

Wireless Command Controlled Electronics Intelligent & Smart Security System (WCCEISSS)

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Abstract—from ages security has been one of the major issues concerning the professionals in each & every field, in today's world of terrorism In this current scenario, where security gains an edge above economy. Security systems, now a days available in our electronics market are not very much intelligent and smart. So we are required to build a new security system “Wireless command controlled electronics intelligent & smart security system (WCCEISSS)”, which has intelligent and smart features like Scans the image of person with the use of web cam, transmits a signal on your specified mobile handset, stores the scanned image in our database, Mail the captured image in a control room. it has some extra ordinary features like: System password, Remote access of system in emergency mode from any part of the world, Changing of system password using call to a system without using any kind of software, If wrong code has been entered by unauthorized person, Then system will send red signal-particular message & call to a control room (mobile handset) and system will be locked. But unauthorized person never knows about red signal. Access of all the three applications using its own codes entering through command generator, System will welcomes you, after entering system password and shares its functionality and system code details in the three languages: English, Hindi, and Gujarati on user request. Gives alert using sms messages also. Colour display about system operation/process status.

I. INTRODUCTION

Wireless command controlled electronics intelligent and smart Security system (WCCEISSS) is one of the smart and intelligent security systems. It contains IR-transmitter and IR-receiver and control circuits and different features having its own circuits, like we are using GSM modem for sms & call sending from the system to the specified mobile handset/control room.

Security has been defined, by as safety from harm. It is a term that has different dimensions in psychology, public safety, defence and military matters and information access. Safety, also by is defined as protection from action from without or subversion from within. Security and safety are always intertwined and it is impossible to design a security system without taking into account the safety of the object or

Person into consideration, security in embedded systems is usually an afterthought

Wired Systems: These are the traditional form that most home security systems once took. These are hardwired into the home, mounted on walls and offer reliable service. However, since they are directly wired into the home, holes must be made in walls for their mounting. This can affect your home, especially if it is an older home.

Wireless Systems: These systems offer much greater flexibility than traditional wired systems. Professionally installed wireless home security systems (ADT) are a less invasive option than the other options available on the market today. They can be configured to cover almost any home and are endlessly flexible (meaning that they can grow with your needs). While a wired system will require new holes created to mount new equipment, wireless systems go up in a flash

II. CURRENT SCENARIO

Benefits of a Wireless Home Security System: In addition to their greater flexibility and their ease of configuration, a wireless home security system can include some great options that some wired systems can't begin to touch. Items like carbon monoxide monitors, water monitors for areas where flooding could potentially begin and freeze sensors for water heaters and piping are great options. In addition, this type of system includes digital entry way monitors (doors and windows) and a key chain remote that can arm and disarm your alarm system from outside the home.

Additionally, the ADT home security system comes with five monitoring centers (compared to one with the competition) and a battery backup power supply. These power supplies are usually good for about 12 hours of monitoring, though larger capacity batteries are available. This way, if the power goes out, you know that your home is still safe and secure.

Other than all of the above mentioned benefits, the ADT wireless home security system comes with yard signs and window stickers. The FBI has conducted several studies that found the simple presence of this type of sign is often enough to frighten potential intruders. Using these signs and stickers can have a dramatic effect on your home security and your peace of mind, as well.

The electronics system or device, dealing with the digital computer techniques & advanced electronics proves to be a very useful for the purpose of security.

Features of Wireless Security System:

- Uncracked System password (Very Extra ordinary feature).
- Remotely access of system in emergency mode from any part of the world.
- Changing of system password using missed call to a system without using any kind of software. So delay minimum.
- If wrong code has been entered by unauthorized person, then system will send red signal to a control room, and system will be locked. But unauthorized person never knows about red signal
- So we can easily find the unauthorized person.

- Access of all the three applications using its own codes entering through command generator.
- Systems will welcomes you, after entering system password and share its functionality and system code details in the three languages: English, Hindi, and Gujarati on user request.
- Gives alert using sms messages also.
- Colored display about system operation/process status.

