North South University

Department of Electrical & Computer Engineering

Project Report

Course Name: Microprocessor Interfacing & Embedded System

Course Code: CSE 331L

Semester: Spring 2023

Section: 06

Project Title: Password Based Door Lock System using 8051/ PIC microcontroller

Group Members:

1. Asif Bhuiyan – 2011941042
2. Tausif Jahangir – 2011293042
3. Mahir Shahriar Abir – 2013640042
4. Md.Ekramul Haq – 1921740642
5. Fasbir Hossain Swapnil – 2013436042

Table of Contents

Objective

Password based door lock system using 8051 Microcontroller is a simple project that uses a secure password to unlock the door. Traditional mechanical lock and key mechanisms are being replaced by more innovative locking system solutions. These approaches are highly clever and are a combination of mechanical and electronic components. One of the most notable characteristics of these new lock systems is their simplicity and efficiency. An automatic lock system of this type comprises of an electronic control component that controls the output load via a password. A motor, a lamp, or any other mechanical/electrical load can be used as the output load. Here, we created an electronic code lock system with an 8051 microcontroller (a Password-based Door Lock System with an 8051 Microcontroller), which controls the load. It is a simple embedded system that receives input from the keyboard and acts on it.

Application

This system displays a Password-based Door Lock System utilizing an 8051 Microcontroller, in which the door is unlocked and the concerned individual is granted entrance to the secured area when the correct code or password is entered. If another person arrives, the password will be requested once more. If the password is incorrect, the door will remain closed, denying the person access. The technology can be utilized in residential areas to improve safety. It can also be used in businesses and industry to ensure approved access to extremely secure areas.

Block Diagram

Every block in this diagram represents a component or function of the program or device.

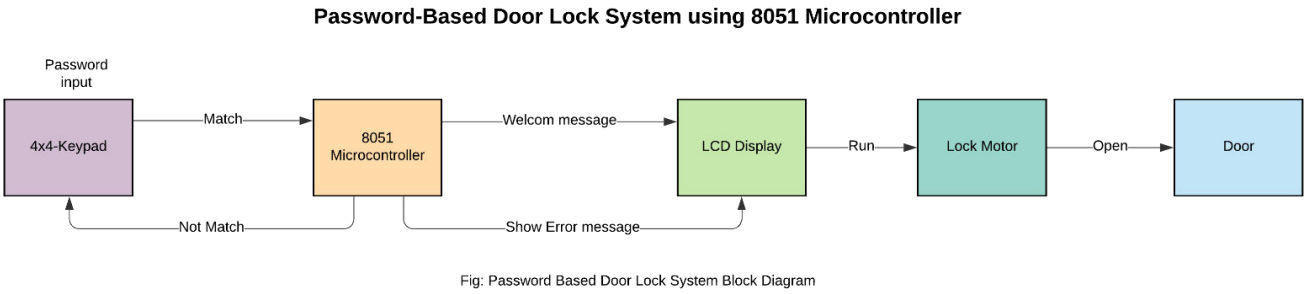


Fig: Password Based Door Lock System Block Diagram

Methodology

The basic concept of implementing the Password Based Door Lock system is illustrated in the block diagram below.

