

Design for Assembly and Automation

Assignment

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Problem Statement:

- a) Write a IoT simulator to publish random measurement between 20.0 to 30.0 using paho publish module at 0.05 sec interval in dfma/qa topic channel
- b) Specification of the product is 25.0 ± 3.0 . Create a mqtt subscriber in python to listen to above channel and send message "reject" in dfma/qa/reject channel whenever measurement falls outside the specification
- c) Plot a running bar graph on Nos of item rejected. Update it every min.

Report:

Submission includes 3 python scripts:

1. Publish_IoT_measurement.py
2. Check_specs.py
3. Rejections.py

[1] simulates an IoT sensor and **publishes** readings to the topic **/dfma/qa**

[2] subscribes to the topic **/dfma/qa** and gets the readings. It then passes the readings to a function which checks if the product specifications are met and whenever a product is rejected it **publishes** a message to the topic **/dfma/qa/reject**

[3] subscribes to the topic **/dfma/qa/reject** and displays the message of rejection on the terminal.

Terminal 1: For publishing messages to **/dfma/qa**

```
(Jarvis) D:\Academics\Sem_10\Design for Assembly and Automation\Assignments>python Publish_IoT_measureme
nt.py
Connected to MQTT Broker!
Send `27.754537955750603` to topic `/dfma/qa`
Send `26.16748079326668` to topic `/dfma/qa`
Send `24.824453244359525` to topic `/dfma/qa`
Send `26.29768943499455` to topic `/dfma/qa`
Send `27.24454585152913` to topic `/dfma/qa`
```

Terminal 2: For receiving messages from `/dfma/qa` and publishing reject on `/dfma/qa/reject`

```
Administrator: Anaconda Prompt (Anaconda)
Connected to MQTT Broker!
Received `24.77492980952542` from `/dfma/qa` topic
Received `23.314887680777527` from `/dfma/qa` topic
Received `24.24706833777891` from `/dfma/qa` topic
Received `25.1214555353101` from `/dfma/qa` topic
Received `23.66162932718129` from `/dfma/qa` topic
Received `28.969444771343042` from `/dfma/qa` topic
1
Send `reject` to topic `/dfma/qa/reject`
Received `28.215523421866354` from `/dfma/qa` topic
2
Send `reject` to topic `/dfma/qa/reject`
Received `26.442851040006495` from `/dfma/qa` topic
Received `28.709759785495315` from `/dfma/qa` topic
```

Terminal 3: For receiving messages from `/dfma/qa/reject`

```
(Jarvis) D:\Academics\Sem_10\Design for Assembly and Automation\Assignments>python Rejections.py
Connected to MQTT Broker!
Received `reject` from `/dfma/qa/reject` topic
Received `reject` from `/dfma/qa/reject` topic
Received `reject` from `/dfma/qa/reject` topic
Received `reject` from `/dfma/qa/reject` topic
Received `reject` from `/dfma/qa/reject` topic
Received `reject` from `/dfma/qa/reject` topic
Received `reject` from `/dfma/qa/reject` topic
Received `reject` from `/dfma/qa/reject` topic
Received `reject` from `/dfma/qa/reject` topic
Received `reject` from `/dfma/qa/reject` topic
```

Running procedure:

1. Open 3 terminals
2. Run [3] first in one terminal. We have now subscribed to messages from `/dfma/qa/reject`
3. Run [2] in another terminal. We have now subscribed to messages from `/dfma/qa` and we can publish messages to `/dfma/qa/reject`
4. Run [1] in the third terminal. We can now publish messages to `/dfma/qa`