Sequence Diagram
Sprint 6

Color-Code Key

IN-PROGRESS   COMPLETE

Read From Right to Left and Downward

| IoT Sensor | GWD | Gateway | Cloud CIC | MongoDB | AaaS | Web App |

IoT device activated

DIAGNOSTIC TESTS PROCESS

GW AND CIC CONNECTION

SENSOR AND GWD UPDATES

SENSOR PROCESS

user registered/ logged in

login user

user requests Info

Subscribe GWD_TestReq

Publish GW HB and Diagnostic Test Request via mqtt.js

view Dashboard

ASSET MANAGER DASHBOARD

Send GWD Test Request via Websocket

Publish SW Update Request via MQTT.js

INVENTORY MANAGER DASHBOARD

Performs diagnostic tests

SImulate Sensor Heartbeat

Send Heartbeat via Websocket

Receives heartbeat

Send Heartbeat REST request

Store heartbeat

Send GWD Test Results via Websocket

Sends GWD Test Results REST request

HB record stored

subscribe SW Update Request

Publishes SW Version Update Request via MQTT

publish SW Update Request

Store HB/GWID/GWD/Timestamp Test

GWD record stored

Receives Update/ Checks Current Sensor SW Version

Performs SW Update

publishes SW Update Status and Currnet version [via MQTT]

publish SW Update

Subscribe SW Update Status

POST SW Update Satus

Store SW Update Status

SW Update Status stored

Simulate Shelf Weight/ Shelf Data

publishes SW Update Status and Currnet version [via MQTT]

publish Sensor Data

Subscribe Sensor Data

POST Sensor Data

Store Sensor Data

Sensor Data stored

Retrieve Sensor Data

Retrieve HB/ Diagnostic Tests Results

Retrieves SW update from SWL

send Requested Info

data displayed

Sensor Simulator (Python)

SensorSimulatorMain	
Sensors	Updater
Sens.Publisher	Upd.Subscriber

Data | Response
Update

MQTT Broker

IoT Devices

Shelf 1

Shelf 2

Shelf 3

(shelf weight sensors)

data sent
using *mqtt*
(data: shelf weight)

acctuator
command/controls

Gateway

web
socket
protocol

(Diagnostics)

Gateway Controller

Data/SWUpdate Response

Heartbeat Status Request
(REST)

API

Diagnostic Test Request
(REST)

Sensor Data Request
(REST)

Sensor Data Response
(REST)

**Gateway Heartbeat and
Diagnostics Test Result Response**
(gwID, timeStamp, testType, testResult)

Software Update Response
(Software, timeStamp,
Version Number)

Software Update Request
(Software, Version Number)

MQTT Broker

Tech Stack

**nginx
MongoDB
NodeJS
Express
Mongoose
npm**

Retrieve sensor data

BI Connector

Tableau Desktop

Publish

Tableau Public

response | request

Command in
Control

Digital Ocean Droplet

MongoDB

store heartbeat
(gwID, timestamp,
heartbeat, HBStatus)

node.js

retrieve
diagnostics info

**store diagnostic
test results**

(gwID, timeStamp,
testType, testResult)

node.js

retrieve update
status

store update
version
requested

node.js

request
(sw update on data
sensors)

response
(sw update status)

node.js

request
(diagnostics)

response
(diagnostic history)

Web App

Inventory managers

Clients: Chrome, Firefox, Safari

Web App

Software Updates	Diagnostics

Asset Managers

(Clients: Chrome, Firefox, Safari)