SECURED DOOR LOCK

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Introduction:-

Secured door locks that use passwords are an advanced security solution designed to restrict access to authorized individuals. These locks replace traditional key-based systems with digital authentication, improving security and convenience.

Password-based door locks use a keypad or touchscreen where users enter a predefined PIN or passcode to unlock the door. The system verifies the entered password against stored credentials and grants or denies access accordingly.

Why is it important?

A secure door lock with a password is important because it enhances security, convenience, and control over access to a property. Unlike traditional keys, passwords eliminate the risk of lost or duplicated keys, reducing unauthorized entry. These locks offer customizable access, allowing multiple users to have unique codes, and can be easily updated for security. Many models also include alarm systems to prevent break-ins. Additionally, password locks integrate well with smart home systems, enabling remote access and monitoring. Overall, they provide a reliable and efficient way to protect homes, offices, and sensitive areas.

Concept behind this project :-

The core logic involves several key principles:

1. A user inputs a password(PIN, code, or biometric data). If the password matches, access is granted; otherwise, access is denied.
2. Lockout Mechanism: After multiple wrong attempts, the system may lock access for a period of time.
3. Additional features like time delays or limited attempts can be added to improve security.

Components Used :-

1. Adruino Nano board
2. SG90 servo motor
3. LCD screen and 12C module
4. Door lock
5. 4\*4 membrane keypad
6. Breadboard
7. 5v buzzer
8. Jumper wires

Advantages :-

1. Prevents unauthorized access by requiring a password for entry.

2. Eliminates the risk of losing or misplacing keys.

3. Passwords can be updated regularly to enhance security.

Disadvantages :-

1. Users may forget passwords, leading to lockouts.

2. Digital locks with weak passwords can be hacked or guessed.

Future scope of work :-

These smart locks will likely evolve to incorporate multi-factor authentication, combining password entry with biometrics such as fingerprint, facial recognition, or even behavioral patterns for added security. Additionally, the integration with home automation systems will allow for remote access, real-time monitoring, and alerts, creating

a seamless and highly secure user experience.

Conclusion :-

The project highlights the importance of password strength, user privacy, and system reliability. Overall, this approach offers a convenient and secure alternative to traditional lock and key mechanisms, with the potential for future advancements such as biometric integration or remote access control.

The secured door lock project using a password system provides a reliable and efficient method for enhancing security in both residential and commercial settings.