
VNIT Electronics & Communication

Electronic Devices Lab Project

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Smart Security Lock

OVERVIEW

Tired of old traditional door locks that need keys for unlocking them? Smart security lock is something new that can replace traditional locks and say goodbye to keys. It's a device that gets unlocked by entering a pin on its unlock panel. Moreover it can also be unlocked by smartphone using android app. App contains login credentials for the lock and not anybody can unlock the lock by using the app. App also keeps a record of who unlocked the lock and at what time. Additional features include theft alert when someone tries to guess the password. Theft alert alarm rings when someone enters an incorrect password for more than 3 times. Also entering incorrect passwords 3 times on the app causes the app to crash and rings a theft alert.

AIM :

To unlock the lock by entering the pin on its unlock panel or using android app on smartphone.

COMPONENTS USED:

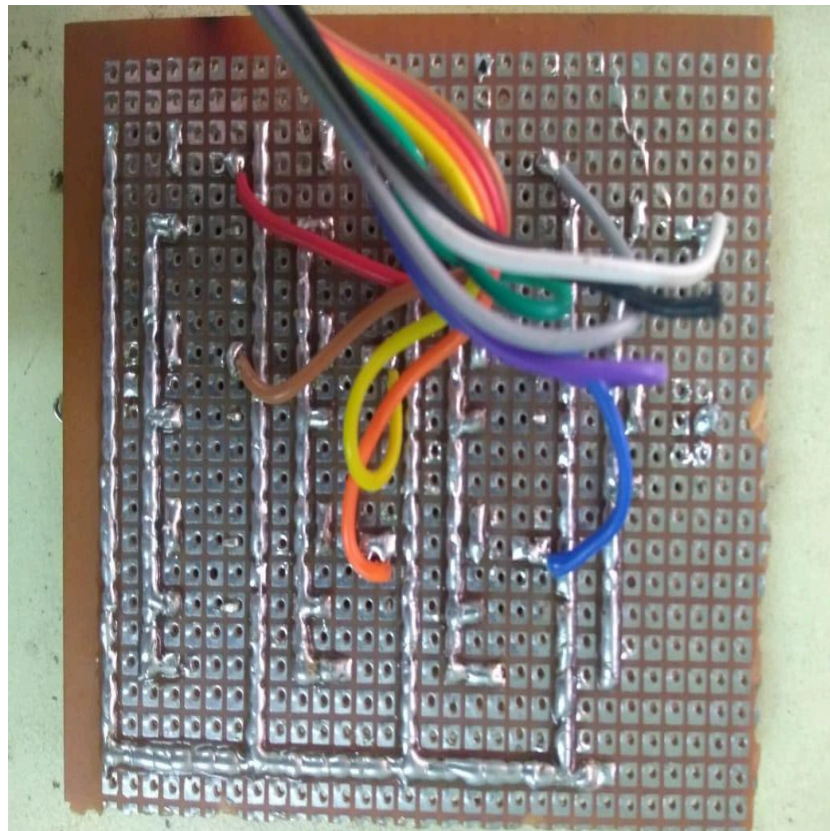
Sr no.	COMPONENTS	QUANTITY	TOTAL PRICE
1.	Arduino Nano	1	350
2.	PCB Board	1	40
3.	Push Buttons	11	22
4.	Resistors	12	12
5.	Single Stranded wire	2 m	10
6.	Soldering Wire	40g	80
7.	L293D IC	1	45
8.	IC Base	1	2
9.	Headers	2	12
10.	Sound 8ohm 0.5 W	1	45
11.	DC Motor 60rpm	1	130
12.	Spur Gear	1	30
13.	Rack gear	1	60
14.	9V Battery	1	20
15.	HC06 Bluetooth Module	1	300
		TOTAL	1158

