The following languages and dependencies are required to run our prototype.

Python 3.7
- requests
- paho-mqtt
- pandas
- numpy
- scikit-learn
- flask
- flask-cors

These can all be installed through pip into your environment. The ML training script is written in a Jupyter notebook.

Node-red
- node-red-contrib-aedes
- node-red-contrib-function-npm

A browser capable of executing JavaScript is required to view the GUI.

How to start the prototype
First the flows from the node-red folder must be imported and deployed.

Afterwards, the scripts restful_api.py and mqtt_handler.py from the root folder must be executed in two different terminals by typing the following commands:

Terminal 1: *python mqtt_handler.py*
Terminal 2: *python restful_api.py*

Both scripts will log every MQTT and HTTP message that was sent or received.

The GUI can now be viewed in the browser at the following address: http://127.0.0.1:5000

Directory Structure
The root folder holds the 2 main script that runs the prototype and a pickle file that contains the model that the artificial intelligence uses to classify emergencies. This model had been trained by the data-set we generated ourselves.

The ml_scripts folder contains data-set csv files and a Jupyter notebook file that contains the scripts that were used to train the failed model based on the downloaded data. It also contains the python script train_generated_model.py that was used to train the model based on our own generated data-set.

The node-red folder contains a json file with the flows used by the prototype. These need to be imported in Node-red to run the prototype.

The static folder contains all JavaScript files, the CSS file and some images used by the web-page.

The templates folder contains the index.html that is used by the GUI.