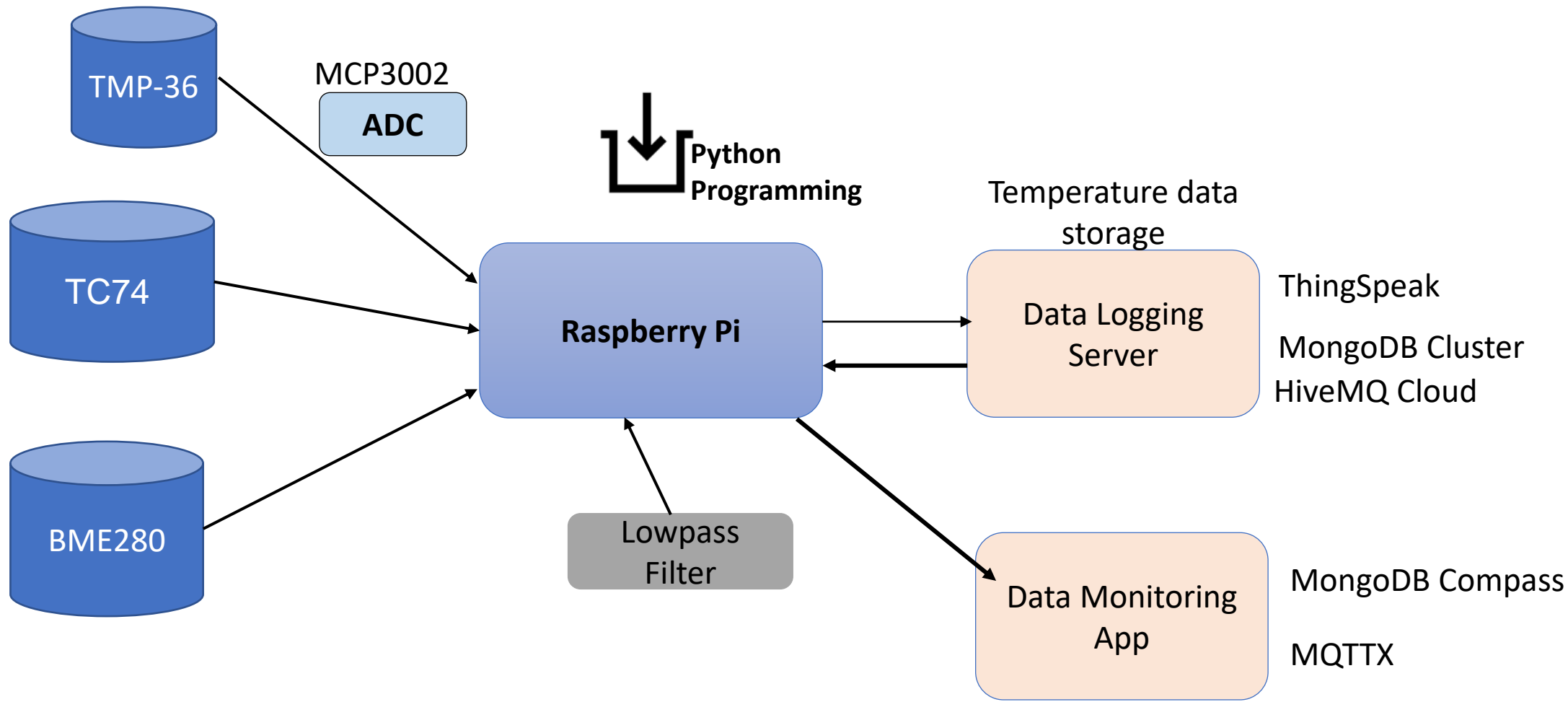


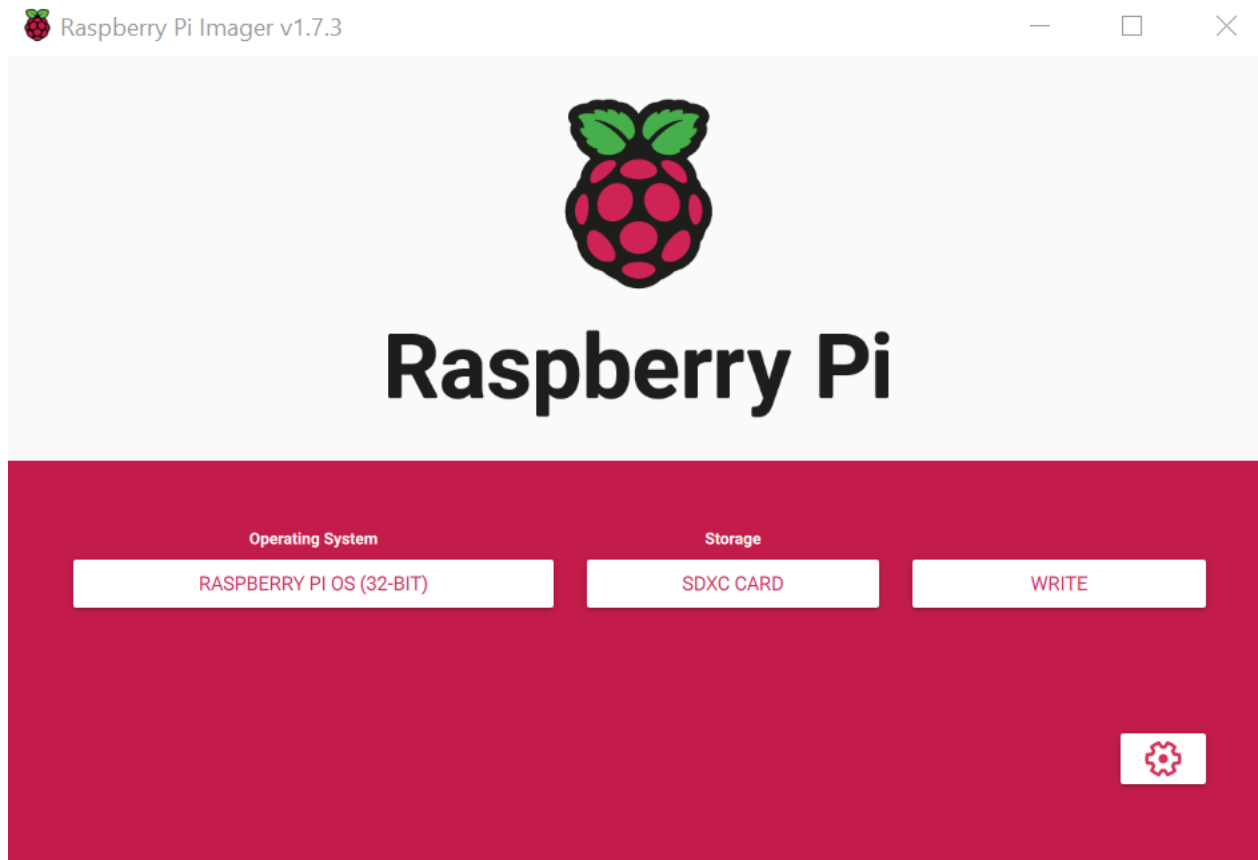
Internet of Things and Raspberry Pi

