Servo Door Lock System with Advance Digital Features

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ABSTRACT: In today's world the crime is increasing high rate so we have a gadget that will provides security against some crime .In at security, In that case the Door is protected with a Numerical password that is 4 digit pin number. This is the basic concept where we are able to provide high level security By providing Finger print Authentication and also retina scanner. To this case, we have design a cheap and effective security system for buildings, cars, safes, doors and gates, so as to prevent unauthorized person from having access to ones properties through the use of codes, we therefore experiment the application of electromagnetic devices as locks. However, a modular approach was employed in the design in which the combination lock was divided into units and each unit designed separately before being coupled to form a whole functional system. Here we are using 0 to 9 numerical that gives us many combination of 4 digit pin. The general operation VOof the system and performance is dependent on the key combinations. The overall system was constructed and tested in lab and it works perfectly

KEYWORDS: Arduino uno, servo or door lock , keypad ,arduino software ,Led lights,Resistor

I. INTRODUCTION

In the combinational base door lock system first we have to implement design or a block diagram of input port, output port and a control unit .This work is on the design and construction of an electronic combination lock with a keyboard to be mounted on the door for keying in the secret code. The code unit, which operates with a
12-switch keyboard was designed to control an electromagnetic door lock with a four– digit code. Unlike other keyboard combination locks this lock is constructed in such a way that once any of the wrong keys is pressed, it resets automatically making it harder for an
intruder to break into. when we are provide 4 digit pin which is matched with password at that time the green Led turn on. when the password is not matched at that time the red Led blinking on.

II. HISTORY OF LOCKING SYSTEM

Mostly there are three type lf locks available in the market. The main purpose of all locks are to provide a security against unrecognized person but the working criteria is different for all locks.

1}Mechanical lock:
The example of Mechanical lock is padlock which is widely used. The lock and key are the main parts of mechanical lock system.
2}Magnetic lock:
The example of magnetic lock is solenoid locking system. It is mostly used different type of magnet in the system .
3}Electronic lock:
In the electronic lock there is different type of lock system available that is Card lock ,Finger print lock ,password lock ,Eye lock ,Thumb print lock.
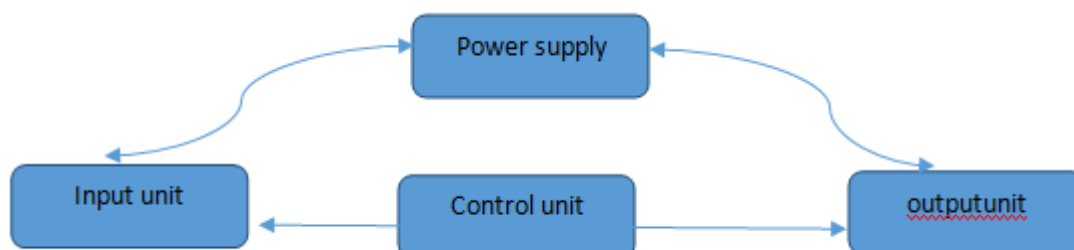
III. BLOCK DIAGRAM

In the Block diagram we can see that there is input unit which consist 12 digit numerical key pad and the servo lock as a output unit. Here there is control unit which controls the whole process.

IV.   HARDWARE

[A]Arduino uno:

It stands for Accessory Development Kit. Android accessory is a physical accessory that can be attached to your Android device. These particular devices perform specific actions. For USB accessories to be supported on a particular device ,there must be support for the accessory-mode, a special means of connecting over the USB port. This allows data transfer between devices and external peripherals.
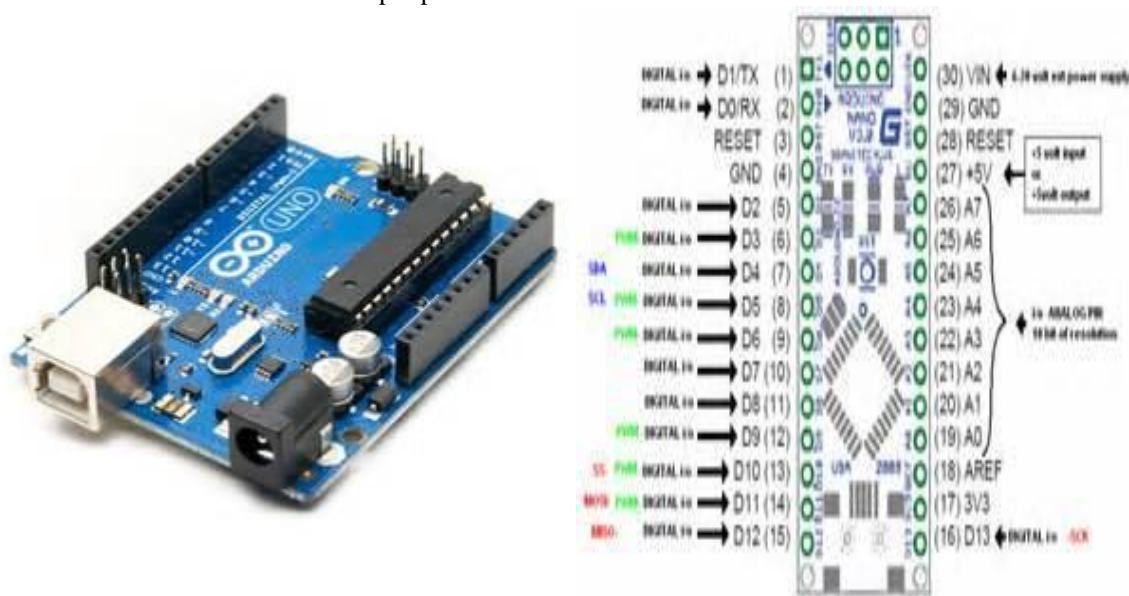
[B]Keypad Interface: It works as a input unit