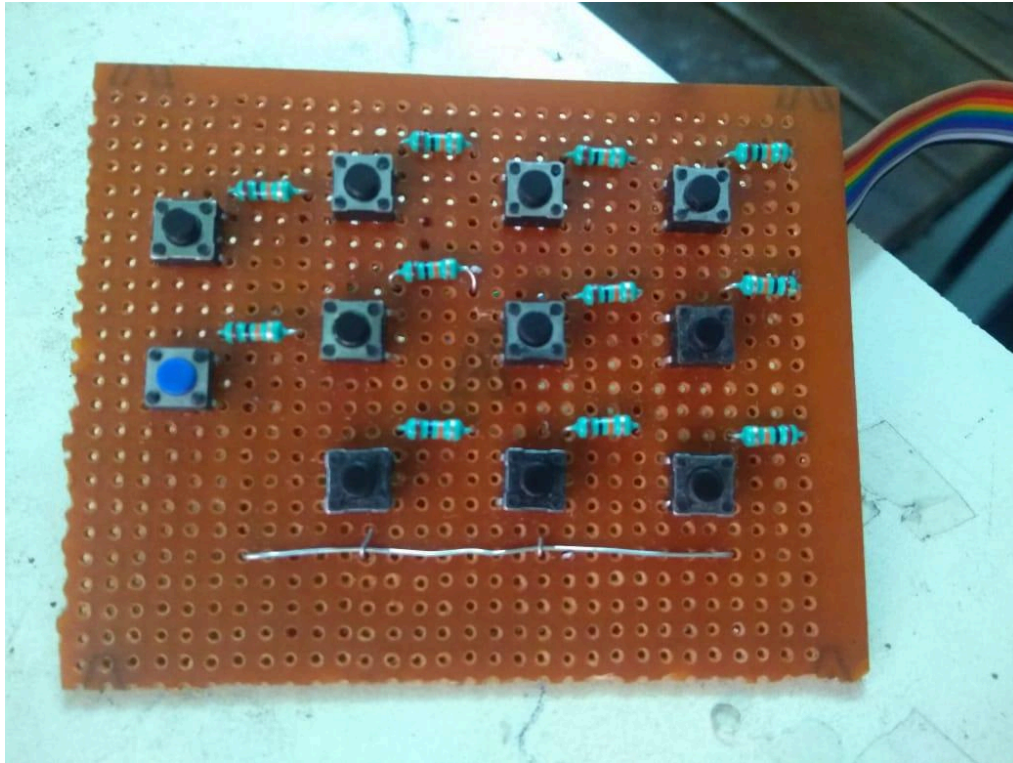
WORKING:

Entire project is divided into 4 major stages:

1. PCB designing
2. Mechanical arrangement
3. Arduino coding
4. App development

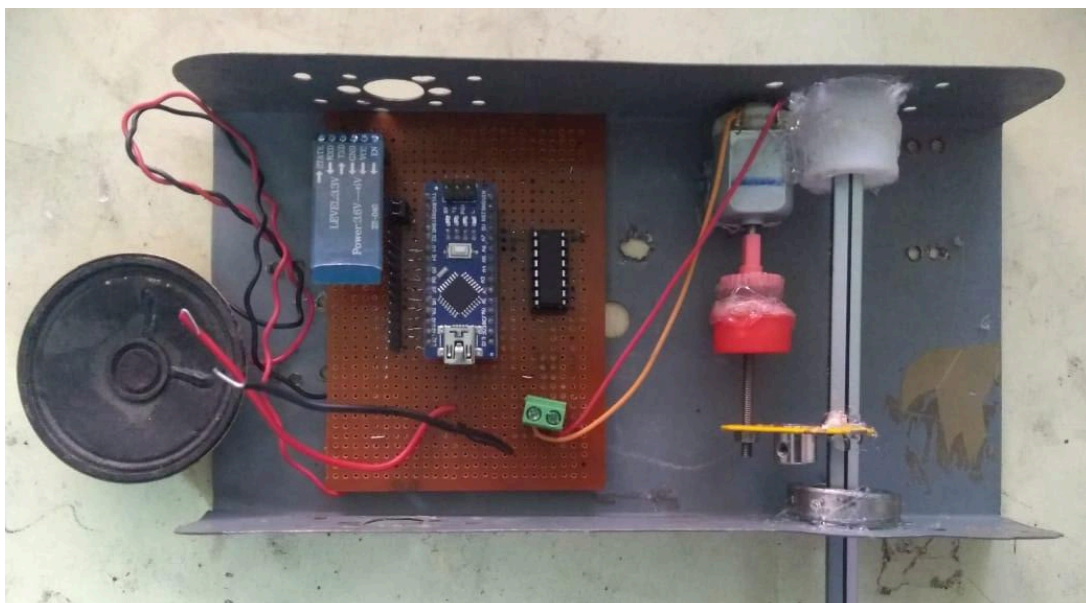
PCB DESIGNING :-





MECHANICAL ARRANGEMENT :

Simple mechanical arrangement was used to control the lock and unlock conditions of device using dc motor.



