Watchdog

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About Watchdog:

Watchdog is an RPI-based security system that utilizes a sensor array, a facial detection camera with video and picture capturing ability, a door lock motor, a web server with a neural network backend, and a user interface web frontend for an effective user experience.

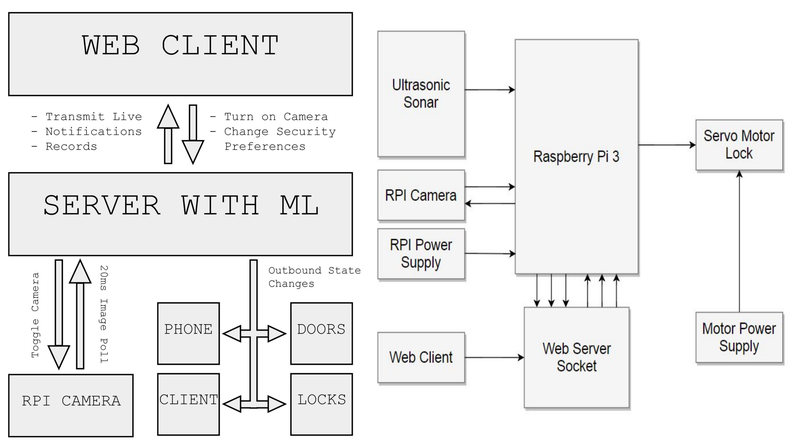

Fig. 1: Project architecture: Software Diagram (left) and Hardware Diagram (right).

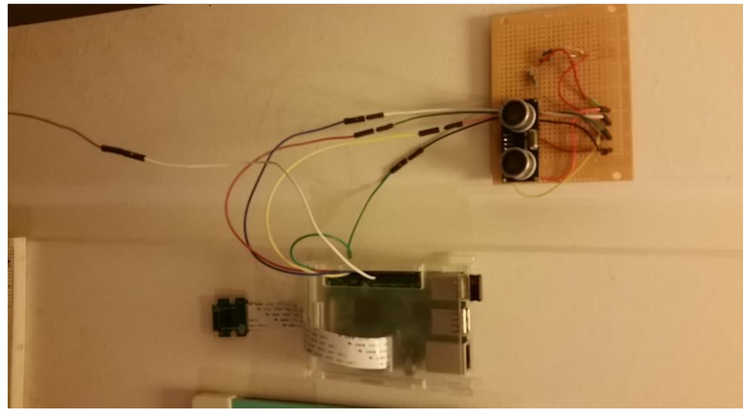

Fig. 2: RPI circuit w/ motion sensor and camera installed outdoors.

Product Features:

- Effective Facial Authentication Module
- User friendly control interface on both PC and mobile phones.
- Real-time video monitoring and recording
- Reliable communication and system security
- Convenient door locking mechanism

Challenges:

- Creating/Training NN with sample data using RPI camera.
- Establishing connections between RPI, server, and neural network.
- Dividing work for server development.
- Taking preventative measures to avoid damage to hardware.

Achievements:

The project utilizes functional face detection that can recognize users if the neural network is trained with sample data of the users. Upon successful facial authentication or manual control from the web interface, the motor moves to unlock the door.

References:

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