where we can input our password for system working. The input unit comprises mainly of the keyboard and its switches each can generate a discrete signal when processed. It is made up of ten switches, of which four will be used as the key in the secret code, another four will serve as the reset switches and the remaining two will serve as a decoy.
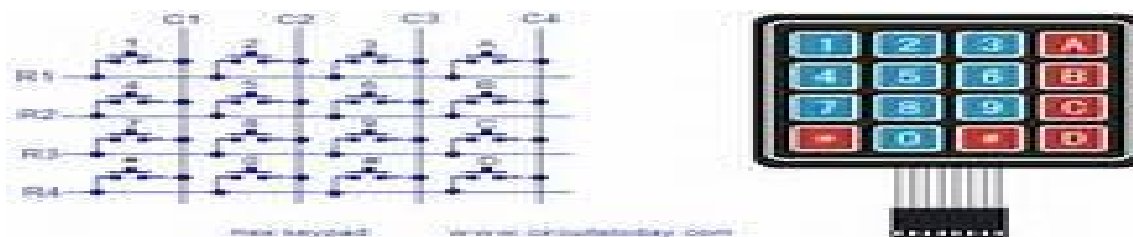
[C]**LED light** :Here we are using two led light.

Input   password

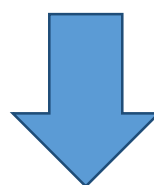If password is not verify

Blinking red led light

Input password

If password is verify

Blinking green led light

*[D]***Resistor***:* Here we are using 220 ohm resistor which are directly connected with the Led light.
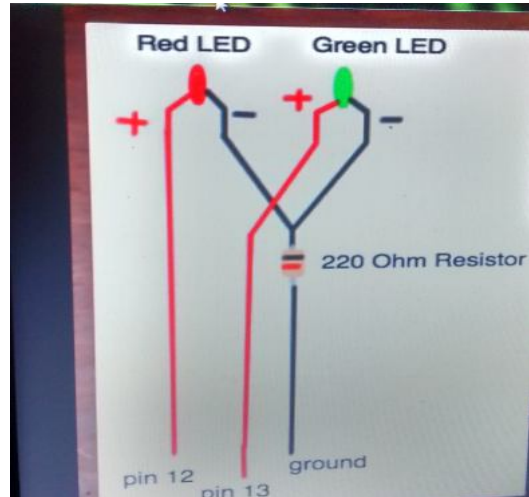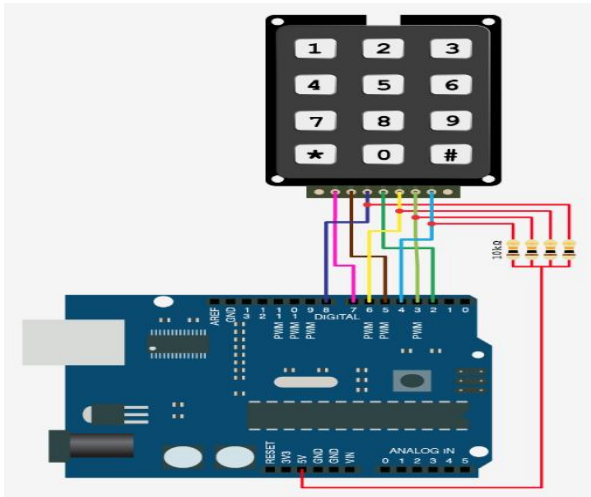
V.   HARDWARE IMPLEMENTATION

1]Here we have to connect different pin of the arduino input and keypad interface which are shown in the following figure.

