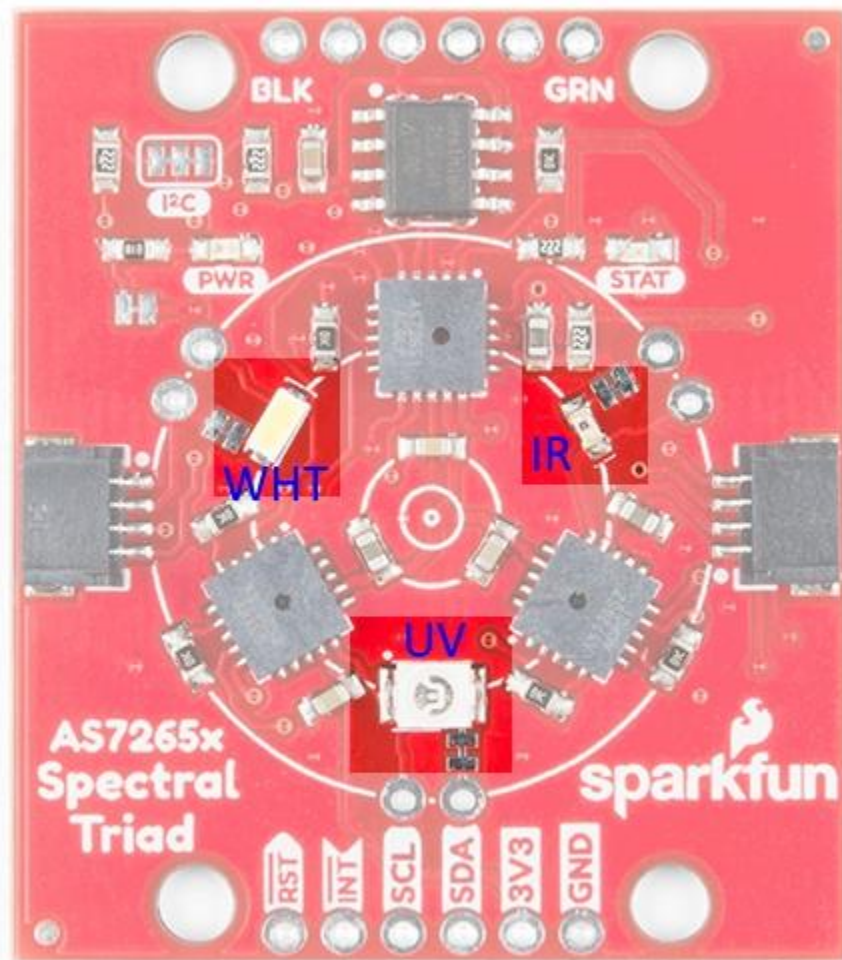


Software Architecture

1) Spectrometer Sensor Readings Program

The spectrometer sensor is an object as the following :



The Triad contains a 5700k white LED, a 405nm UV LED, and a 875nm IR LED mounted alongside the sensors. These LEDs were chosen to illuminate the target with the largest swath of visible and invisible light. The LEDs are individually enabled with software configurable drive current.

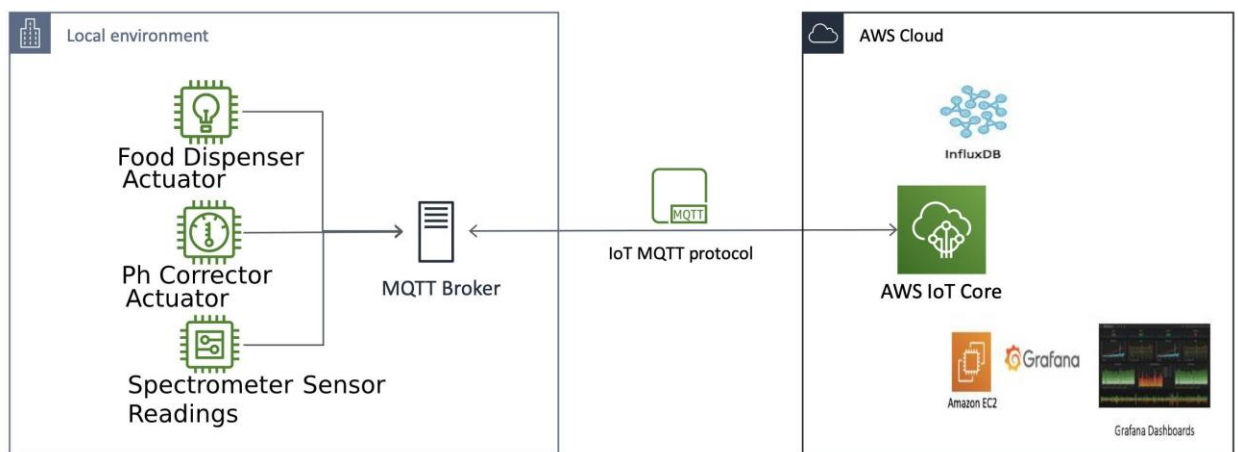
There are 18 frequencies of sensing. The board also has multiple ways for you to illuminate the object that you are trying to measure for a more accurate spectroscopy reading. If we will not be satisfied with the on-board LEDs we will grab through hole incandescent bulbs. This could result in a larger energy consumption that must be considered in the evaluation document.

The program will read the sensor values (18 frequencies) and transmit as a packet to the base station node through the radio of TelosB specified by the IEEE 802.15.4 protocol.

2) MQTT Broker and AWS IOT

The Telosb Base station will receive the packets and send to the **MQTT-SN broker**, which is connected to the **MQTT Gateway** which will forward to AWS IOT.

On AWS IOT Cloud the data will be stored in **Dynamodb/InfluxDb** data base and data will be graphically displayed with **Grafana**.



Grafana can be integrated with InfluxDb on AWS IOT.



<https://aws.amazon.com/it/blogs/iot/influxdb-and-grafana-with-aws-iot-to-visualize-time-series-data/>