

## Password based Doorlock Security System using 8051

Barche Bhagyashri Haridas  
Electronics and telecommunication  
STC faculty of engineering Kolpa, Latur  
Latur, India  
e-mail: bhagyashribarche@gmail.com

KhadoleShubhamMadhav  
Electronics and telecommunication  
STC faculty of engineering Kolpa, Latur  
Latur, India.  
e-mail: shubham123@gmail.com

DhavaleNamrataDhanepal  
Electronics and telecommunication  
STC faculty of engineering Kolpa, Latur  
Latur, India  
e-mail: dhavale.namrata@gmail.com

PanchalSachin D.  
Electronics and telecommunication  
STC faculty of engineering Kolpa, Latur  
Latur, India.  
e-mail: er.spanchal@gmail.com

**Abstract**—Many times we forgot to carry the key of our home. Or sometimes we come out of our home and door latch closes by mistake. In these cases it is really difficult to get inside the house. This project is designed to solve this purpose. Main concept behind this project is of a door-latch opening using a password entered through keypad. As well as turning on the Buzzer when password is entered wrong for multiple times. User can change this password anytime he/she wish using a keypad.[1]

**Keywords**—component; Home Security, Microcontroller, Home Automation

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### I. INTRODUCTION

Due to population and their busy working schedule, people require secured identification. By which we can check the desired person and we can improve the security for our regular work. Like automatic gate controller, ultrasonic based gate controller. Using the advanced secured access system, we can change the drawback of those oldest systems. If that system is made with password protected then it provides high level security about door access.

So we implement here project which satisfy the above requirement. It detects the valid or invalid person, systems ask for its personal 4- digit code. If entered code is corrected then it displays the information details in the system. If the code is wrong it cannot display the information on LCD screen and only display indicates wrong password is entered.

Password Based Door Lock System using 8051 Microcontroller is a simple project where a secure password will act as a door unlocking system. Traditional lock systems using mechanical lock and key mechanism are being replaced by new advanced techniques of locking system. These techniques are an integration of mechanical and electronic devices and are highly intelligent. One of the prominent features of these innovative lock systems is their simplicity and high efficiency.

Such an automatic lock system consists of electronic control assembly, which controls the output load through a password. This output load can be a motor or a lamp or any other

mechanical/electrical load. Here, we developed an electronic code lock system using 8051 microcontroller (a Password based Door Lock System using 8051 Microcontroller), which provides control to the actuating the load. It is a simple embedded system with input from the keyboard and the output being actuated accordingly.

### II. BLOCK DIAGRAM

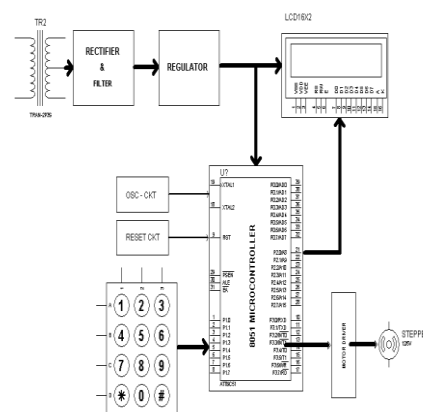


Figure1. Block Diagram

### III. DESCRIPTION OF BLOCK DIAGRAM

#### A. microcontroller

Here the microcontroller 8051 is used which is a 40 pin IC with four ports namely port0, port1, port2, port3.

It's made of a thin, flexible membrane material with an adhesive backing (just remove the paper) so you can attach it to nearly anything. The keys are connected into a matrix, so you only need 7 microcontroller pins (3-columns and 4-rows) to scan through the pad.

- I. Reading the digital input from Keypad.it will send signals to microcontroller.
- II. Microcontroller sends this data to LCD then LCD will turn
- III. On and display enter the password
- IV. Sensing the password using keypad and to check whether it is a correct password or a wrong password if password is correct the it will send the signals to motor and motor rotates clockwise if the password entered is wrong then it display invalid password.

Here circuit requires 5V and 12V regulated DC supply. We used 230V to 0-12V step down transformer. The output AC of

12V is rectified by bridge rectifier. Rectified output is pulsating it is pure by the capacitor filter of 1000 micro farad 25V. Now the out of capacitor is DC 12V, which is required to convert in 5V, here we have used LM7805 regulator for getting 5V regulated DC 5V. LED red indicates 12VDC and blue for 5V available.

The regulated DC 5V supply is given to the microcontroller; in this circuit microcontroller works with 12MHz frequency hence 12MHz crystal is used for that, the unwanted frequency produced is bypassed by the capacitor of 33pf capacitor. Reset pin is connected to 10uf capacitor and resistor of 10K whenever reset requires the reset switch required to press.

Port 2.0 to 2.7 is connected to input keypad 4X3 (rows and columns) as any key press, particular rows and columns are shorted and microcontroller defined the pressed number. Microcontroller calculates the numbers entered are valid or not, if valid then take further action. It can display on LCD screen like entered code is valid.

LCD data pins (AD0 to AD7) are connected to the port 1.0 to 1.7 to send the data for the LCD display. The control pins of LCD display is connected to port 3.0,3.1,3.2 respectively take action as RS, RW, E. resistor of 10K is used as pull up resistor, due to port0 is active low port. Variable resistor of 10K is connected to the adjust contrast of 16X2 LCD display. 10uf capacitor is used to cancel loading effect and 0.1uf is used to bypass the unwanted spikes produced in the circuit. Port 0 is used to drive stepper motor, due to active low port pull-up resistor is used, l298n motor driver ic is connected to

drive stepper motor. We can implement this project with 4 wire or 6 wire stepper motor depending upon programming conditions/ requirements of project.

To open door :- When we press the correct password on to keypad then LCD display correct password and motor rotates clockwise with 450 degree and door is opened otherwise LCD display invalid password and this process will continue up till correct password is not entered.

To close door:- When we press the correct password on to keypad then LCD display correct password and motor rotates anti clockwise with 450 degree and door is closed otherwise LCD display invalid password and this process will continue up till correct password is not entered.

## V. CONCLUSION

In this way we have design the security based door lock system using microcontroller 8051 which is particularly based on four digit password. It asks for four digit password, if password is correct then, door will be automatically opened.if password is wrong then, door will be automatically closed. Hence it is one of the efficient technique.

## REFERENCES

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