

Low Cost Security System

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ABSTRACT

With the advancement in technology, the number of electronic devices in our day-to-day Life has increased to make life convenient. So there is necessity to construct a trustable Remote System that will be beneficial to control and maintain the security of our home. This report presents overall design of **Low Cost Security System**. This is an IoT based project.

After research, we make a successful prototype. Using the Arduino Uno we designed this System. Using the Ultrasonic Sensor which is used to detect the activities.

1. INTRODUCTION:

21st century is the era of science and technology. Now-a-days Home Automation is more popular and quickly makes a better position in market and gives a greater field to work and research for the engineers.

Using the concept of IoT, it becomes very much flexible and user interactive.

2. SYSTEM DESIGN

2.1 Block diagram

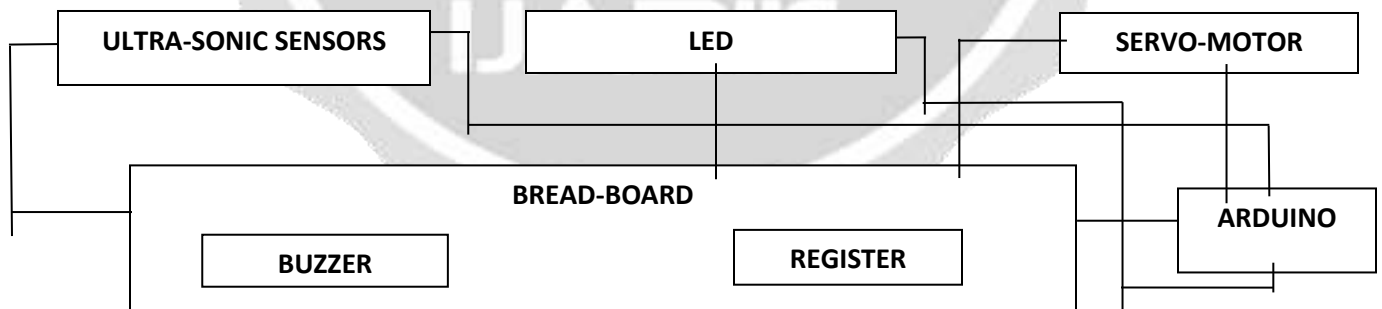


Fig 1. Block diagram

2.2 Description of Blocks

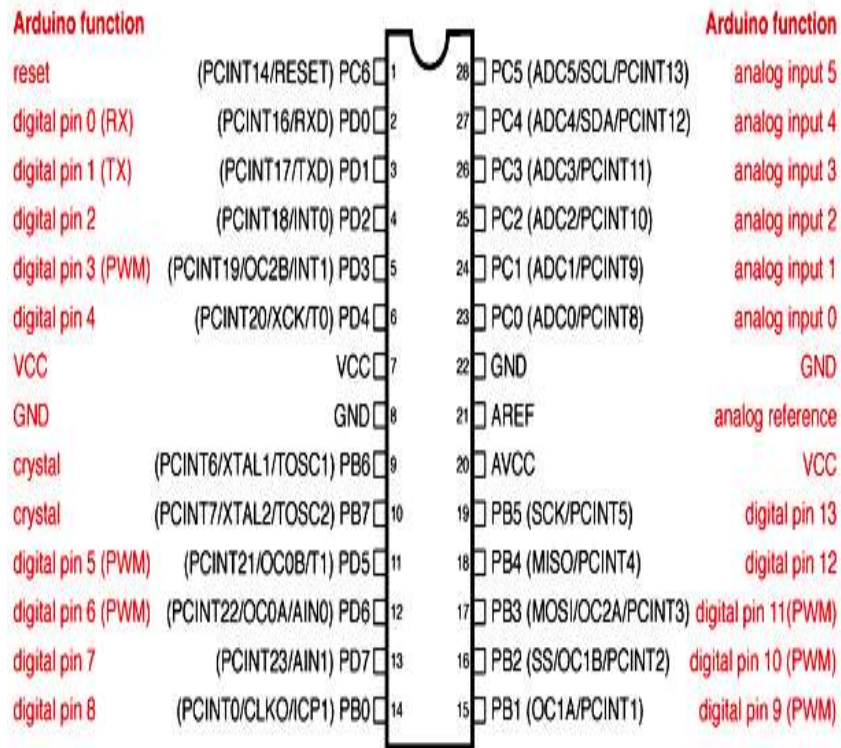
Following blocks are used:

2.2.1 Arduino

It is a microcontroller. it is an 8-bit AVR microcontroller.

