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Subject Name: Home Security System

01 December 2022

Report for Final Project(Home Security System)

Security is of most concern for anyone nowadays, whether it's data security or the security of their own home. With the advancement of technology and the increasing use of IoT, digital door locks have become very common these days. Digital lock doesn't require any physical key but it uses RFID, fingerprint, Face ID, pin, passwords, etc. to control the door lock. People have many digital door lock applications using these various technologies, but face recognition door lock systems used by esp32-cam are a good choice to solve this problem.
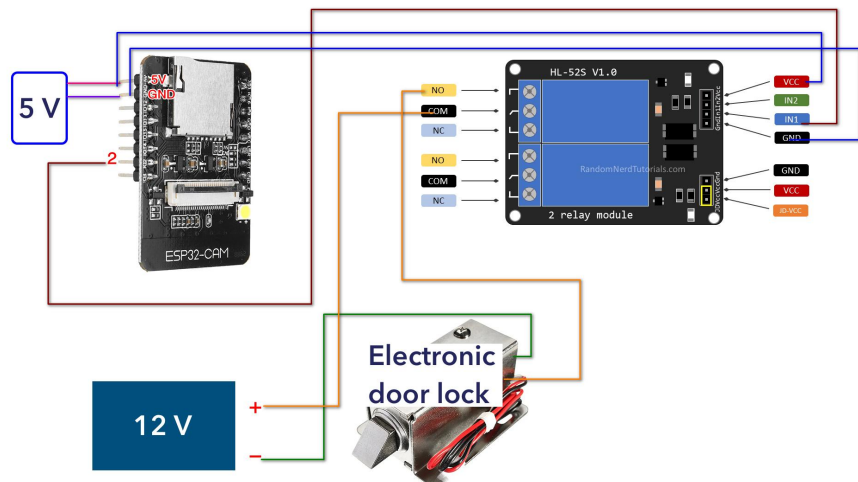
1. Motivation

User: People who needs to increase their home security.

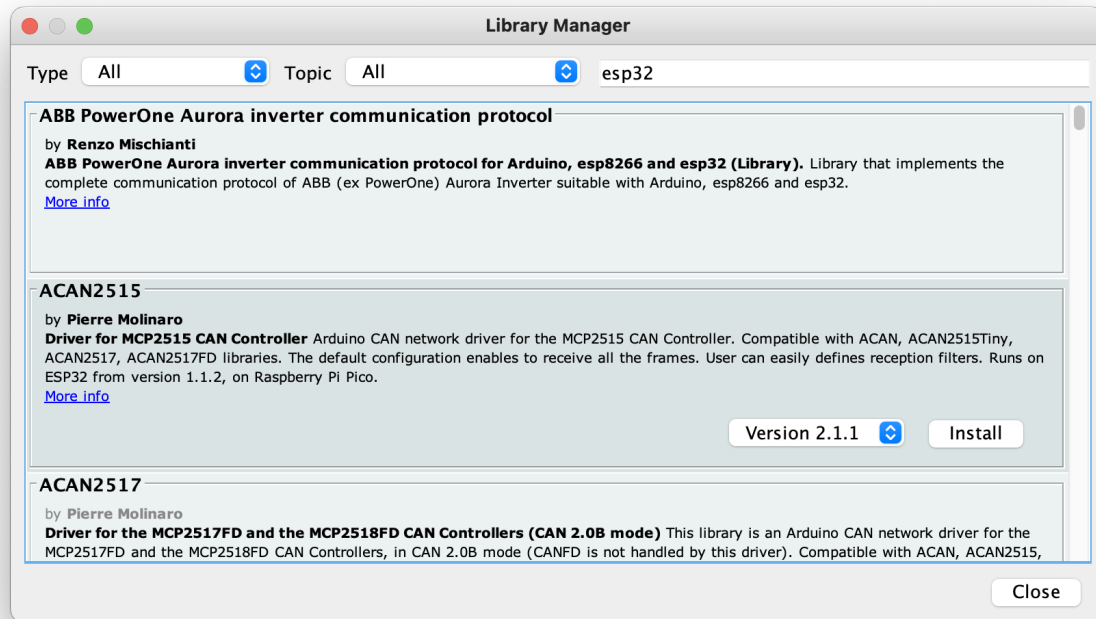Objective: Improve home's security level in an easy, low-cost way