Shamim Al Mamun

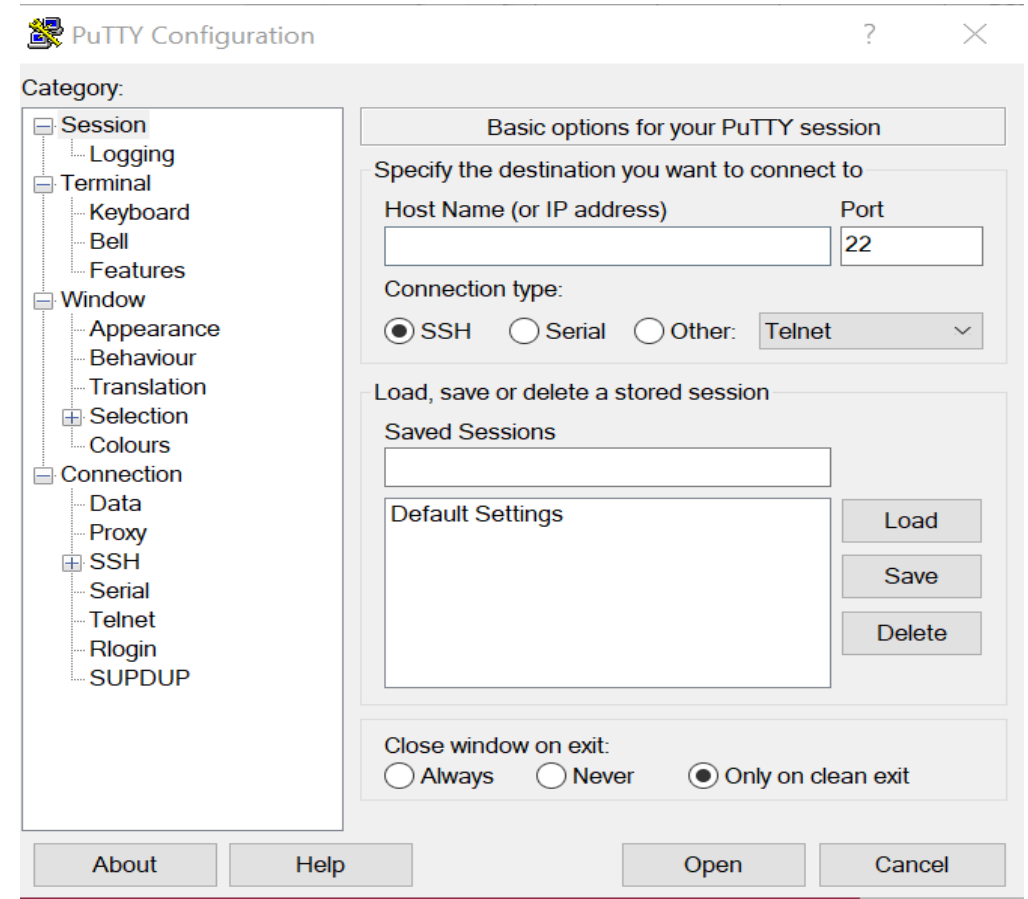
Industrial IT and Automation



Raspberry Pi OS



