



**Bharati Vidyapeeth (Deemed to be University)**

Department of Engineering and Technology

Kharghar, Navi Mumbai



**Department of Computer Science and Engineering (AIML)**

**Mini Project Report**  
**On**  
**IOT BASED SMART DOOR OPENER USING**  
**FINGERPRINT SENSOR**

**Subject:- - Internet Of Things**

Roll No.	Name	PRN
01	Arkam Deshmukh	2243110028
03	Smit More	2243110030
04	Nishtha Yadav	2243110031
06	Ambika Jat	2243110033
21	Aditya Negi	2243110049



# INTRODUCTION

1. This project involves building a **smart security system** that uses a **fingerprint sensor** to control door access. Only authorized fingerprints can unlock the door. It eliminates the need for keys or cards and enhances home or lab security.
2. In today's fast-paced and security-conscious world, ensuring safe and convenient access to physical spaces has become a top priority. Traditional locking systems such as mechanical keys or PIN-based electronic locks are often vulnerable to theft, duplication, or unauthorized access. This project focuses on developing an **Arduino-based automatic fingerprint door lock system**, a modern and efficient approach to personal and institutional security.
4. The primary advantage of this system lies in its **high security, user-friendliness, and contactless operation**, making it ideal for use in **homes, offices, laboratories, and smart lockers**. Additionally, the project demonstrates the practical application of embedded systems, microcontroller programming, serial communication, and biometric integration—key skills for any Computer Science or Electronics engineering student.
5. This fingerprint door lock not only strengthens security but also highlights how **automation and IoT concepts** can be applied to real-world challenges using **affordable and accessible hardware** like Arduino.

## APPLICATIONS:-

### 1. Home Security Systems

- Replaces traditional locks with a secure, keyless solution.
- Prevents unauthorized access and ensures that only registered family members can enter.

### 2. Offices & Workspaces

- Can be used to restrict access to specific rooms like server rooms, management cabins, or document archives.
- Enhances workplace security and access control.

### 3. Laboratories and Research Centers

- Ideal for high-security environments where sensitive experiments or data need protection.
- Ensures that only authorized personnel can gain access.

### 4. Smart Lockers & Personal Storage

- Can be implemented in lockers in schools, gyms, or public areas.
- Adds an extra layer of security using biometric verification.

### 5. College or School Access Systems

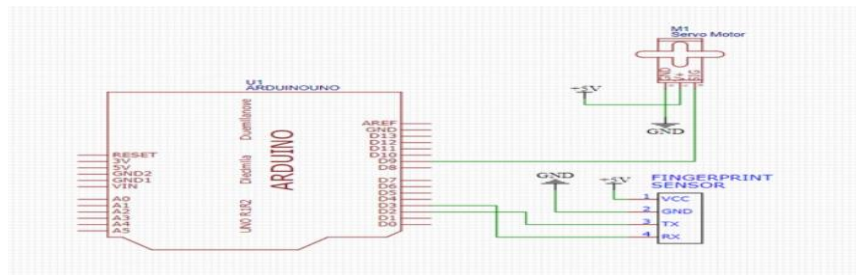
- Can be used to control entry into classrooms, labs, or hostels.
- Ensures accountability and safety of students and staff.



## COMPONENTS USED:-

- FINGERPRINT SCANNER
- ARDUINO UNO
- 5V RELAY
- 12V SOLENOID LOCK
- 12V AC-DC ADAPTER
- JUMPER WIRES

### DIAGRAM



### IMAGE OF THE OUTPUT

```
Status: 0x2
Sys ID: 0x200
Capacity: 1000
Security level: 3
Device address: FFFFFFFF
Packet len: 128
Baud rate: 57600
Ready to enroll a fingerprint!
Please type in the ID # (from 1 to 127) you want to save this finger as...
```

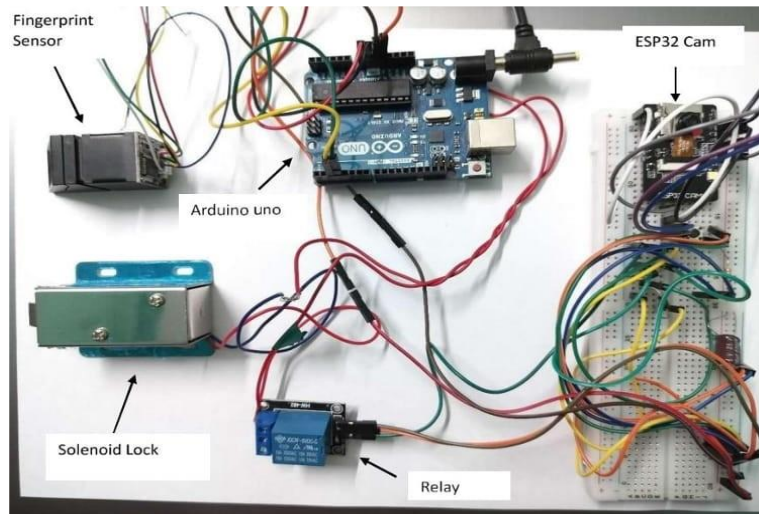
```
Image converted
Creating model for #4
Prints matched!
ID 4
Stored!
```

```
Please type in the ID # (from 1 to 127) you want to save this finger
Enrolling ID #4
Waiting for valid finger to enroll as #4
.....Image
Image converted
Remove finger
ID 4
Place same finger again
.....
```

```
No finger detected
No finger detected
No finger detected
No finger detected
Image taken
Image converted
Found a print match!
Found ID #3 with confidence of 270
```



## IMAGE OF PROJECT



### Assessment

Timely Submission (7)	Presentation (06)	Understanding (12)	Total (25)	Sign



**Bharati Vidyapeeth (Deemed to be University)**

Department of Engineering and Technology

Kharghar, Navi Mumbai



**Department of Computer Science and Engineering (AIML)**