2. Hardware

(1) ESP32 cam

(2) Electronic door lock

(3) Relay module

(4) 12v power supply

3. Environment and Setting

(1) Install ESP32 Board on Arduino IDE

(2) Install the latest Python 2

https://www.python.org/downloads/macos/

(3) Common compilation errors: "Exec: "python": executable file not found in $PATH"

Starting the IDE with the Terminal app could solve this problem:

open /Applications/Arduino1.8.19.app

(4) If you use macOS, the errors may happen: "A fatal error occurred: Failed to write to target RAM (result was 0107) (ESPTOOL-95) #280"

Step 1:Install USB-to-Serial macOS Vendor Driver

https://www.wch.cn/downloads/CH34XSER_MAC_ZIP.html

Step 2: Select the new port "cu.wchusberial529A0093721"
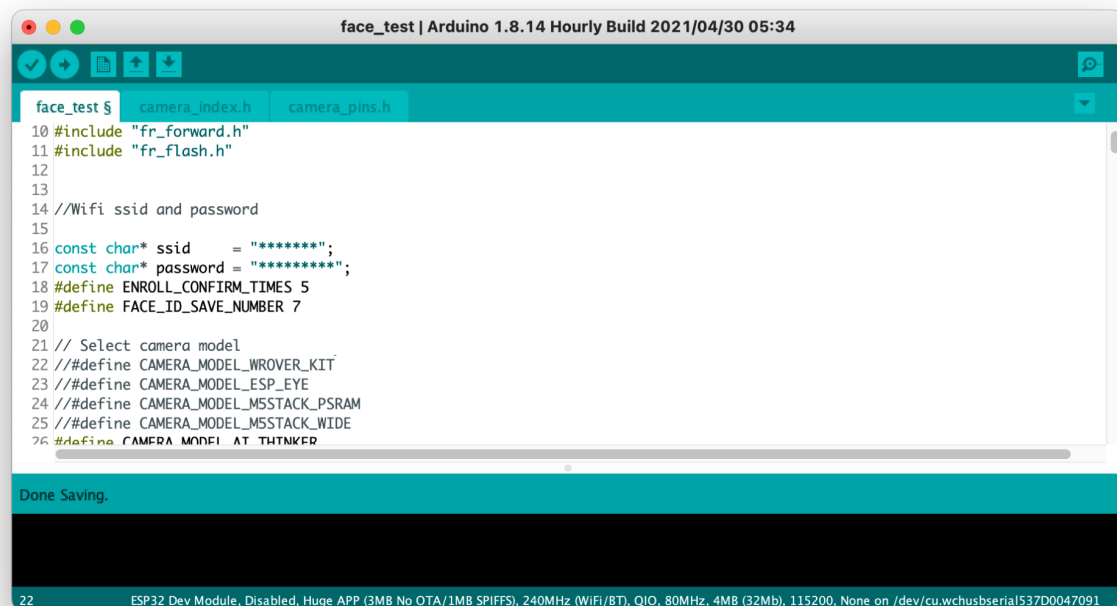
(5) Install "ArduinoWebsockets.h" Library

You could find it in GitHub Repo

(6) Setting

Open "face_test.ino", change the ssid and password to yours

4. Manual

(1) Open the web page

(2) Add user and face recognition

(3) Display has been added

(4) Test whether to open the electronic lock

(5) Finish

(If possible, you can apply the Electronic door lock to the actual door, or directly control the door

lock/unlock by other ways.)

5. Conclusion

Because there is not enough time, in the end, I did not apply this project to a real door.

But I think it is not far from this ultimate goal.

Works Cited

https://github.com/Xinyuan-LilyGO/LilyGo-T-Call-SIM800/issues/139

https://github.com/espressif/esptool/issues/280

https://forum.arduino.cc/t/exec-python-executable-file-not-found-in-path/971847/5