

Automatic Door Locking System

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Abstract— In this paper, the access of unauthorized user can be prevented by using integrated home security with a microcontroller technology which is cost effective. Here the registered password in the system will enhance the security level to prevent from unauthorized users. If users forget password then the security provides the capability to change and reset the password. This paper provides strong authentication where we enter the first password for the Bluetooth connection and second password for unlocking the door in the mobile application with the help of driver circuit which is attached to the door can be open and locked automatically by obtaining the signal from microcontroller. The automatic password lock system will give user more secured

Index Terms— Bluetooth device, password, micro-controller, stepper motor Door locking Automation.

I. INTRODUCTION

The various control system have been designed over the years to prevent access to unauthorized user. The main aim or reason for providing Automatic Locking system for office, home, building, etc. is the main security of our things. Therefore it is very important to have a stress free and convenient means of achieving these purpose. Automatic Door Lock System(ADLS) have become a standard feature in these days for Office Building, etc. And they are becoming popular every day to develop an effective electronic devices which provide security. Home security has been a major issue of concern because of the dramatic increase in crime rate and everybody wants to take a proper measure to prevent unauthorized user. The purpose of automatic door locking system is to provide a smart solution to overcome this challenges and provide a feasible solution. The advancements in technologies drive their thoughts and speculates to achieve a various goals in fields of science.

The basic idea behind the working of Door lock lies in the interpretation of the data or ASCII characters sent by the android phone by means the developed app. The unauthorized password will be saved in the android mobile phone when the password is entered by authorized user the signal will be received the Bluetooth device (4.0 Tech). The power supply and the Bluetooth device is connect to the micro-controller ATMEGA89c51. The valid and invalid password will be displayed on the LCD which is connected to the microcontroller. If the password entered by the user is valid, the signal from the microcontroller is received by the driver circuit when the stepper motor is connected to the door and the door automatically opens. If the password entered by the user is invalid then the buzzer connected to the microcontroller automatically buzzer .Although our application also provides a better amount of security for the user by means of accessing via a password.

II. PROPOSED SYSTEM

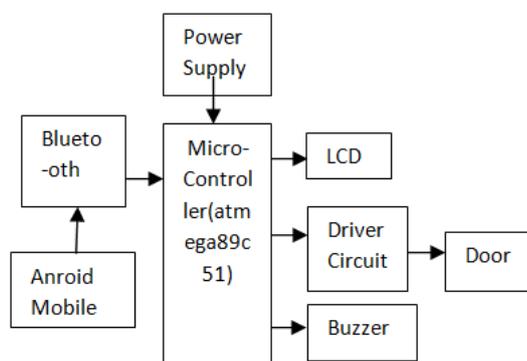


FIG:1 Block diagram of Door lock system

III. HARDWARE DETAILS

1. MICROCONTROLLER (atmega89c51)

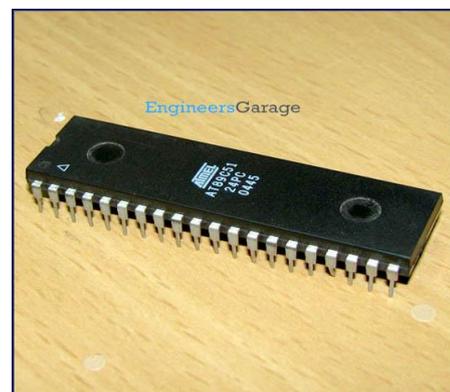


figure 2: microcontroller(atmega89c51)

A microcontroller serves as the brain of a Mechatronic system. like a mini self-contained computer .It is a 8bit microcontroller, and belongs to ATmel's8050 family. The AT89c51 is a low power high performance cmos-8bit microcontroller with 4kbytes of flash programmable and erasable read only memory(PEROM). the drive is manufactured using ATMELS high density non volatile memory technology and is compatible with the industry standard MCS-51 instruction set and pin out. The AT8951 provides the following . 4k byte of flash memory, Endurance 1000 write/erase cycles, compatible with mcs-51 products, fully statics operation 0hz to 24mhz,three level program memory lock, 128*8 bit internal RAM,32 programmable I/O lines ,two 16bit timer/counters, 6 interrupts source, programmable serial channel.