Raspberry Pi Imager



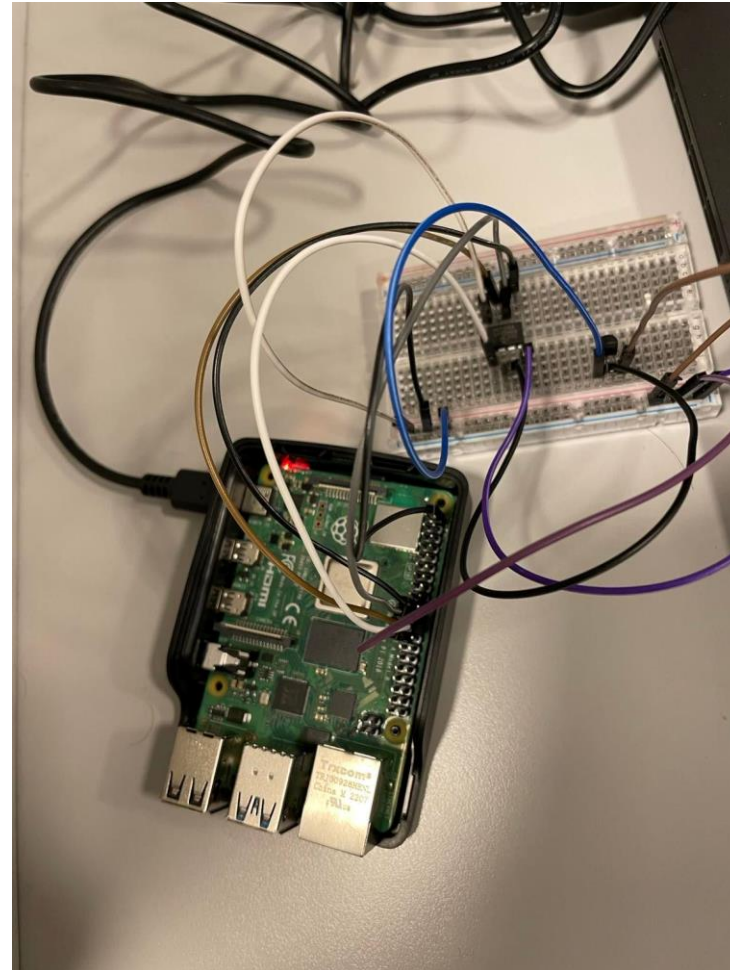
PuTTY

Retrieve data from Temperature Sensors

