MINI PROJECT 2
(2019-20)

IOT Based Smart Lock System

SYNOPSIS

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Introduction

What is Smart Lock?

The Smart Fingerprint lock, as the name suggests, is an electronic door lock that can be installed on almost any access point in your house. It uses a fingerprint scanner to grant a user access by controlling an electric door strike with a relay. I started this project because I wanted to work with a fingerprint sensor as well as become more familiar working with Arduino Uno, I also needed a way to lock my door from the outside so I thought an electronic door-lock would be a great opportunity to over-engineer something and learn some cool stuff.

This simple fingerprint door unlock project using Arduino can be very useful for door security, forensics, crime investigation, personal identification, attendance system and much more. In the future, there could be many more applications like fingerprint based driving licences, bank accounts operation and so on.

About the Project

Project Aim:

To make an IOT based smart lock system that can open the door using the fingerprint sensor.

About the Project:

In this project, we have developed a smart door lock system using a fingerprint sensor to open and close the door. We used an Arduino Uno microcontroller and fingerprint sensor, Power Adapter. When the fingerprint matches, only the door opens or closes. Who has an authorized person only can open the door If any unauthorized person trying to open the door means they can't open the door because the fingerprint sensor never accepts the fingerprint there is no response from the microcontroller side.

Proposed System

Normally in human life safety is very important. In this, we used a fingerprint sensor to open the door lock and close the door lock. These processes are controlled by an Arduino Uno microcontroller. In this method, who is an authorized person they only can open the door.

Motivation

These days office/corporate environment security is a major threat faced by every individual when away from home or at home. When it comes to security systems, it is one of the primary concerns in this busy competitive world, where humans cannot find ways to provide security to his/her confidential belongings manually. Instead, he/she finds an alternative solution which provides better, reliable and atomized security. This is an era where everything is connected through a network, where anyone can get hold of information from anywhere around the world. Thus chances of one's info being hacked are a serious issue. Due to these risks it's very important to have some kind of personal identification system to access one's own information. Nowadays, personal identification is becoming an important issue all around. Among mainstream personal identification methods we mostly see password and identification cards techniques. But it is easy to hack passwords now and identification cards may get lost, thus making these methods quite unreliable.

There are certain situations which are very annoying like when a person locks himself out of his house or office or he leaves his key inside or sometimes when a the thief just breaks the lock and steals everything. These kinds of situations always trouble people who use manual door locks with keys. Although in some places people use smart cards, there might arise a situation when someone loses the card or keeps the card inside. Then in other scenarios there are caretakers for locking houses or offices and keeping the keys safe.

Requirements

Hardware:

a) Arduino Uno/Node MCU

b) Fingerprint Sensor

c) Power Adapter

d) Door Lock

Software:

e) Any Operating System

f) Arduino IDE

g) Embedded C