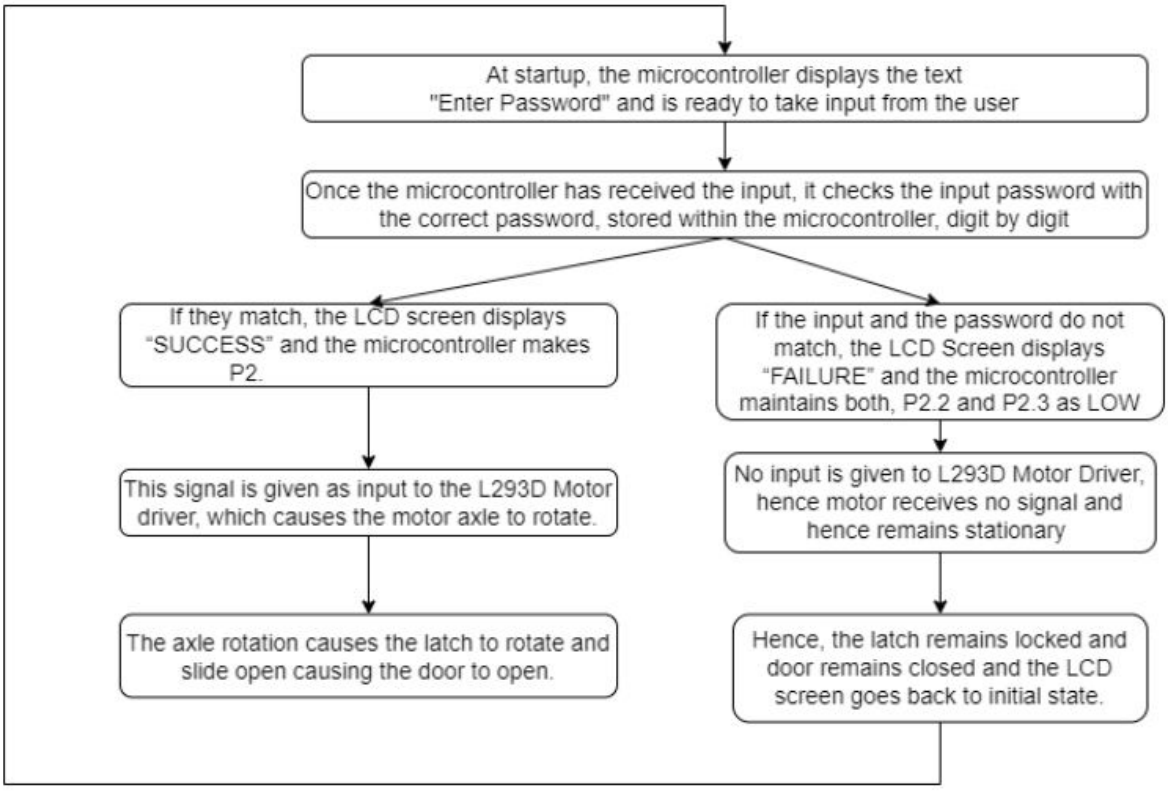
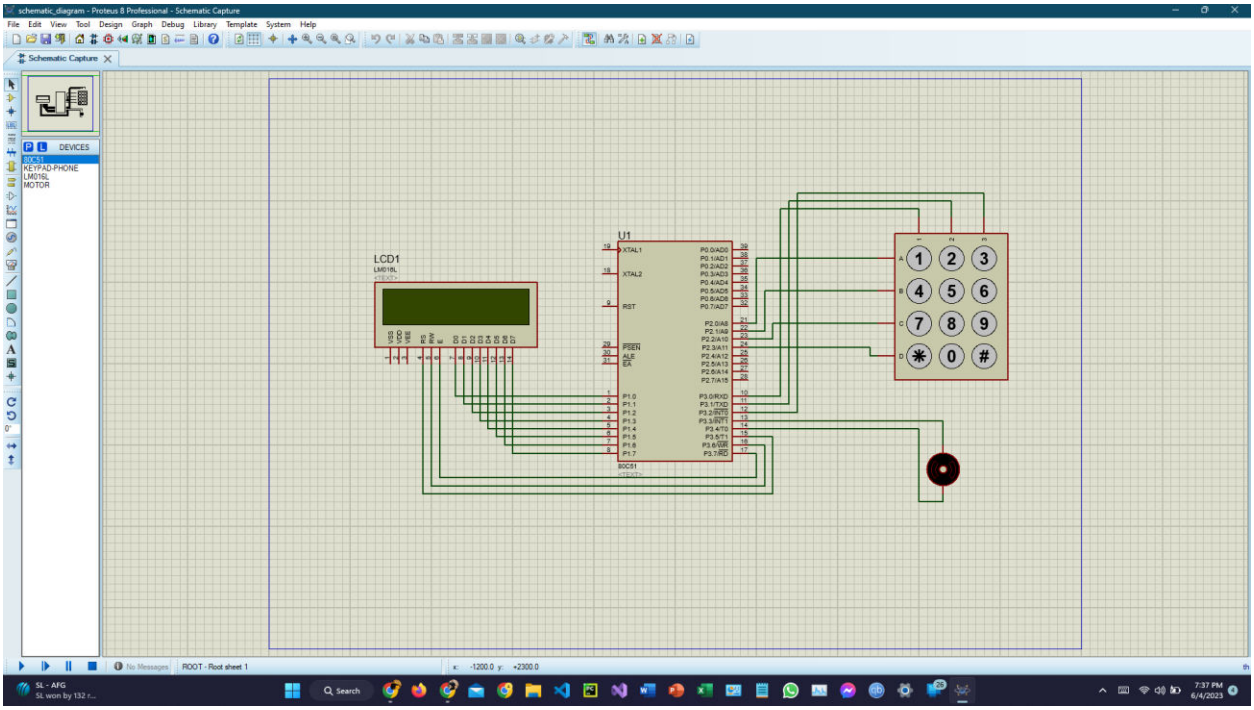
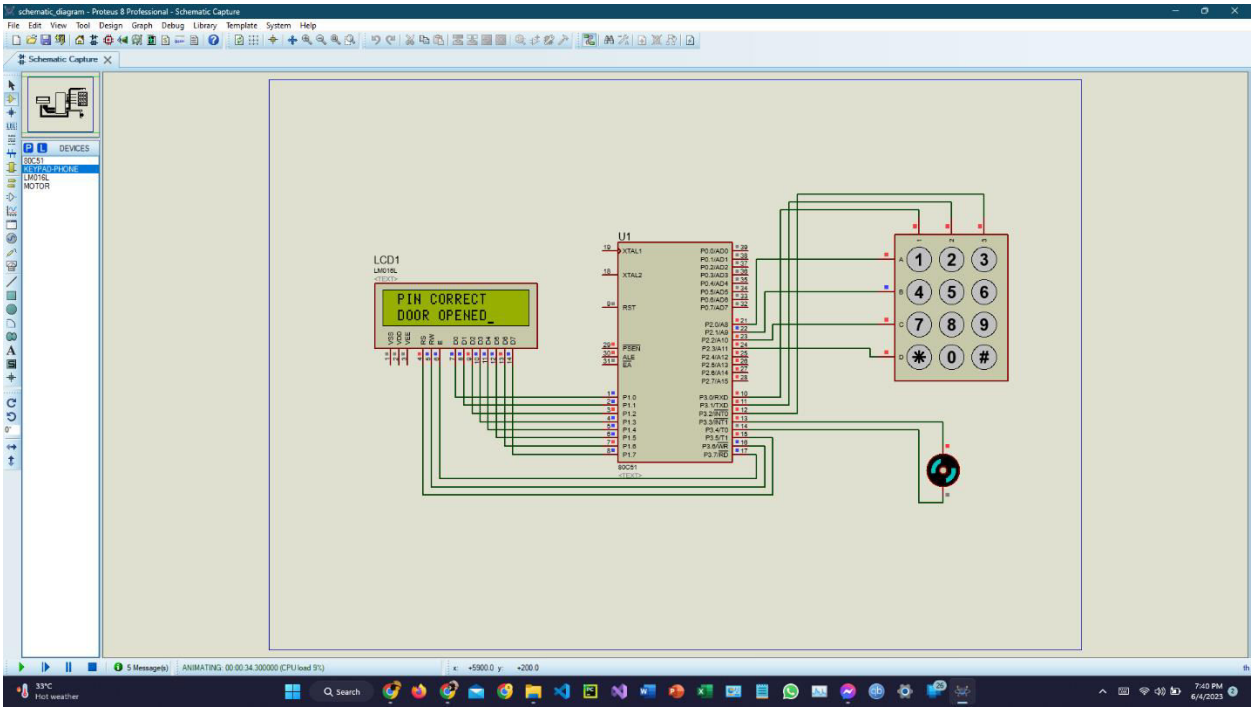
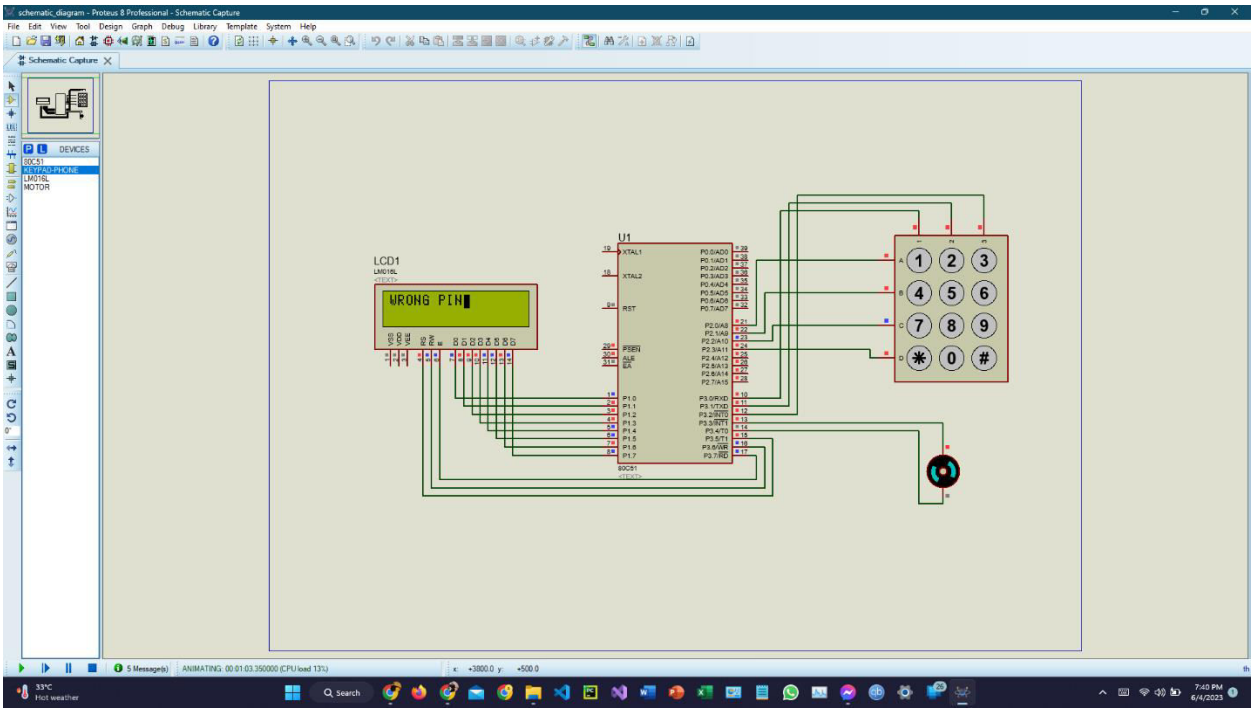


Figure: Methodology for Password Based Door Lock System

Simulation Results







Conclusion

The proteus simulation is used to simulate the program circuit. The entire program is written in embedded C code, which is not executed directly by the 8051 microcontrollers. To run the program, we must first construct it and convert it to a hex file. The 8051 microcontrollers can read hex files. To complete the operation, each 8051 controllers have a clock frequency. We utilize a clock frequency of 11.0592 MHZ to run the program. It will perform the simulation smoothly and without problems. Our project provides enough security as long as the password isn't shared. As said, the password-based door lock system can be used to provide maximum security in order to satisfy the people's need. Some features can be added in future work like e fingerprint scanner, sensors to detect the accidents occurring and open the door, integrating it with the camera in case of burglary in your house etc.