A. Problems with the Existing security Systems are as under:

1) Ease of Access through Breaking of Locks:

All doors in our immediate environment are based on the cylindrical lock mechanism. This lock mechanism is very common and this fact makes it easy to breakdown by either breaking the lock or duplicating the keys. This makes the system rather unsafe for all users.

2) Lack of Intrusion Detection Alerts:

All intrusion alerts are based dependent on discovery by individuals i.e. either security personnel's or students. This delay gives the culprit enough time to dispose of whatever has been stolen and more than enough time to cover his tracks. This leads to a string of an ever increasing number of unsolved cases of theft. A proper intrusion detection system alerts the responsible quarters once an abnormality is discovered in the system.

3) Inefficient Monitoring Method:

Monitoring one's belongings are left to the vigilance on the path of the security officials and the owners of such goods. This can prove to be ineffective considering the fact that as human beings, we tend to get bored performing monotonous tasks. This leads to the search of more exciting tasks no matter how irrelevant they might be at such times. There is also the need to take occasional breaks to refresh one's self. A very observant thief will be able to use such minute details to his advantage. When surveillance is continuous with no visible break, it tends to deter the less desperate thieves and thereby reducing the theft rate. An example of a continuous surveillance system is the use of closed-circuit television (CCTV).

III. IMPLEMENTATION

In terms of functionality, the wireless Command Controlled Electronics Intelligent and Smart Security System made up by the following main modules:

- A. IR Transmitter
- B. IR receiver
- C. Command Generator
- D. System Selector
- E. Application Modules
- F. Control Room

Block Diagram Of Wireless Command Controlled Electronics Intelligent & Smart Security System:

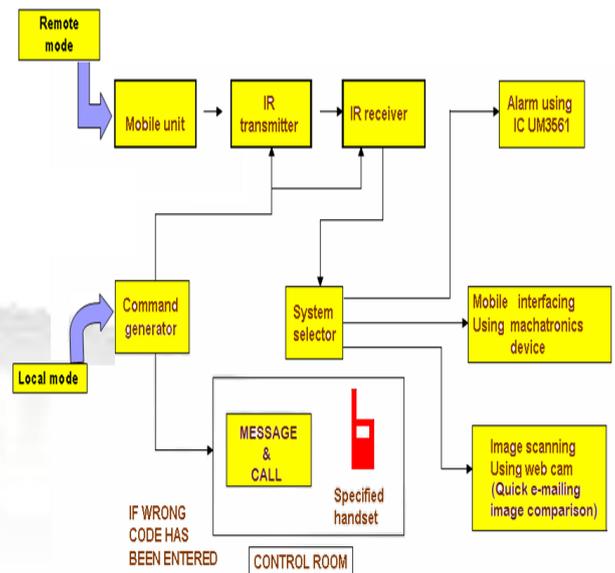


Fig. 1: Block Diagram Of Wireless Command Controlled Electronics Intelligent & Smart Security System:

A. IR Transmitter

The IR LED emitting infrared light is put on in the transmitting unit. To generate IR signal, 555 IC based astable multivibrator is used. Infrared LED is driven through transistor BC 548. IC 555 is used to construct an astable multivibrator which has two quasi-stable states. It generates a square wave of frequency 38 kHz and amplitude 5Volts. It is required to switch 'ON' the IR LED

IR Transmitter contains timer IC 555 & IR LED. IR led will generate particular frequency IR signal which will be sensed by IR sensor. By using variable pot we can vary the frequency of IR signal by control terminal Pin no-5 of IC 555.

