

Python Installation and Library Setup

- ❖ Before running the smart door lock system, ensure that **Python 3.8** is installed on your system. Follow these steps to set up Python and the necessary libraries.
-

Step 1: Install Python 3.8

1. Download and install **Python 3.8**
 - Make sure to check the box "**Add Python 3.8 to PATH**" during installation.
 2. After installation, verify the installation by opening a terminal or command prompt
`python -version`
-

Step 2: Install Required Libraries

The following Python libraries are required for this project:

- **OpenCV**: For face detection and recognition.
- **SpeechRecognition**: For capturing and processing voice commands.
- **pyttsx3**: For converting text to speech.
- **pySerial**: For communication between the Python script and the Arduino.

You can install these libraries using the **pip** command.

Installing Libraries via pip

1. **OpenCV**:
 - OpenCV is required for real-time video capture and face detection.
 - To install, use the following command:

`pip install opencv-python`
2. **SpeechRecognition**:
 - This library is used to capture and convert speech into text using the microphone.
 - To install, use the following command:

`pip install SpeechRecognition`
3. **pyttsx3**:
 - This library is responsible for providing text-to-speech functionality.
 - To install, use the following command: `pip install pyttsx3`

4. **pySerial:**

- The pySerial library is needed to communicate with the Arduino via serial commands.
- To install, use the following command:

```
pip install pyserial
```