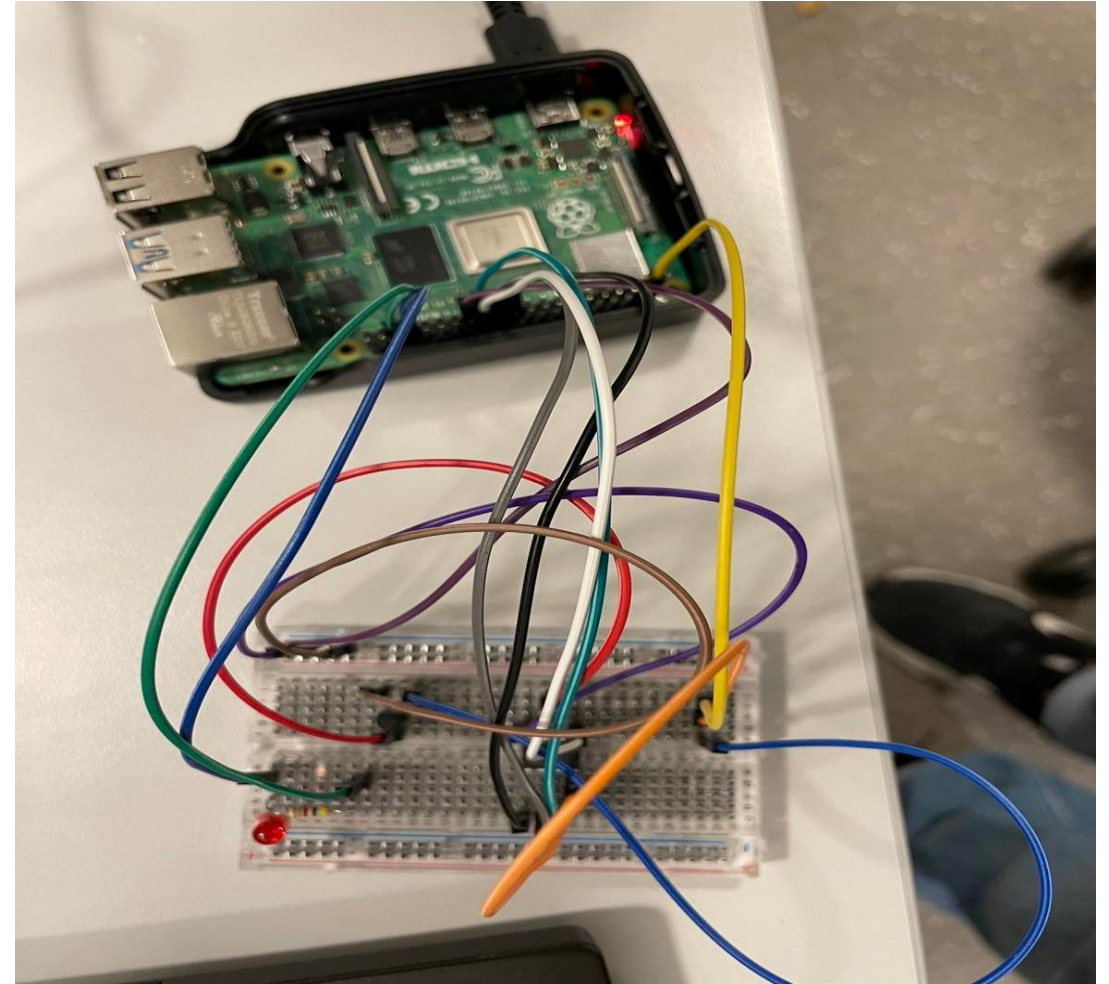
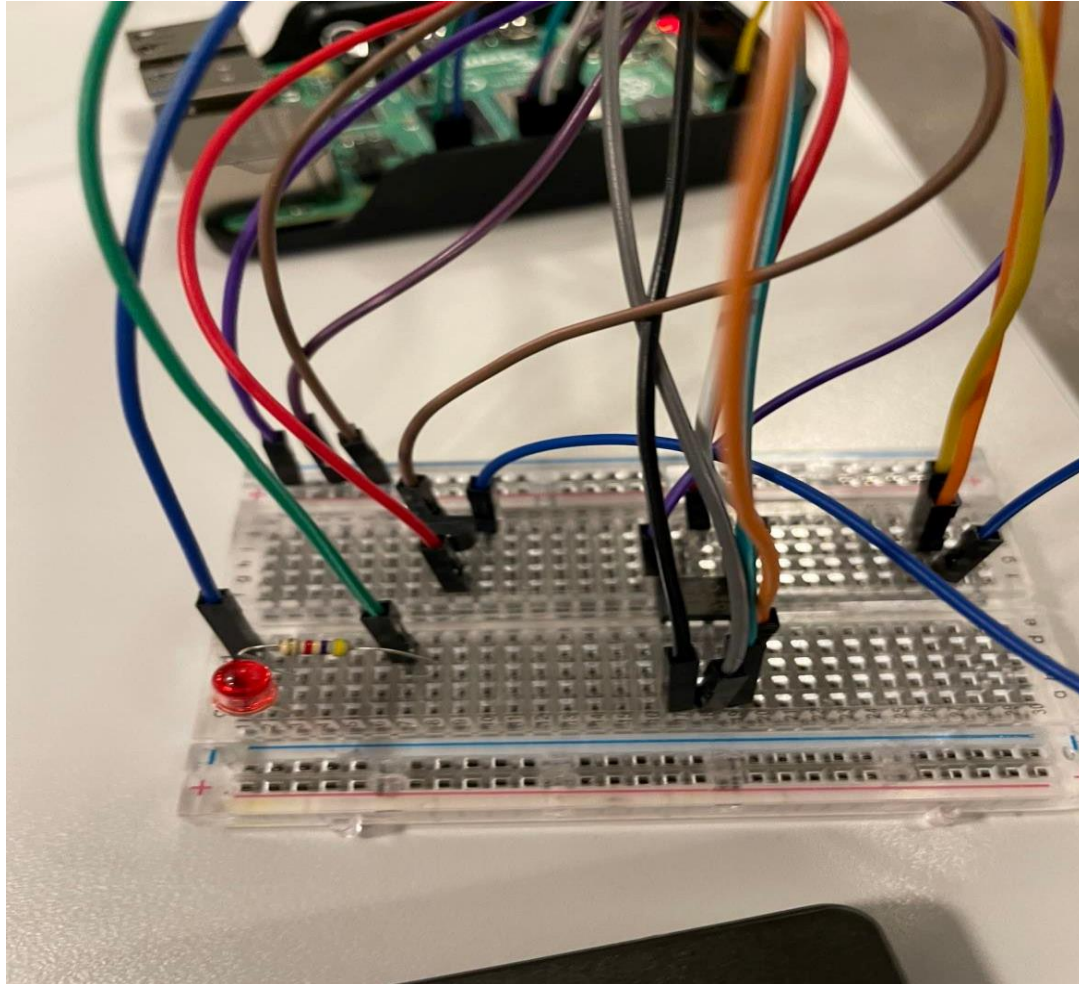
Retrieve data from TC74



Retrieve data from TMP36



Implementing Alarm system



Datalogging and Plotting of MongoDB

MeasurementSyst...