2]Then we have to join Led light to the resistor as we seen in the figure below and that connection and the other pin we have to attached with the arduino
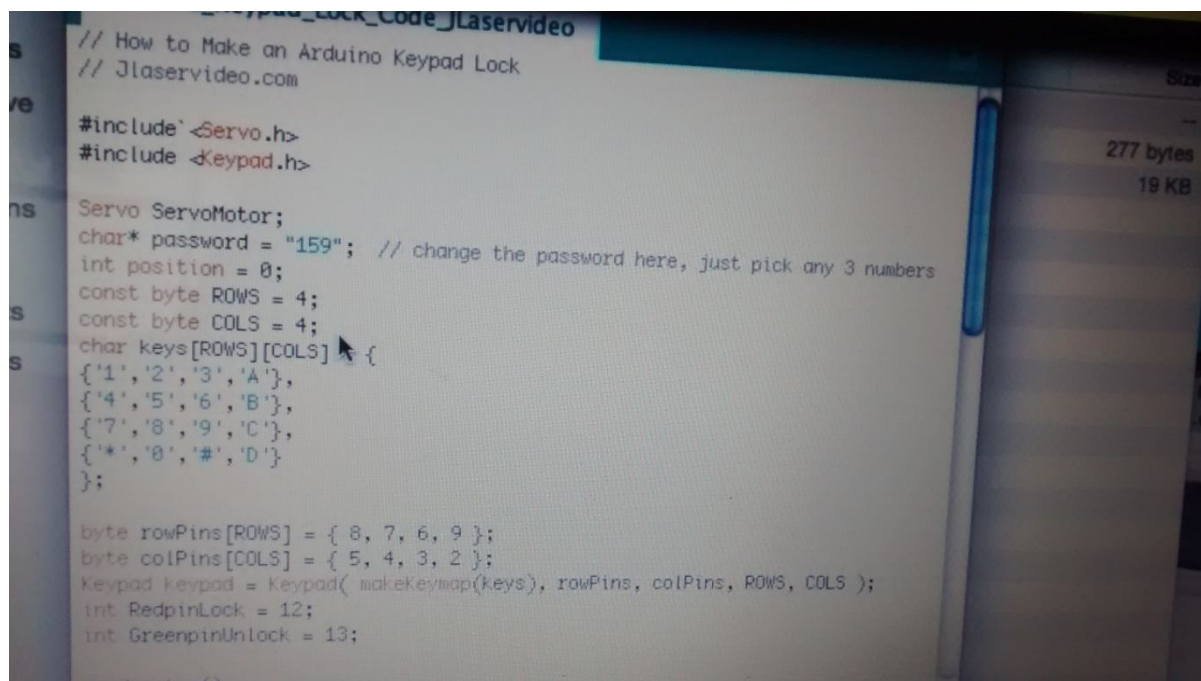
VI.   SOFTWARE IMPLEMENTATION

First we have download the arduino software. then we have to in library and take the Led light program and then we have to implement our program for Door lock system and load it on the ardiuno board.

VII. CALCULATION

permutation principle: the numbers of entries that can be made is given by;
P= 10   =   210 ways
    C
      4

This means that there are 210 ways in which this combination can be set, which means that the probability of an intruder to break the code is 1 out of 210 ways

VIII. CONCLUSION

The increasing rate of crime, attacks by thieves, intruders and vandals, despite all forms of security gadgets and locks still need the attention of researchers to find a permanent solution to the well being of lives and properties of individuals. As such, we design a cheap and effective security system for buildings, cars, safes, doors and gates, so as to prevent unauthorized person from having access to ones properties through the use of codes, we therefore experiment the application of electronic devices as locks.

REFERENCES

[1] savan shah :Smart home automation with low cost, International Journal of science and Reserch developent(IJSRD)
[2] Zungeru, A..M., Kolo, J.G., & Olumide, I. (2012), "A Simple and Reliable Touch sensitivesecurity System", *International Journal of Network Security & Its Applications (IJNSA), 4*(5), pp. 149–165.
[3] Zungeru, A.M. et al. (2012), "Design and Implementation of a Low Cost Digital Bus Passenger Counter", *Innovative Systems Design and Engin eering,* 3(4), pp. 29–41.
[4]Theraja, B. L., & Theraja, B.K (2002), "*A textbook of Electrical Technology*", S. Chand andCompany Ltd. New Delhi, India 2002, pp. 220, 920, 924, 1712 – 1716.