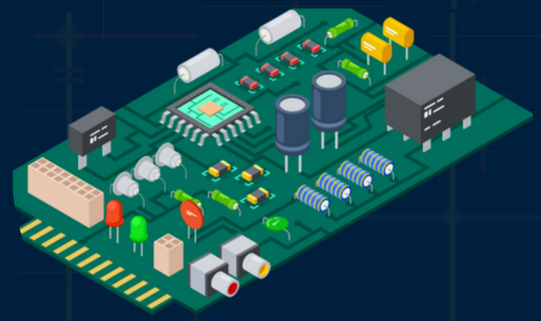
Tribhuvan University
Institute of Engineering

X-TECH STUDIO 3.0

PRESENTS



HARDWARE HACKATHON

Smart, Secure and Decentralize Innovation

TEAM MAVERICKS

Hardware Hackathon

X-TECH STUDIO 3.0

Project:

Automatic Door Lock System Using Face Recognition

Team Members:

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-Team Mavericks

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About Project

Description:

- Using python and it's libraries
- Uses Built in Camera For This Prototype
- The Image Is recognised by using "Haarcascade_frontalface_default.xml"
- The Face Recognition Algorithm Is Used
- And This Algorithms Analyses the images
- Identifies The Unknown access
- In Case Of Unauthorize Access The System Sends E-mail To The Owner

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Component Used

- Arduino UNO
- Arduino Cable
- Breadboard
- Servo Motor MG90S
- Door Lock
- Jumper Wires
- Built-in-webcam

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Software Used

- Visual Studio Code
- Arduino IDE
- Python and its libraries
    - Open CV
    - Numpy
    - Pillow
    - Pickle
    - Serial
    - SSL
    - Smtplib
    - Pyttsx3
- Face Detection Algorithm

  "Haarcascade_frontalface_default.xml"

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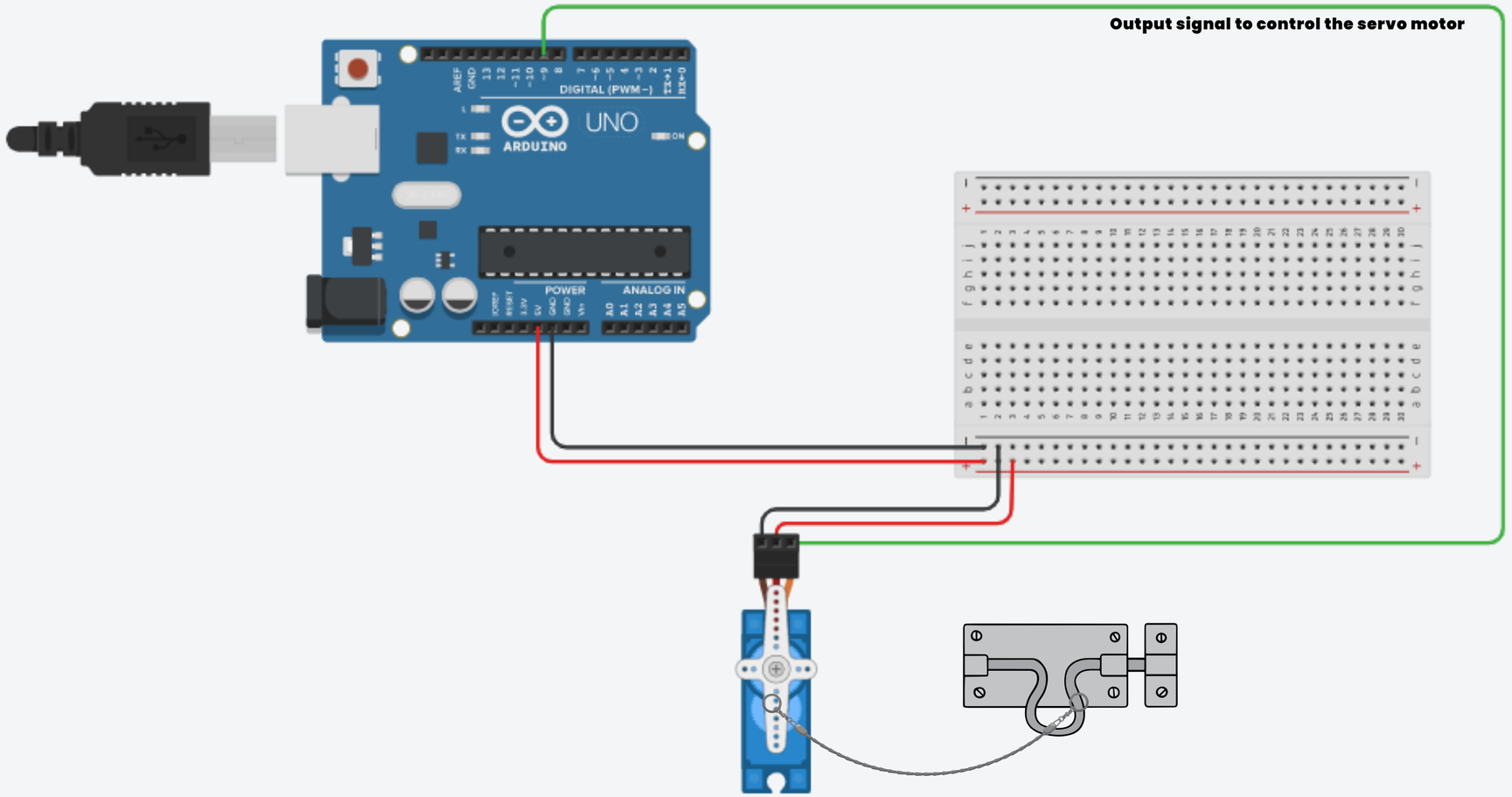
Simulation Diagram