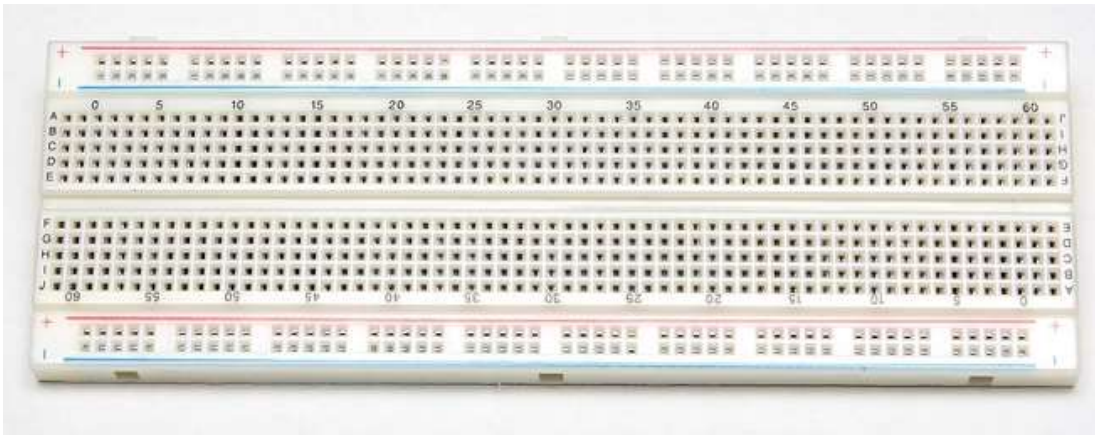
Operating voltage of it is a 5 v. Recommended input voltage is a 7-12v. Input voltage limit is 6-20 analog input pins are 6(A0 -A5). Digital I/O pins are 14(out of which 6 provides PWM output). DC current on I/O pins 40mA. DC current on 3.3V pin 50mA. Flash memory is 32 kB. SRAM is 2kB. EEPROM 1 kB. Frequency (clock wise) 16 MHz.

Arduino Uno is a microcontroller board based on ATmega328P microcontroller. Along with microcontroller it consists other components such as serial communication, crystal oscillator, voltage regulator, etc. to support the microcontroller. Arduino Uno has 14 digital input/output pins, 6 analog input pins, a USB connection, A Power barrel jack, an ICSP header and a reset button.



Digital Pins 11, 12 & 13 are used by the ICSP header for MOSI, MISO, SCK connections (Atmega168 pins 17, 18 & 19). Avoid low-impedance loads on these pins when using the ICSP header.

2.2.2 Bread board

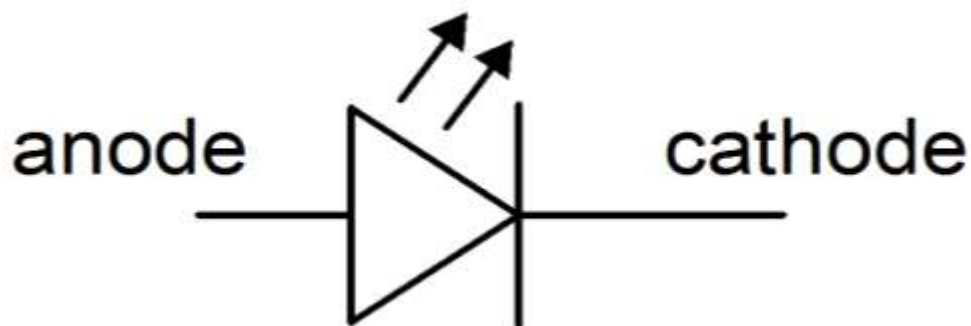


Features and Specifications

- 2 Distribution Strips, 200 tie-points
- 630 tie-points in IC/ circuit areas
- ABS plastic with color legend
- Dimension: 6.5*4.4*0.3 inch
- Hole/Pitch Style: Square wire holes (2.54mm)
- Rating: 300/3 to 5Amps
- Insulation Resistance: 500M Ω / DC500V
- Withstanding Voltage: 1,000V AC / 1 minute

