Secret Knocking Door Lock

Objective

This project is to design and develop a secure and user-friendly door lock system that combines both a secret knock detection mechanism and a traditional password-based authentication method. By integrating these two security features, the system aims to provide enhanced protection against unauthorized access while maintaining convenience for the user. It focuses on implementing an innovative approach to access control that is cost-effective, reliable, and adaptable for home or office security applications.

Project Description

The system is designed in such a way that if one security method fails or is inconvenient for the user, the other method can be used as a backup to gain access. The secret knock mechanism works by detecting and verifying a predefined knock pattern using a sensor, while the password system allows access through a keypad or input interface.

Budget

Components	Price (Rs.)
ATMEGA 328P Microcontroller	1 190
Piezoelectric sensor	320
16×2 LCD Display and I2C Module	495 + 230
Power Supply (3.7 V DC Battery)	840 × 4
4×3 Keypad and Solenoid Lock	235 + 1 150
PCB board and Enclosure Box	530
Transistor (P2N2222A) and Diode (1N4001)	3 + 8
Green, Red LEDs and Resistors (560, 2.2k, 10k, 1M)	30
Total	**7 551**

Timeline

Week	Task
Week 3	Coding and Software development
Week 4	Simulation and Testing
Week 5	Hardware Design
Week 7	Completing PCB Design
Week 10	Calibration and Documentation