CONFIGURABLE PASSWORD BASED AUTHENTICATION ACCESS AND SECURITY SYSTEM

AIM:

Design and Development of Configurable password based authentication access and security system.

PURPOSE:

Security is prime concern in our day-to-day life. Everyone wants to be as much as secure as to be possible. An access control systems forms a vital link in a security chain. The micro controller based digital lock presented here is an access control system that allows only authorized persons to access a restricted area. This system is best suitable for corporate offices, ATMs and home security. The system comprises a small electronic unit with a matrix keypad interfaced to the microcontroller. An authorized person enters a predetermined password using the keypad. If the entered password is correct then relay should be turned ON to access the system and predefined messages will be displayed on LCD. Here password can be configured and project title is configurable password based authentication access and security system.

DESCRIPTION:

This project includes 4X4 Matrix keypad which is connected to Arduino digital analog pins. Relay controls solenoid Lock which is connected to Arduino digital pin.

WORKING:

In this project password is correct then lock will open and close after 5 seconds. Lock controlled by relay. If password is wrong then buzzer will ON. Here we can configure (change) password and it will save in Arduino EEPROM. All this information will display on 16X2 LCD display.

TECHNICAL SPECIFICATIONS:

HARDWARE:

Microcontroller	:	Arduino Uno
LCD	:	16X2 LCD Display
Crystal	:	16 MHz
Solenoid Lock	:	12V DC Electromagnetic type
Keypad	:	4X4 Matrix type
Relay	:	12V DC
Buzzer	:	5V DC
Power Source	:	12v 2 amp Adaptor

SOFTWARE:

Arduino IDE

Proteus based circuit diagram

APPLICATIONS:

- ➢ Door Security
- ➢ Locker Security

BLOCK DIAGRAM:

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Power Supply ──────▶ ┌─────────┐ ──────▶ 16X2 LCD
                     │         │
                     │ Arduino │ ──────▶ Buzzer
                     │   Uno   │
4X4 Matrix Keypad ─▶ │         │ ──────▶ Relay ─▶ Solenoid Lock
                     └─────────┘
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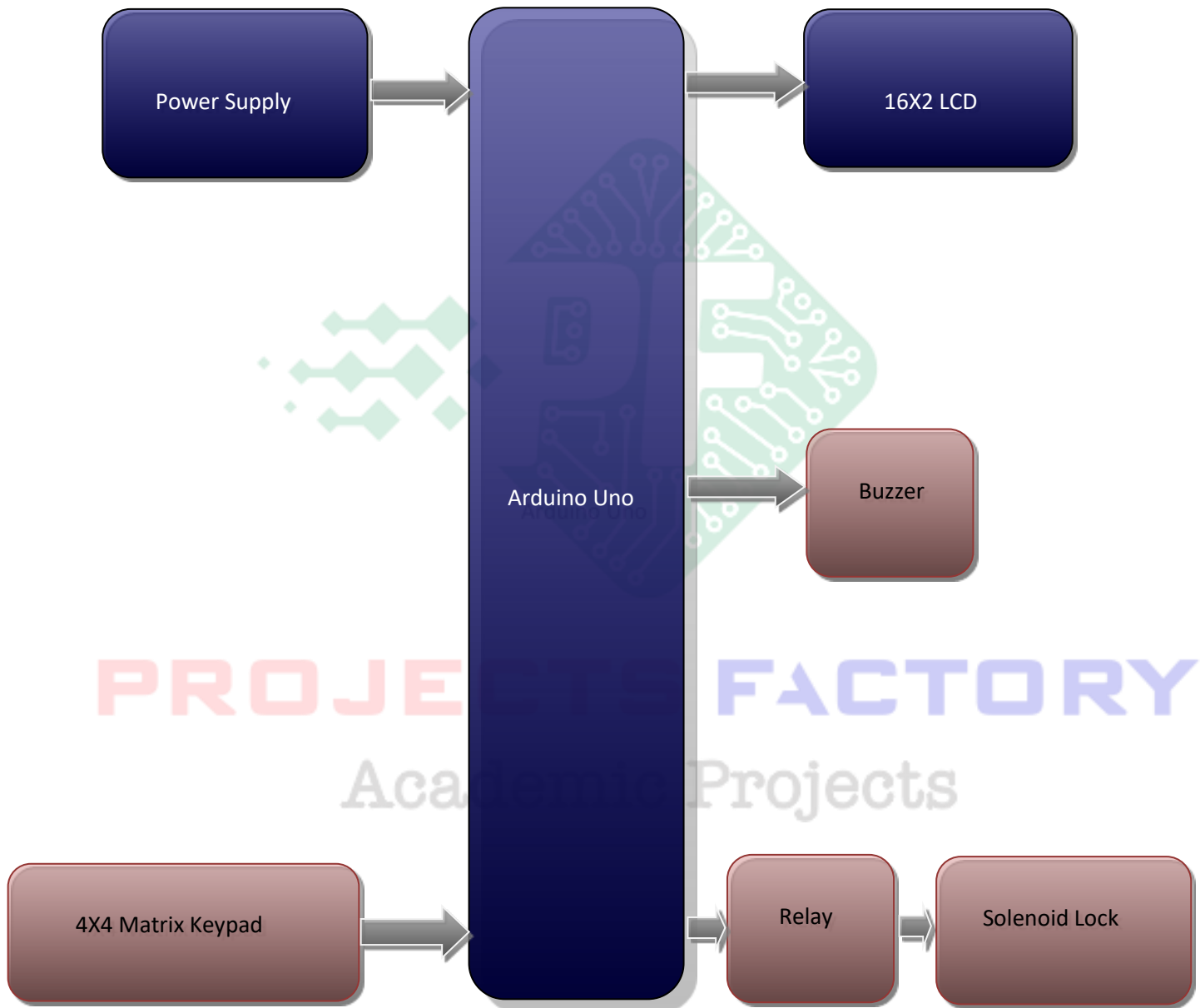
POWER SUPPLY BLOCKDIAGRAM:

Step down Transformer	→	Bridge Rectifier	→	Filter	→	Regulator	→	Output
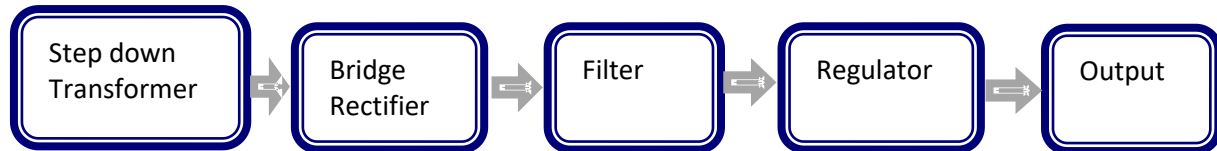
INTERFACES COVERD:

- 4X4 Matrix Keypad interface
- Relay and solenoid lock interface