5 DBS 5 COLLECTIONS

☆ FAVORITE

HOST
localhost:27017

CLUSTER
Standalone

EDITION
MongoDB 6.0.2 Community

{ My Queries

Databases

Filter your data

Library

MeasurementSystem

MeasurementData

admin

config

...

MeasurementSystem.MeasurementData

10 DOCUMENTS 1 INDEXES

Documents Aggregations Schema Explain Plan Indexes Validation

FILTER { field: 'value' } OPTIONS FIND RESET ↺ ...

ADD DATA VIEW

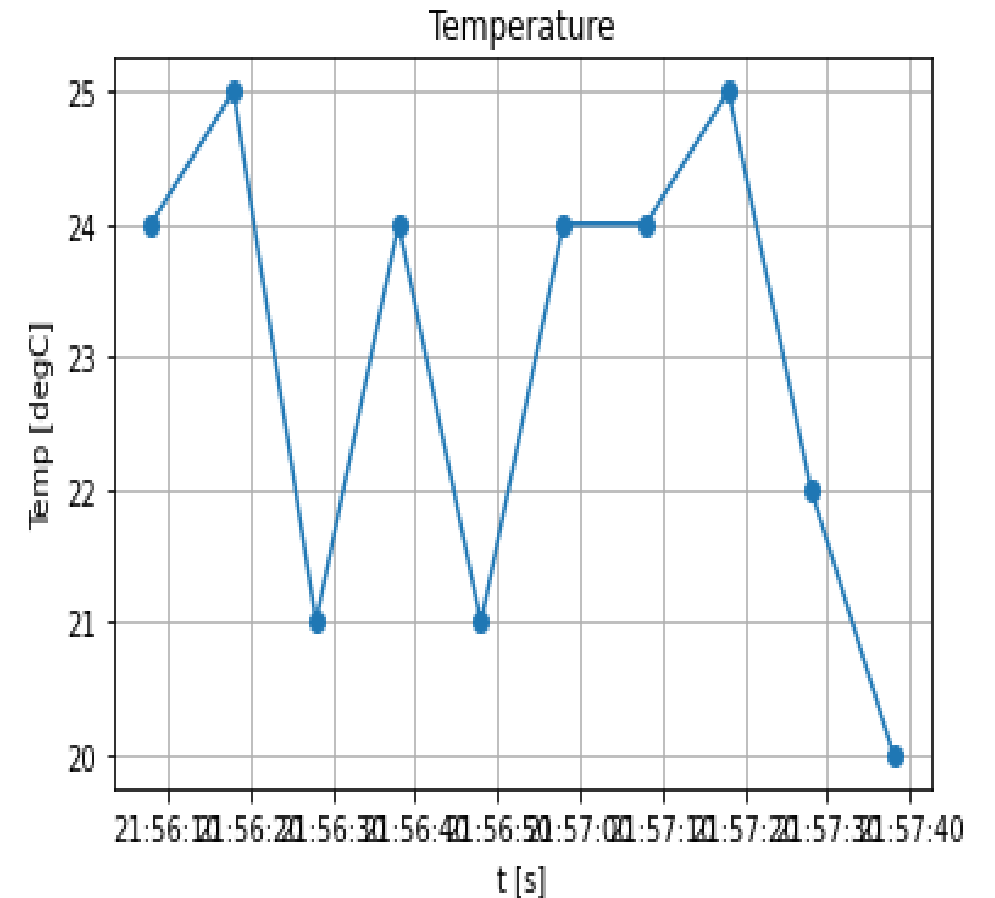
Displaying documents 1 - 15 of 15 < > REFRESH

MeasurementValue: 25
MeasurementDateTime: "2022-11-02 21:17:20"

_id: ObjectId('6362d05a586dbd9c3f643b5a')
MeasurementValue: 22
MeasurementDateTime: "2022-11-02 21:17:30"

