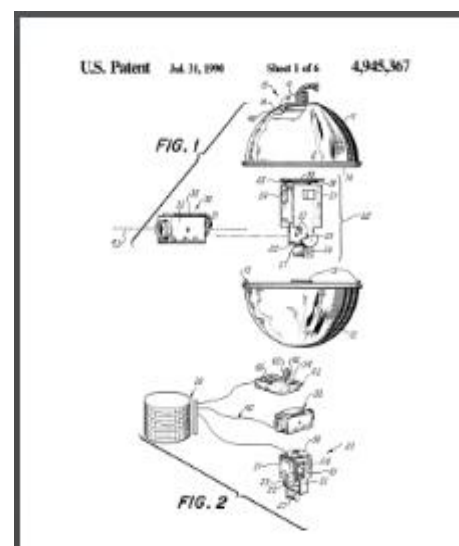


Fig1. design of security camera

To make this security system more efficient and more helpful in detecting theft and burglary, the security system is now connected to an alarm system. This alarm system makes siren noise in case of theft or intrusion. Though this system creates a warning, but this system only creates a warning in the surrounding area. So if the owner stays in the neighborhood he is informed about the theft. The alarm system makes it more real-time security system. This system also fails if the owner of the store or any senior managing officer is not in the neighborhood.

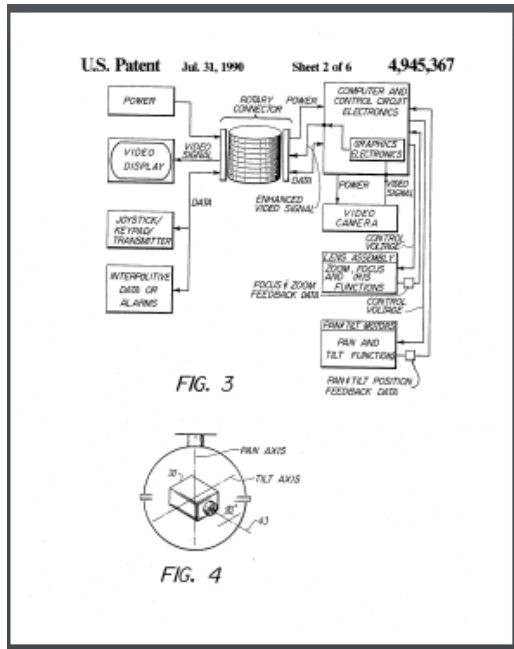


Fig2. Block diagram for functioning of camera

NEW MECHANISM FOR REAL-TIME SECURITY SYSTEM

To overcome the passive nature of surveillance camera we have used GSM technology which informs the owner of the property about burglary, theft or any other unusual activity that could potentially damage the property and also loss to the business.

3.1 Real-time security alert

In this project we are making use of security system/ alarm system of the GSM. [1]GSM is used for global system for mobile communication an alarm system in GSM works exactly like a normal alarm but it also gives a current state of the property where the burglary is taking place. Insert a SIM to the GSM and power on , it works like a mobile network. Whenever it senses an intrusion, theft or any security and safety theft from the sensor or any accessory it triggers an alarm, dials the first five number pre-stored in the alarm. The

alarm will phone each number until it issues a response to stop the alarm.

3.2 authentications of employees using smart card system and sensors

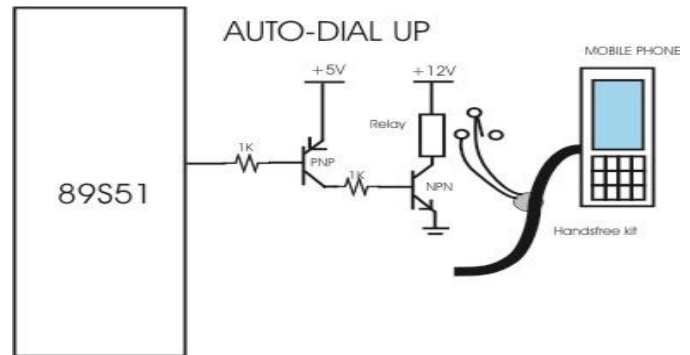


Fig 3.Circuit diagram for GSM model and microcontroller 89S51

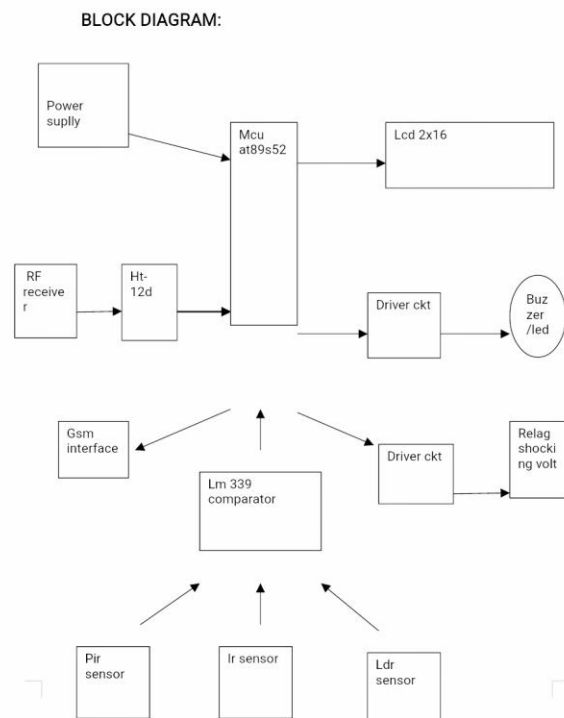


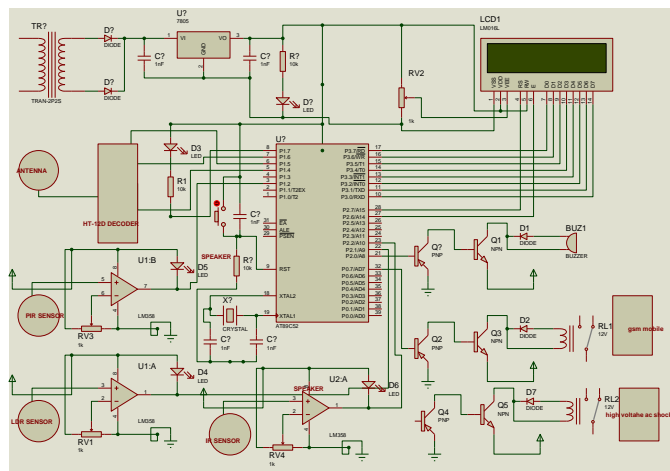
Fig 4. Block diagram

When it comes to theft we cannot thoroughly rely on the employees. Not keeping a track on the employees would be a big mistake. We have to make the security system that takes into this aspect as well, i.e., [3] where we check whether an authorized person has entered or not , and if they did some malicious activity then there should be some record for it as well , this is where we use automatic storage /receiver system.

This system gives an account for every person that has entered the vault and also gives a record for it.

The sensors are placed where we suspect the presence of an intruder. [2]PIR sensor and IR sensor are used to detect the presence near the vault during odd hours. For proper functionality of these sensors we have used a feedback sensor. Every information sensed by this sensor is displayed on the LCD.

Circuit Diagram



Dig1:- Circuit diagram

CONCLUSION

In this paper we overcame the passive nature of the present security surveillance and also made it more real-time relevant using GSM technology. All the sensors embedded in this circuit are used for the purpose of detection of intruder, burglary. Every time a sensor detects anything unusual the GSM triggers an alarm, gives a call or message to the owner

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