Team GR IoT Data Aggregation Project

Facility Diagram (Input)

Connection A (MQTT)

- Upon connection to broker, a LWT is PUB to the LWT topic w/ a 1 minute timeout
- SUB to the Pulse Topic
- Upon recieving a pulse from the Pulse Topic, PUB sensor data to the Data Topic
- Message payload uses the CBOR format

Connection B (MQTT)

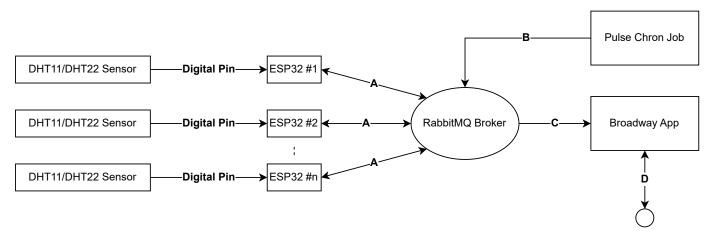
- PUB to Pulse Topic via a bash script using the MQTTX CLI Tool
- Pulse is sent every 15 min. via a chron job that runs the bash script
- Message payload is empty

Connection C (AMQP)

- SUB to the Data and LWT Queues
- MQTT is translated to AMQP via RabbitMQ's topic exchange
- Expects message payload to be in the CBOR format

Connection D (SSL)

- Represents database connection
- Sensor data is sent in batches of size n * 0.25
- Any remaining sensor data gets sent after a 1 minute timeout
- LWTs are sent in batches of size n * 0.05 OR get sent every hour
- SSL is also used to email device failure reports to maintenance staff via Gmail



API Diagram (Output)

Connection A (SSL)

- Represents database connection

Connection B (TCP)

- TCP connection to a local Redis Cache
- API Token (JWT) information is cached here
- Tokens have a max TTL of 5 minutes before reauth is required

Connection C (HTTPS)

- User sends login credentials
- Upon successful login, an API Token is returned
- User sends query parameters via a JSON file. API Token must be inlcuded in headers
- Data is returned as CSV or HDF

API (TBD)

+ field: type

+ method(type): type