Breadboard is bunch of tiny holes and is used for building and testing circuits. It has holes are connected internally in a particular pattern as shown in the picture. The holes are connected through green line represents they are connected internally.

2.2.3 LED lights



LED emits lights when activated.



2.2.4 Jumper pins

It is simple wires that used as connector of each end. Can be allow to use connect two points each other without using soldering. It used with breadboard and other tools in order to make it easy change a circuit is needed. It also has variety of colors it has many colors.



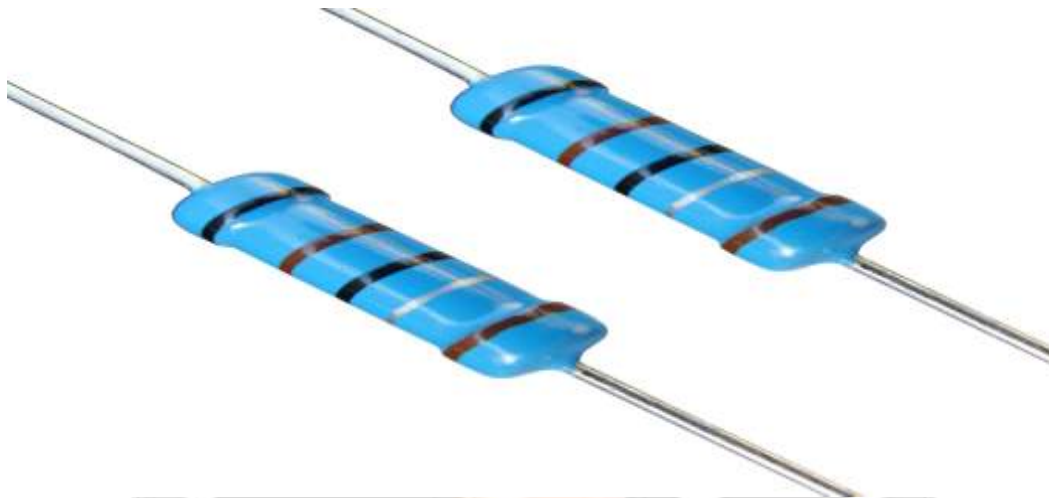
There are three types of jumper wires.

Following are types of jumper wires:

- 1)Male to Male
- 2)Female to Female
- 3)Male to Female

2.2.5 Register

Android uses a Java based language. Eclipse are used for develop the android app. Platform version must be selected for creating a new application for the android.



Java file, xml file, graphics file there are three main components required in the creation of Android app.

Standard EIA Color Code Table 4 Band: ±2%, ±5%, and ±10%

1st Band 2nd Band 3rd Band 4th Band

Resister Chart

Color	1st Band (1st figure)	2nd Band (2nd figure)	3rd Band (multiplier)	4th Band (tolerance)
Black	0	0	10 ⁰	
Brown	1	1	10 ¹	
Red	2	2	10 ²	±2%
Orange	3	3	10 ³	
Yellow	4	4	10 ⁴	
Green	5	5	10 ⁵	
Blue	6	6	10 ⁶	
Violet	7	7	10 ⁷	
Gray	8	8	10 ⁸	
White	9	9	10 ⁹	
Gold			10 ⁻¹	±5%
Silver			10 ⁻²	±10%

Application

1. This simple circuit can be used at residential places to ensure better safety.
2. It can be used at organization to ensure authorized access to highly secured places.

Conclusion:

It is cheaply made from low cost components used for home automation and security. It can used home appliances. It is easy to use any home or office space. This system was tested number of times and successfully control security of home doors.

References :

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Literature Survey:

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