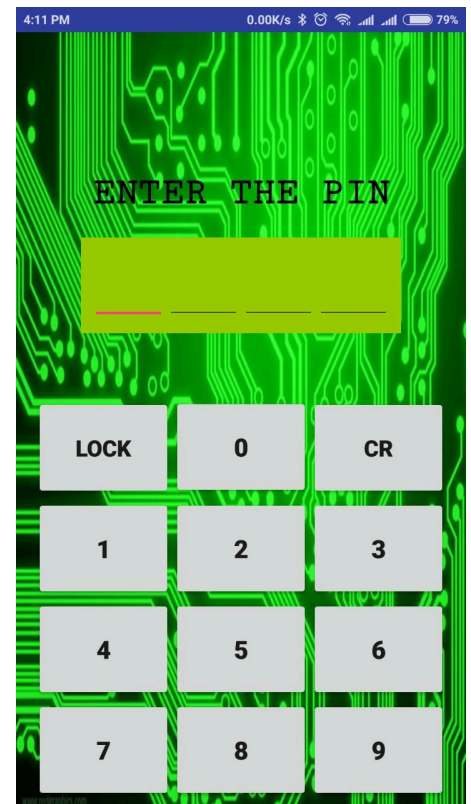
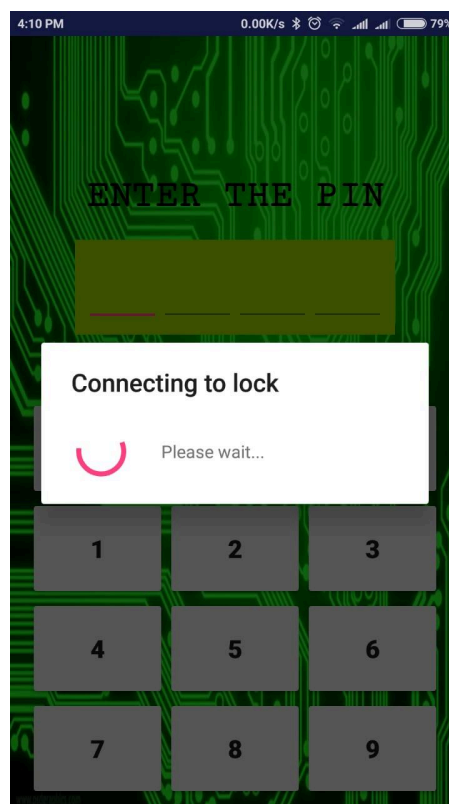
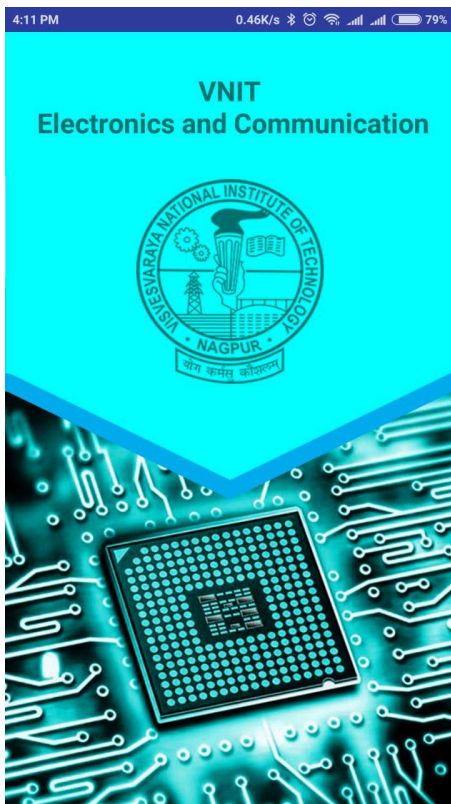
ARDUINO CODING :-

Arduino was coded in according with to check the correctness of password entered by user and to control the locking stages.

To view the code in detail refer the following link:

<https://github.com/Hrishi-3331/SmartLock-Arduino>

APP DEVELOPMENT:



App was created using android studio to unlock and lock the lock by entering a pin .

To know more about the app refer to the following link.

RESULT:

The smart lock was successfully designed and implemented using arduino.