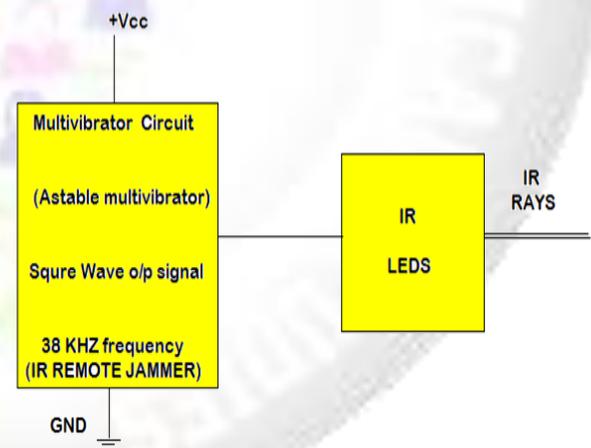


Fig. 2: IR-Transmitter

B. IR receiver.

Receiver circuit contains IR sensor optocoupler & timer IC. Whenever IR signal is interrupted the LED will glow & due to this resistance of LDR decreases to zero & hence +vcc is directly connected with reset pin 4 So we get high o/p pulse at pin no 3. Because of this relay will turn on & according to application selected by command generator will be operated.

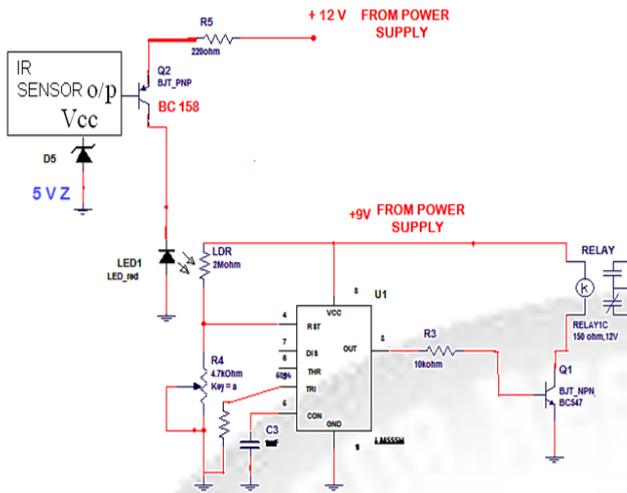


Fig. 3 IR-Receiver

C. Command Generator

Whenever we will apply gate pulse to SCR 1, it will be short circuited. Hence we get voltage drop across load resistor, which is approximately equal to supply voltage & this voltage acts as battery for next SCR. AT the final stage we are using relay as a load to perform desired applications. This circuit is utilized to generate system password as well as three applications Codes. We can also design programmable command generator by using microcontroller

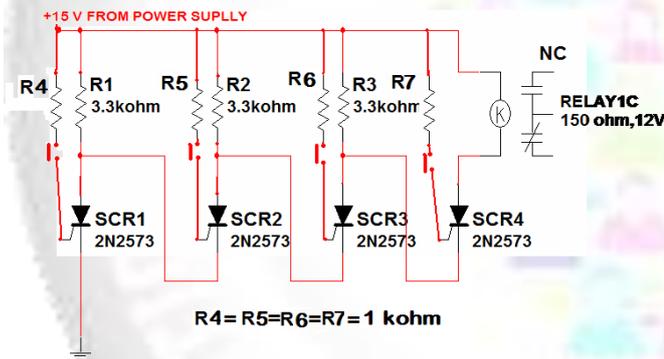


Fig. 4: Command Generator

Fig. 5 System Password and Application Codes

D. System Selector

System Selector module is used to select the particular application module out of three in our system. Its circuit functionality is based on switch that select a particular application that will be selected by the command generator using application system codes as described in the above table.

SYSTEM PASSWORD: DHK / NSK		
APPLICATION SYSTEM CODES:-		
SYSTEM	ON	OFF
WEB CAM	A I P	TAB KEY
ALARM	Y T SPACE KEY	1(END)
MOBILE INTERFACING	7 8 BACKSLACE KEY	DES/UNDERSCORE KEY

But, the main functionality of system selector is to select a particular application as per the commands are entered in to the command generator whenever any person will pass between our specified area between transmitter and receiver modules.