2. BUZZER

A Buzzer is a audio signaling device which may be mechanical, electro mechanicals or piezoelectric. Typical uses of buzzer and beepers include alarm devices. timers and configuration of user input such as a mouse click or keystroke while technological advancements have caused buzzers to be impractical and undesirable (citation needed), there are still instances in which buzzers and similar circuits may be used.



figure3:BUZZER

3. Stepper motor(NEMA23)

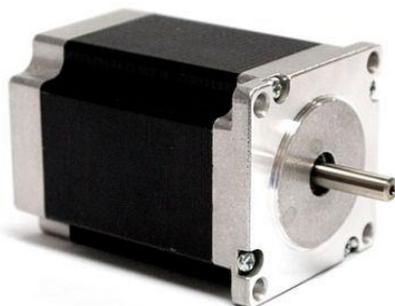


figure4: stepper motor

Stepper motor is an electromechanical device whose function is to convert electrical power into mechanical power. the motor's position can be controlled accurately and efficiently without any feedback mechanism as long

as the motor is carefully size to the specific application. The NEMA23 size hybrid bipolar stepping motor as a 1.8degree step angle. Each phase draws 2.8A at 3.2votls allowing for a holding torque of 19kg-cm. Stepper motor are generally used in a variety of applications where precise position control is desirable and the cost or complexity of a feedback control system is unwarranted. The stepper motor is connected to the driven circuit which helps in the automatic door open.

4. LCD

LCD is the technology used for display purpose. A liquid crystal cell consist of a thin layer glass sheets with transparent electrodes deposited on their inside faces with both glass sheets transparent, the cell is known as transmittive type cell. The liquid crystal display has the distinct advantage of having a low power consumption than the LED. The advantage are its low cost and good contrast. The main drawback of LCD are additional requirement of light source, a limited temperature range of operation between 0 to 60degree.c , low reliability, short operating life.



figure 5:LCD

5. BLUETOOTH

Bluetooth 4.0 is designed to be more intelligent about managing those connection especially when it comes to conserving energy. It use 4.0 tech also called smart Bluetooth which beside going easier on your better connects a litany of devices to provided. The new generation of Bluetooth tech places less emphasis on maintaining a constant steam of information instead, it focuses on sending smaller bits of data when needed and then the puts the connection to sleep during periods of non use.



figure6: BLUETOOTH

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6: DRIVER CIRCUIT(ULN 2003)

ULN 2003 is a high voltage and high current Darlington array IC. It contains 7 open collector Darlington pairs with common emitter. A Darlington pair is an arrangement of two bipolar transistors. ULN2003 belongs to the family of ULN200X series of IC's. ULN2003 is for 5v TTL, CMOS logic devices this IC's are used when driving a wide range of loads and are used as relay drivers, display drivers, line drivers, etc. ULN2003 is also commonly used while driving stepper motors. Each channel or Darlington pair in ULN2003 is rated at 500mA and can with stands peak current of 600mA. The inputs and outputs are provided opposite to each other in the pin layout. Each driver also contains a suppression diode to dissipate voltage spikes while driving inductive loads.

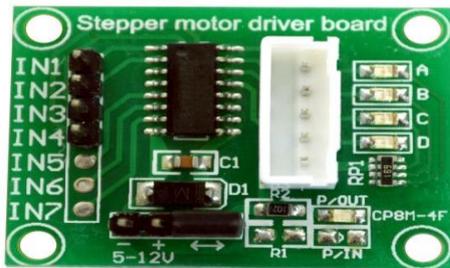


figure7:driver circuit(ULN2003)

IV.FLOW CHART OF PROPOSED SYSTEM

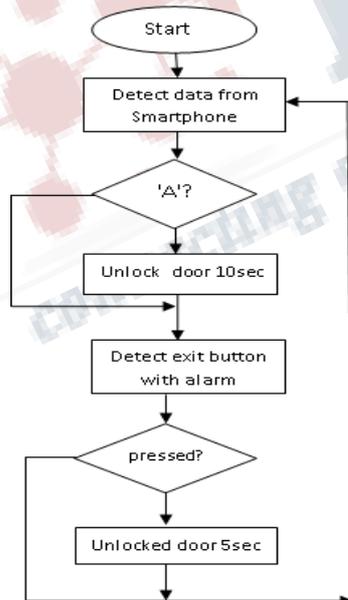


Figure 8: door locking system flow chart.

V.CONCLUSION

In today's technologically advanced world, autonomous systems are gaining rapid popularity so the advancement in latest technology is continuously and rapidly made on different latest automatic door locking systems. The need for an advanced door lock security systems using new technologies is increase day by day security become a very important or serious issue for everybody. The implemented system is very cost effective it is very easy to install and configure the system. The system provides different modes of operation which makes the system more attractive and useful. Due to the recent trends in various methods of security for home, building, companies, vehicle etc there is no need to worry about this security any longer, as automatic security systems are here to deal with it. This paper tries to focus all recent door locking security systems in a comprehensive way.

VI. ACKNOWLEDGMENT

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