

Embedded Systems

Facial Recognition Ignition System

Fa.R.I.S.

Group 34

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Fa.R.I.S. Setup

To set up the Fa.R.I.S. you will need to download and install the following software.

- Raspbian OS for the Raspberry Pi
- The newest version of PIP
- Python 3 or newer
- The newest version of OpenCV library
- RPi.GPIO library
- Adafruit_Python_CharLCD

Refer to the Documentation for component list.

Once installed and confirmed all components are working

In your working directory create a new folder called dataset. This is where your training image data will be stored.

Next run the face_dataset.py script

This script will take numerous amounts of pictures and store them in that dataset folder.

The amount of images taken will need to be adjusted depending on lighting conditions.

You can add more than one user by changing the user_id

After the dataset has been compiled its time to train the model

Run the face_train.py script

The model uses the Haarcascade_frontalface_default classifier that comes with OpenCV.

The trainer may take some time to complete and will notify you when it is done.

When the script is complete the new trained model will be saved to the working directory

Now that the model is trained, we can implement the Fa.R.I.S.

To run the Fa.R.I.S. run the script face_test1.py

This is the main control script for the system.