LAPTOP

Laptop running python scripts for face recognition

Send serial data to control the door lock



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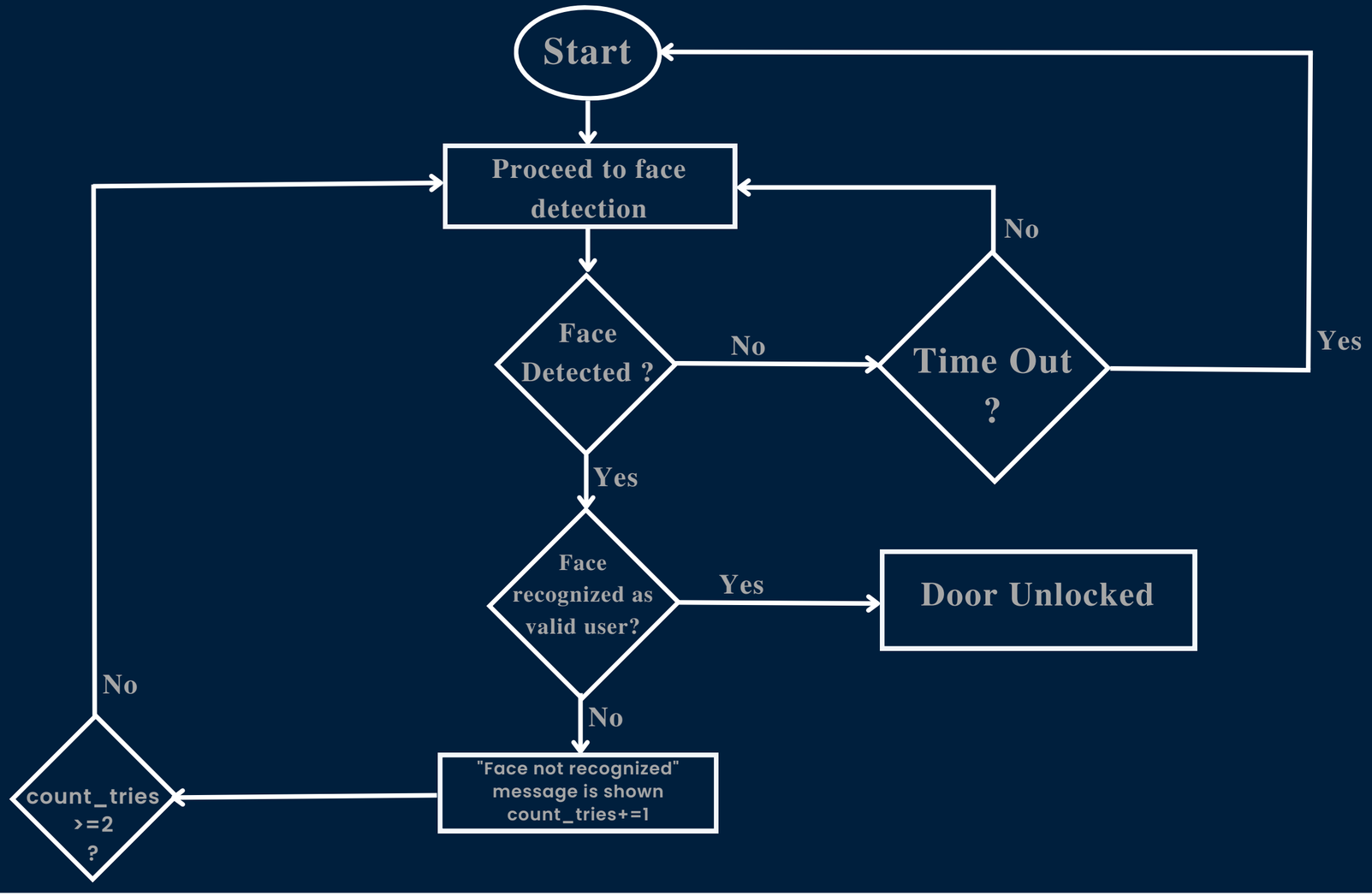
Workflow



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Working Mechanism

1. Train the model

2. Obtain .yml file by executing face_trainer.py

3. Upload code to arduino

4. Execute faces_email.py

    a.Face is detected and face is recoginsed

    b. Email is sent to owner as alert

Conclusion

In this project, we have designed a system which provides a security lock for the door.

In conclusion, the security system by using face recognition integrated with IoT is successfully done. Face recognition is able to recognize faces and able to send a notification to a user when an unknown being has been detected through python.

References:

- Google
- Github
- Youtube

-Team Mavericks