So, this circuitry is just like a control circuitry of our system that select a particular application based on the data entered in to the command generator.

E. Application Modules:

We have total of three application modules:

- Alarm module
- Web cam image capture module
- Mobile interfacing module

1) Alarm module:

Alarm module is a basic alarm electronics circuit that produces the police siren whenever any person will be passing between our transmitter and receiver modules in a specific security area defined by us.

But, main thing is that first of all we must have to enter the system code of alarm application in the command generator to access this particular application.

We are using a most popular IC 3561 to produces a police siren sound. IC 3561 has inbuilt oscillator to produces a different three tons of sounds.

2) Web cam image capture module:

Here whenever IR signal will be cut through any object or person, web cam will capture the image of that person. For the image scanning we have developed one software named "FACE RECOGNIZATION SYSTEM" in which we have done the coding in VB & we are also saving the images in database using SQL. We are also doing hardware interfacing utilizing parallel port with C language.

But, main thing is that first of all we must have to enter the system code of Web cam application in the command generator to access this particular application.

3) Mobile interfacing module:

Whenever the IR signal will be cut, a mobile signal (call) and message will be given to the specified no. Here we are using an 89c51 microcontroller interfacing with gsm modem using keil tool to program an 89c51 controller using AT commands

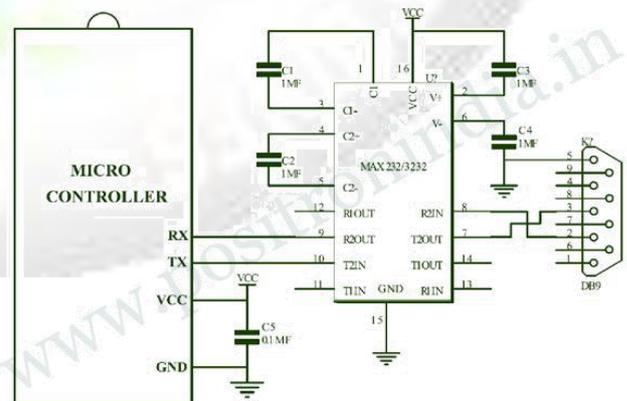


Fig. 6 Mobile Interfacing modules

F. Control Room

Control room is not like an actual room it can be a computer or mobile handset. Control room contain mobile handset as

a GSM modem to call and message to a particular mobile handset number whenever system requires to send call and messages.

If false password will be detected by a system then control room will send message that contain unauthorized access and also gives a call to the particular mobile number.

Control room also sends a message that in a particular region of security there is an access. If and only if that particular application is turn on using command generator system codes.

IV. RESULTS

A. Final Security System Product:



Fig. 7: Final Security System Product:

Above model photo indicates the final security system product of our security system-“Wireless Command Controlled Electronics Intelligent & smart security system”,It provides high level of intelligent and security. It very economical security system with high degree of authentication.

basically today’s security market does not have this kind of security system that provide such kind of system password and messages system.and also our system will welcome you and also introduce it self about different system codes details.

V. CONCLUSIONS

This security system gives an idea about the current and future security system. Which type of intelligent and smart security features should be added that is completely defined in our security system very easily?

From ages security has been one of the major issues concerning the professionals in each & every field, in today’s world of terrorism. In this current scenario, where security gains an edge above economy. Security systems, now a days available in our electronics market are not very much intelligent and smart. So we are required to build a new security system “Wireless command controlled electronics intelligent & smart security system (WC²E IS³)”

The electronics system or device, dealing with the digital computer techniques & advanced electronics proves to be a very useful for the purpose of security. The current and future security system should provide the following features that are provided by our security system are:

- Highly authorized security system available in today’s market.
- That provides unauthorized access information in our mobile handset through message and call.
- This system welcomes you after entering correct system password and provides detail about its functionality and system code in detail in three different languages: Gujarati, Hindi and English. On user request.
- This system provides very high and intelligent features as described above.

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