SURVEILLANCE AND FACE RECOGNITION SYSTEM

Catalin Otet, Richard Borchescu, Politehnica University of Timisoara

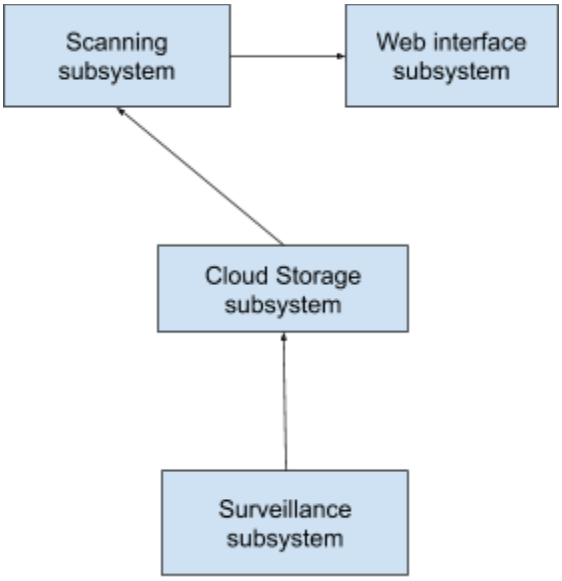
1. Repository

https://github.com/maniderrRPi-Cam

2. User requirements

1. The system must provide video and audio data from a certain area.
2. The system must recognize a human face from the video and mark it.
3. The system must save an image of the face for later use.
4. The system should run in an environment that provides 24/24 access.
5. The video and audio data should be accessed via a Web interface.
6. The system should send notifications on a smart device whenever a new image is taken.

3.System overview



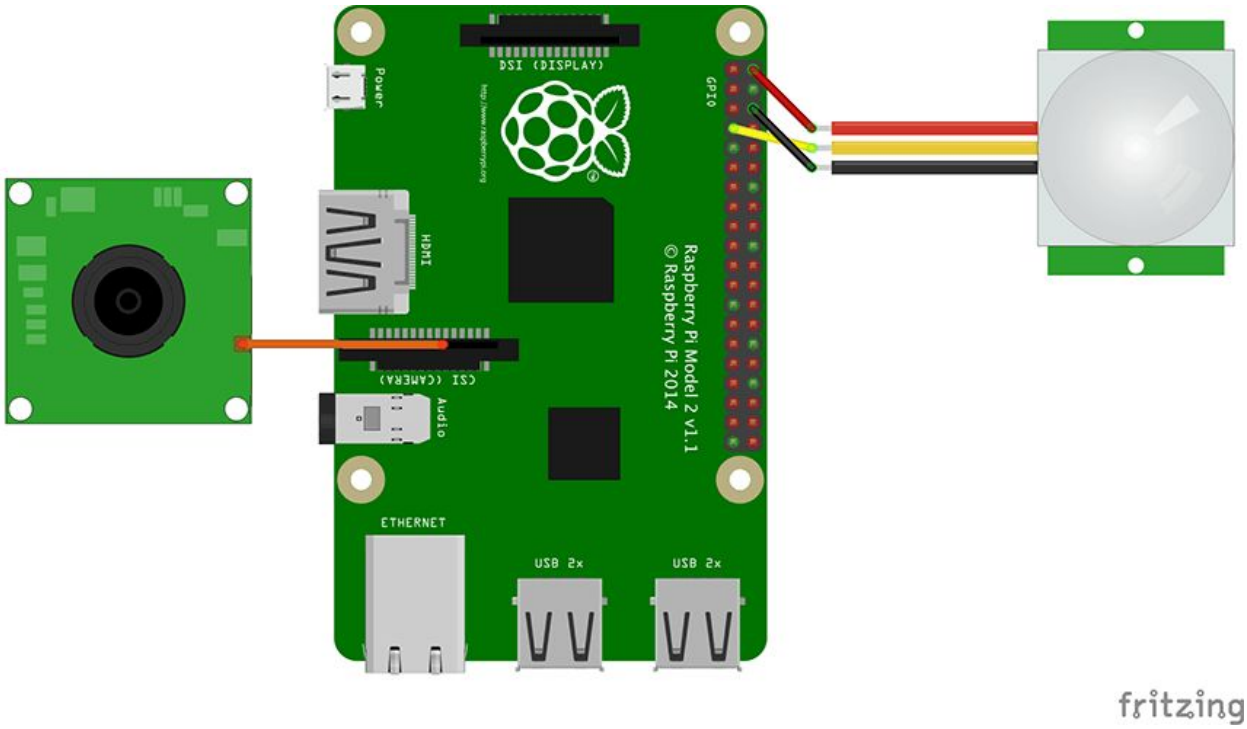
Surveillance Subsystem encompasses the recording functionality. It's purpose is acquire information from the camera.

Scanning Subsystem searches the data set provided by the Surveillance Subsystem for human faces from a given set.

Cloud Storage Subsystem stores the data from the Surveillance Subsystem.

Web consumer provides a set of functionalities for sending smart device notifications.

4. Circuit design



Raspberry Pi 2 provides support for quick prototyping. That makes it a perfect choice for quick prototyping but not adequate for real-time applications. We will use the one-wire interface it has, but also the implicit possibility of communicating with other devices over the Internet.

Logitech C270 web camera is an basic USB camera which will provide the video input.

5. Software design

The software components and data flow directions are depicted in Figure 3. Each of these
will be presented in the following subsections.

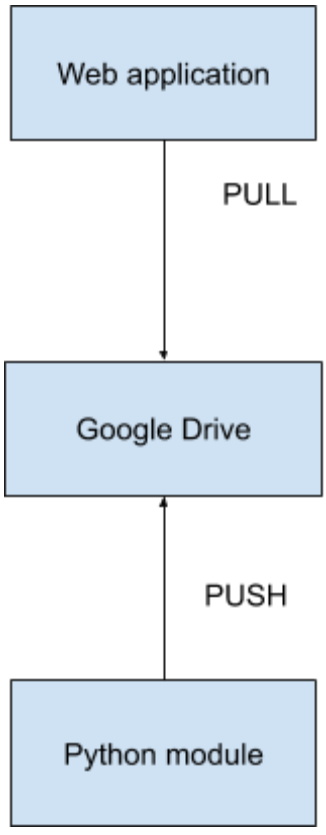


Figure 3 : Software entities involved

5.1 Python modules

scan_video.py : retrieves the video/image input, select frames/images which match the requirements, pushes them to the cloud storage and sned push notification to smartphone

6. References

1. Fritzing, http://fritzing.org/
2. Draw IO, https://www.draw.io/
3. https://github.com/Wyattjoh/pushover