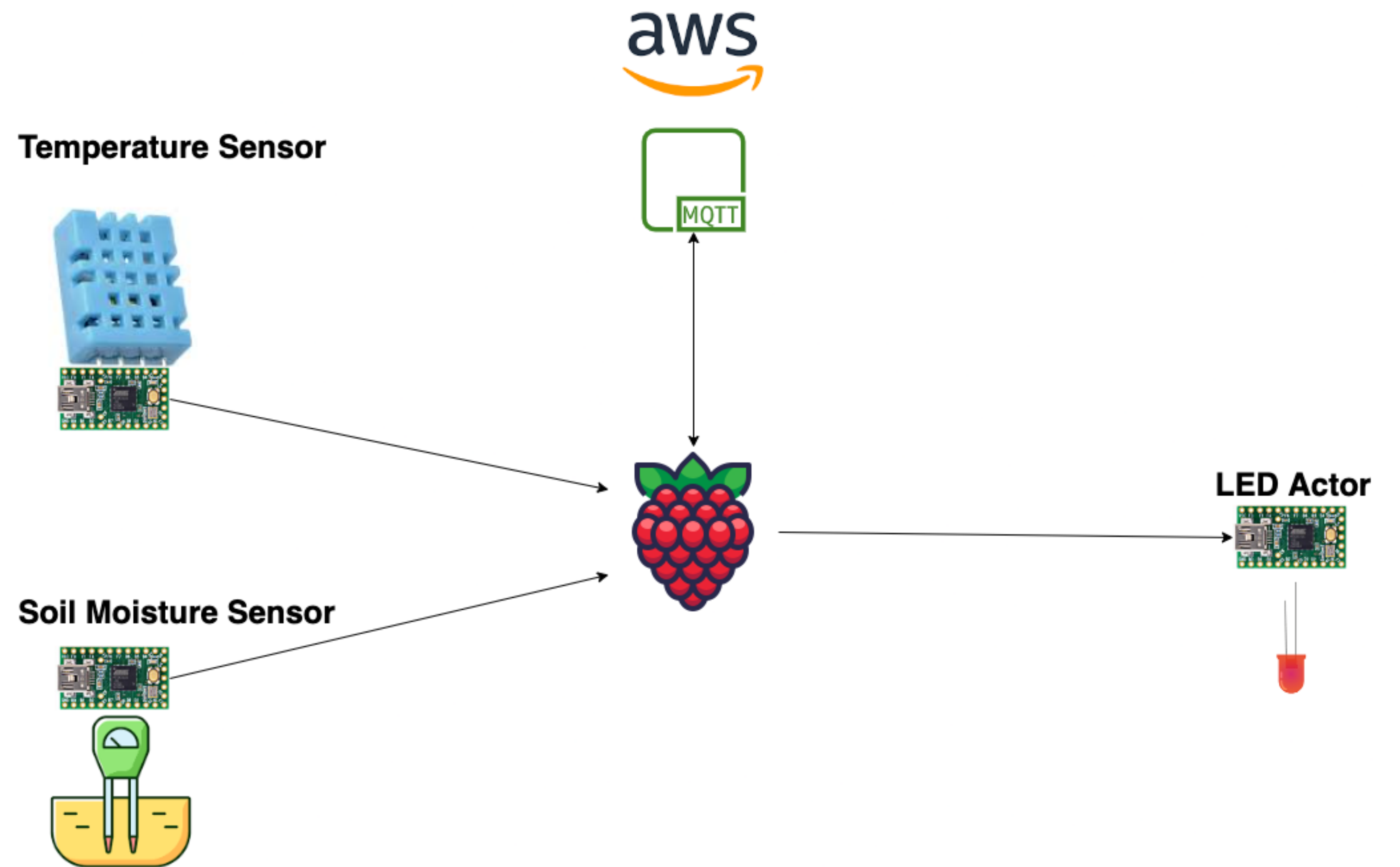# IFN 649

Assessment One: Teensy, Raspberry pi and AWS Demonstration

Github Repository: https://github.com/krieem/IFN649_AssessmentOne

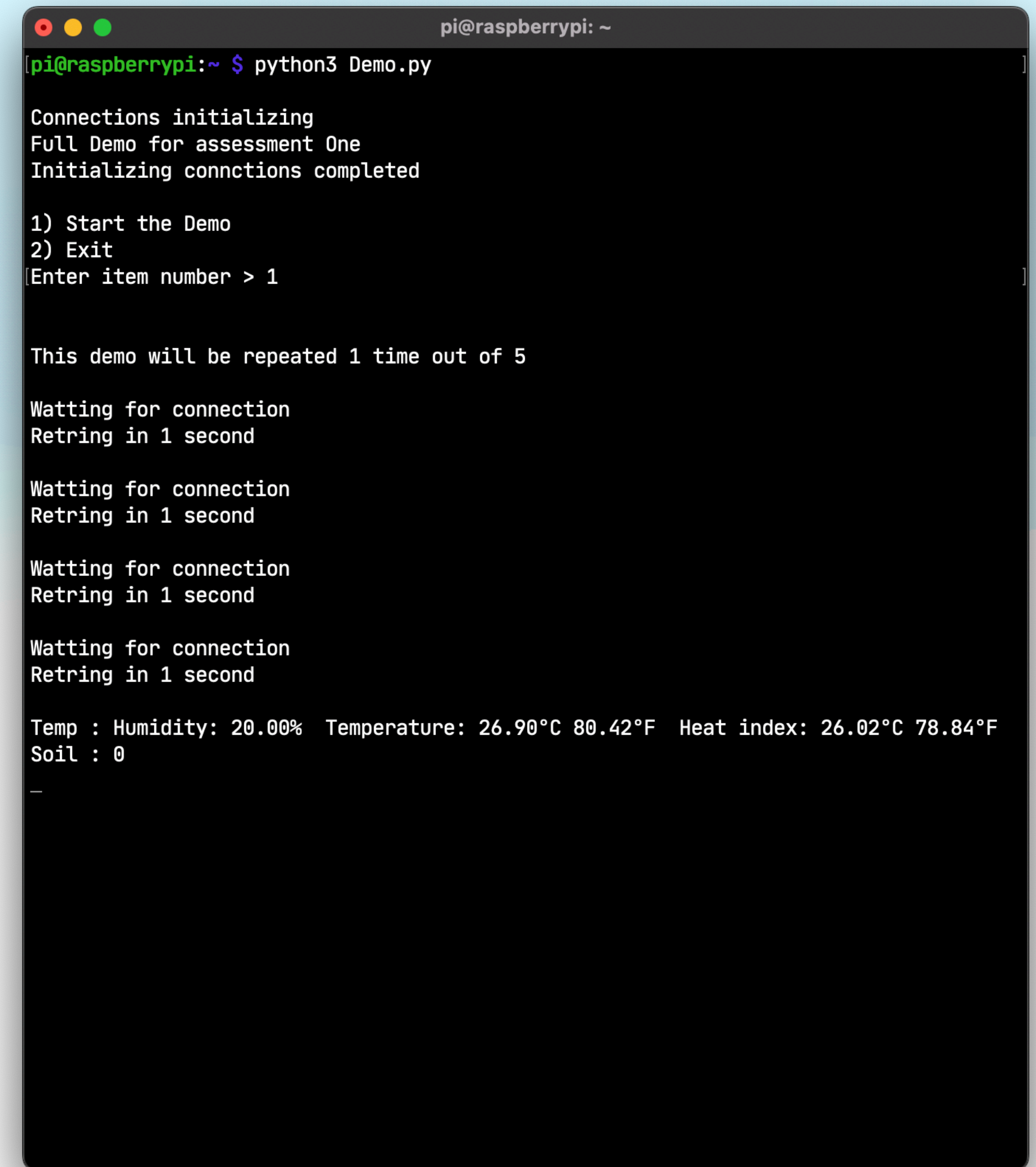**Abdulkarim Alzahrani**
N10560211

Overview

- MQTT
  - Server: AWS
  - Publisher: Raspberrypi
  - Subscriber: Raspberrypi

- Sensors
  - Temperature: DHT Teensy
  - Soil: Soil Moisture Sensor

- Actors
  - Green LED: Teensy
  - Orange LED: Teensy

Data Collection

1. Raspberry pi will initialise the bluetooth connection to both Teensy sensors.

2. The connection will be established and serial data will be received.

3. The received data will be cleaned and processed.

4. Information will be displayed on the terminal screen

```
pi@raspberrypi: ~

[pi@raspberrypi:~ $ python3 Demo.py

Connections initializing
Full Demo for assessment One
Initializing connctions completed

1) Start the Demo
2) Exit
[Enter item number > 1


This demo will be repeated 1 time out of 5

Watting for connection
Retring in 1 second

Watting for connection
Retring in 1 second

Watting for connection
Retring in 1 second

Watting for connection
Retring in 1 second


Temp : Humidity: 20.00%  Temperature: 26.90°C 80.42°F  Heat index: 26.02°C 78.84°F
Soil : 0
_
```

MQTT

Publisher (Demo.py)

