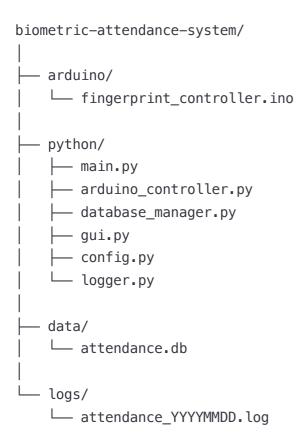
Biometric Attendance System - Project Structure

This document describes the structure of the Python-Arduino biometric attendance system and provides instructions for setting up and running the project.

Project Structure



Requirements

Hardware Requirements

- Arduino UNO
- R307 Fingerprint Sensor
- USB cable for Arduino
- Computer with Python installed

Software Requirements

- Arduino IDE
- Python 3.6+
- Required Python packages:
 - PyQt5
 - pyserial

Setup Instructions

1. Arduino Setup

- 1. Connect the R307 fingerprint sensor to Arduino:
 - VCC to 5V
 - GND to GND
 - TX to Digital Pin 2
 - RX to Digital Pin 3
- 2. Install the required Arduino libraries:
 - Adafruit Fingerprint Sensor Library
 - In Arduino IDE: Sketch > Include Library > Manage Libraries...
 - Search for "Adafruit Fingerprint Sensor" and install
- 3. Open the Arduino IDE and load (fingerprint_controller.ino)
- 4. Upload the sketch to your Arduino UNO

2. Python Setup

1. Install required Python packages:

```
pip install PyQt5 pyserial
```

- 2. Create the project directory structure as shown above
- 3. Save each Python file in the appropriate location

3. Running the Application

- 1. First ensure the Arduino is connected to your computer via USB
- 2. Navigate to the project directory
- 3. Run the main application:

```
python python/main.py
```

Usage Guide

Enrolling Users

- 1. Go to the "Users" tab
- 2. Enter a user ID and name
- 3. Click "Enroll Fingerprint"
- 4. Follow the on-screen instructions to place and remove finger

Taking Attendance

- 1. Go to the "Attendance" tab
- 2. Click "Start Attendance Mode"
- 3. Have users place their fingers on the sensor
- 4. Attendance records will appear in the table

Generating Reports

- 1. Go to the "Reports" tab
- 2. Select start and end dates
- 3. Click "Generate Report"
- 4. Choose a save location for the CSV file

Troubleshooting

Connection Issues

- Ensure Arduino is properly connected via USB
- Check if the correct COM port is selected (will auto-detect in most cases)
- Verify the fingerprint sensor is properly connected to the Arduino

Fingerprint Reader Issues

- Make sure fingers are clean and properly placed on the sensor
- If recognition is poor, try re-enrolling the fingerprint

Database Issues

- If database corruption occurs, use the backup feature in the Settings tab
- Make regular backups of your database file