_id: ObjectId('6362d064586dbd9c3f643b5b')
MeasurementValue: 20
MeasurementDateTime: "2022-11-02 21:17:40"

_id: ObjectId('6362d06e586dbd9c3f643b5c')
MeasurementValue: 24
MeasurementDateTime: "2022-11-02 21:17:50"



Publish and Subscribe Temperature data to HiveMQ Cloud using the MQTT X

Your Clusters

CREATE NEW CLUSTER

FREE
Perfect for testing and small use cases

URL	PORT (TLS)
87dda553061c43adbe54872a0430dc70.s1.eu.hivemq.cloud	8883
STATUS	STARTED
Running	10/28/2022, 9:09 PM

MANAGE CLUSTER

MQTTX

File Edit View Window Help

Connections New Collection

- IOTLAB@87dda55306...
- ThingSpeak_Data@m...
- ThingSpeak_MQTT@...

IOTLAB

* Name	* Client ID	Username
IOTLAB	87dda553061c43adbe54872	joyelshamim@gmail.com
Password	Keep Alive	Clean Start
.....	60	<input checked="" type="checkbox"/> true

Connect

+ New Subscription

Sensor/Temperat... QoS 0

Plaintext

oS: 0

23.3

2022-11-02 23:15:31:585

Topic: Sensor/Temperature/TMP36 QoS: 0

Payload: JSON QoS: 0 Retain Meta

channels/1914132/publish/fields/field1

26

Publish Temperature data to ThingSpeak using the MQTT X

ThingSpeak™

Channels ▾

Apps ▾

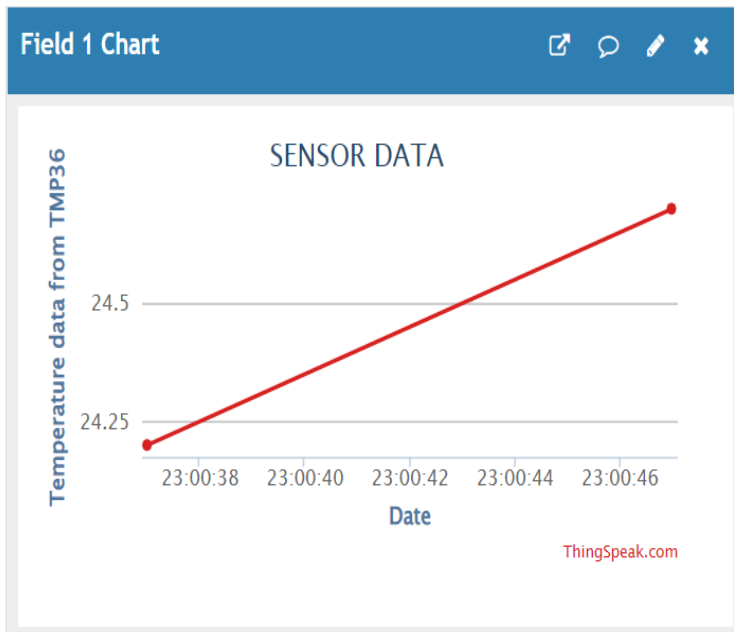
Devices ▾

Support ▾

Channel Stats

Created: 2 days ago

Entries: 3



MQTTX

File Edit View Window Help

Connections

New Collection

IOTLAB@87dda55306...

ThingSpeak_Data@m...

ThingSpeak_MQTT@...

IOTLAB

* Name

IOTLAB

* Client ID

87dda553061c43adbe54872

Username

joyelshamim@gmail.com

Password

.....

Keep Alive

60

Clean Start

☒ true

Connect

+ New Subscription

Sensor/Temperat... QoS 0

Plaintext

All Received Published

oS: 0

23.3

2022-11-02 23:15:31:585

Topic: Sensor/Temperature/TMP36 Q

oS: 0

Payload: JSON

QoS: 0

☐ Retain

Meta

channels/1914132/publish/fields/field1

26