1. While the Raspberrypi receives the data a connection to AWS instance will be established.

2. MQTT connection between the publisher and the subscriber is created.

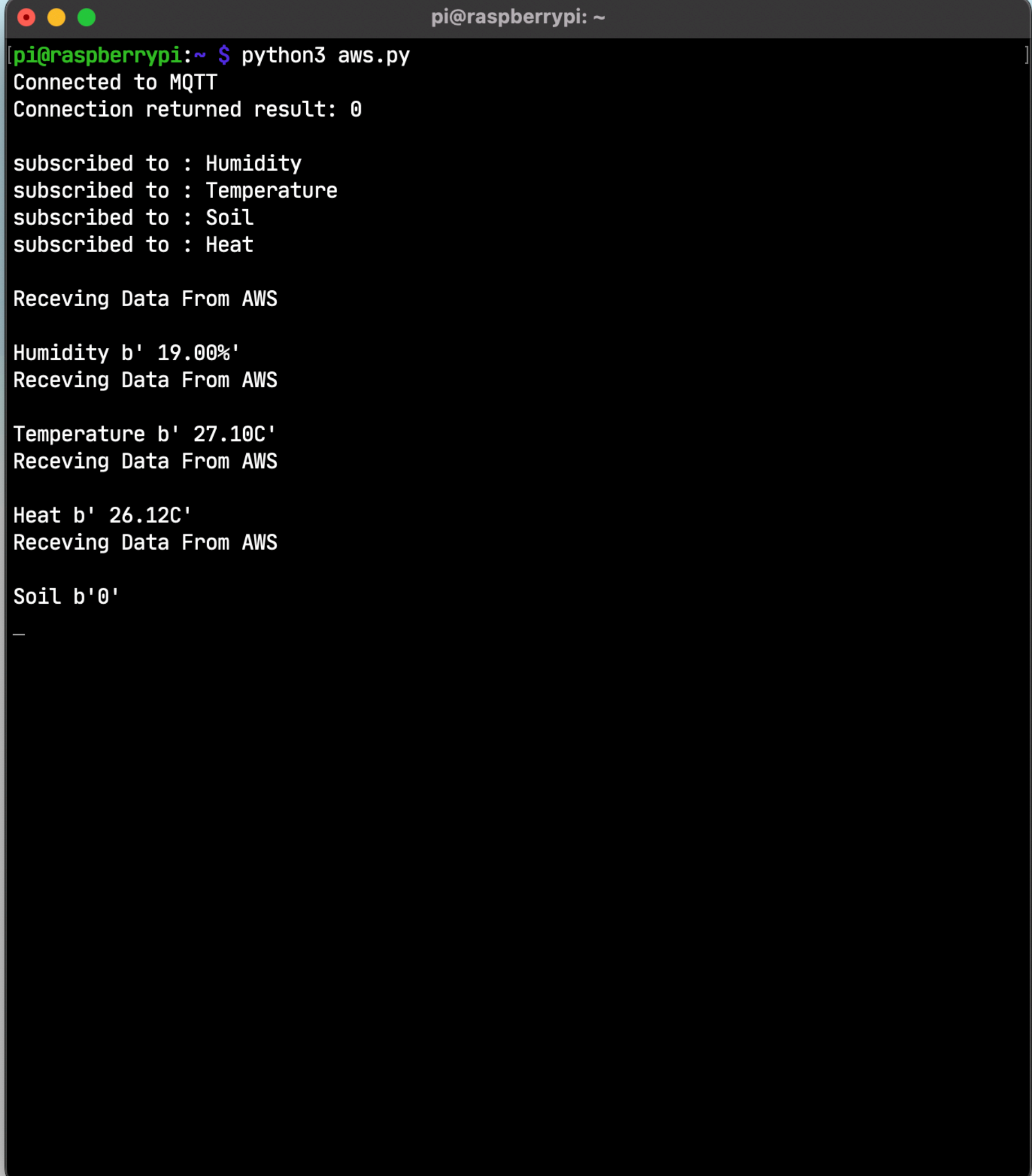3. The MQTT publisher will publish the data to three topics.

Subscriber (aws.py)

1. MQTT subscriber should be deployed to receive data.

2. The subscriber will subscripe to the topics defined on the publisher.

3. The subscriber will listen to the server and wait for messages.

MQTT Topics

Heat & Temperature & Humidity & Soil

Actor

1. When the subscriber receives the data the information will be displayed on the terminal screen.

2. LED indications on the Teensy actor

   1. Orange LED will be lit indicating waiting from data.

   2. Green LED will be lit during the data transmission.