Configurable Password Protected Security System

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Abstract:

In the world of digitization, the proposed project implements a password -protected security system that provides significant benefits over traditional Locks & Better security. It only allows authorized access to users with passwords. The project consists of 8051 family microcontrollers connected to EEPROM that stores passwords, Users can perform operations such as unlock & close, change current password via keyboard, the purpose of this project is to create such type lock that will ensure security as well as cost effective implementation.

Keywords **—password, protected, security, user.**

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1. INTRODUCTION

Science and technology changed our in many things. It provides modernization in industrialization. The project is a security system which is based on electronic lock system.The system has a feature to change the password at any time by authorized users as needed. The project consists of an 8051-family microcontroller connected to an EEPROM that stores passwords. The project requires a keypad to enter a password, and a Motor Drive connected to a microcontroller to lock or unlock a door or any security system.

A warning will be generated if there are any incorrect attempts and the door opens if the attempts are correct. This project can be used for security purposes at home, office, organization and others. This proposed system provides a user -friendly security system for organizations and homes. The system is password -based and only allows authorized people to access it with a password. It also has a provision for changing passwords.

2. METHODOLOGY

Theoretical overview an electronic lock allows activation of an electric appliance only on entering the correct password. Here we present an electronic locking system in which the PIC18F452 microcontroller acts as a processing unit.

The MCU is connected with a 4 × 4 matrix keyboard and a 16 × 2 LCD to the user interface.The system turns on the appliance when entering a three -digit password.Entire Block diagram of the system is given in Fig.1
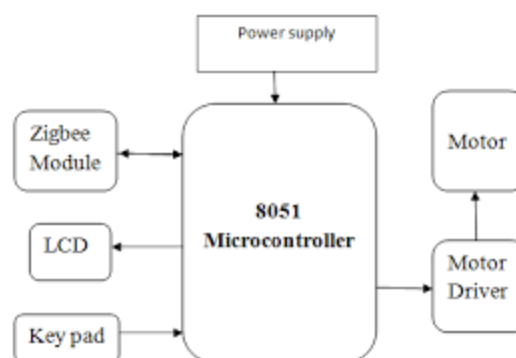

Fig.1: Block diagram

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3. LITREATURE SURVEY

There are many advanced automatic door locking systems have been developed and they are popularly used in buildings and commercial organizations. Some of these automatic door locking systems are based on RFID (Radio Frequency Identification). RFID cards are used as keys. RFID card readers detect and verify user accessibility. When the card is brought near the reader, it identifies the radio frequency of the card and thus confirms the key. However, this system is expensive. Various control systems have been designed over the years to prevent access by unauthorized users. The ultimate goal of providing keys to our homes, schools, offices and buildings is for the safety of our lives and property. Therefore, it is important to have an easy way to achieve this goal. Automatic door locking systems have become a standard feature on many types of buildings and homes.

Lia Kamelia, Alfin Noor Hassan S.R, Mada Sanjaya and W.S., Edi Mulyana have implemented "Door - Automation System Using Bluetooth", Its implementation is based on Android platform. So, the implementation cost is less and affordable by ordinary users. With a wireless Bluetooth connection in the microcontroller allows the installation of the system in an easier way.

Shilpi Banerjee has implemented an "Automatic Password -Based Door Lock System". The system works on the concept of a reset password. It increases the level of security to prevent unauthorized unlocking done by an attacker. If the user forgets the password, the system gives the user the flexibility to change or reset the password. This automatic password-based locking system provides users with a more secure way to lock-unlock the system [5]. Arpita Mishra, Siddharth Sharma,

Sachin Dubey, S. K. Dubey have implemented "Password -Based Security Key System", the system works using a keyboard to enter passwords into the system. If the password entered is correct then the door is opened by the motor used to rotate the door lock holder. The system also includes additional features such as adding new users and changing old passwords etc.

4. HARDWARE INPLEMENTION & DESIGN

A. Keypad:

A 4 × 4 matrix keyboard is used to provide commands and passwords to the MCU. It consists of 16 keys (S2-S17 arranged in the form of a rectangular matrix of four rows and four columns). Each key in the matrix is labelled according to the operation assigned to it. The connection from the keypad exit pin to the MCU pin is shown in Figure 3. Lines 1 through 4 are connected to pins RB3, RB2, RB1 and RB0 of Port B MCU, respectively. Columns 1 through 4 are connected to pins RB4 to RB7 Port B respectively.

Fig. 2 shows the diagram of the keypad we have used.

Fig. 2 Keypad.

B. Hardware design:

The hardware implementation includes a PIC (Peripheral Interface Controller) 18F4552 [7] microcontroller interface with a matrix keyboard (4 × 4), a servo motor (which moves the keys) and an LCD (16 × 2 or 20 × 2), also incorporating a single supply unit power. Software execution means loading commands into the microcontroller, which allows the microcontroller to authenticate input from the keypad with a stored password, to interface with the device and change the current password. The complete work of the project is divided into several parts. The design of the electronic locking system was first simulated with PROTEUS as given in Figure 3.
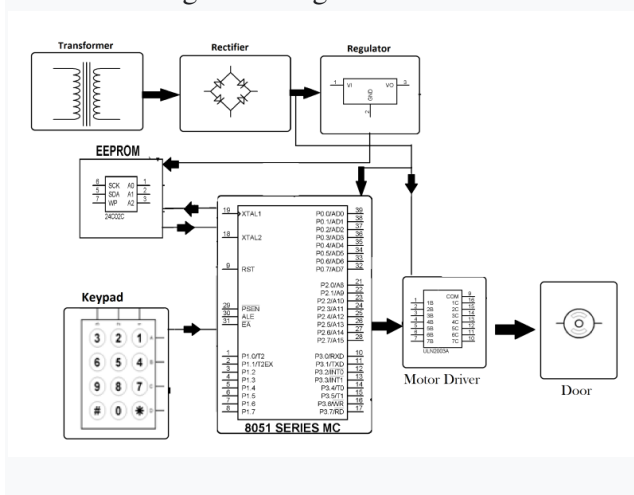

Fig. 3: Circuit diagram of the entire system.

C. Working software

Micro C PRO is a powerful and enriched tool for Micro. it has been designed to provide the simplest solution for developing applications for embedded systems in thisproject, we have used it to develop software and perform operations.

5. CONCLUSION.

The realization of this project will resolve issues related to unauthorized access to rooms or lockers. It will be fully automated & password protected. A person can use it for door operations or to protect their personal Lockers or in IT & Banking sector offices where data security is required or outsiders are prohibited.

6. FUTURE SCOPE.

Alarms and doors open automatically in the event of a fire. We can use fingerprint sensors as appropriate. For more security purposes we can use the camera to check remotely. Remote on/off system convenience.

7. REFERENCES.

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