Publish Sensor Data to AWS Iot Server

Project ID- R2
Group-3
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List of Major Components

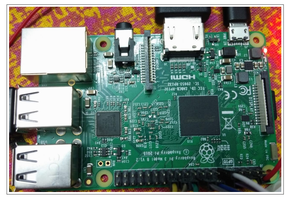


Figure 1: Raspberry Pi 3

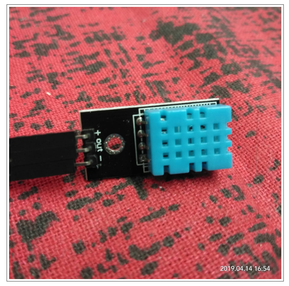


Figure 2: DHT11 Sensor

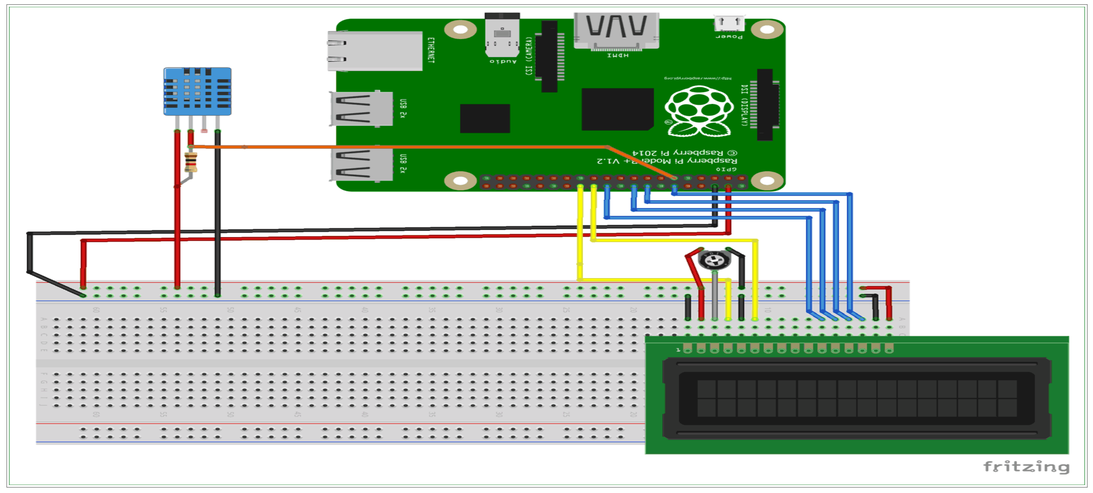
Figure 3: Potentiometer 10k

Figure 4: LCD Screen

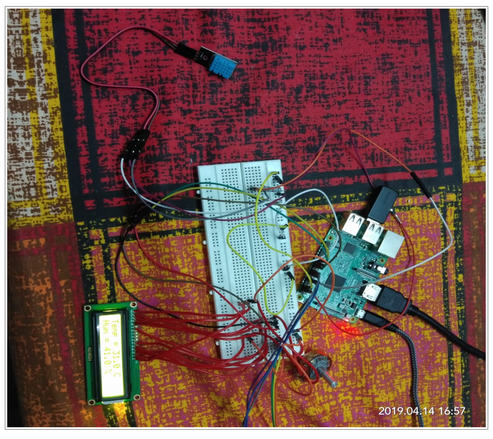
Description

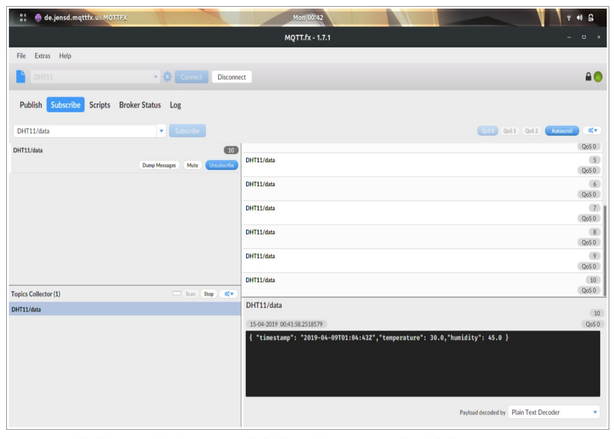
This project is based on Raspberry Pi. In this project we are publishing Temperature and Humidity Sensor Data to AWS - IoT using Raspberry Pi. We are viewing the data sent to AWS through a MQTT client app. The Temperature and Humidity is also displayed on a LCD screen connected to Raspberry Pi. We can access the sensor data from anywhere in the world if we have the certificates and keys that are required for authenticating the connection to AWS. We have created an AWS Thing(iot device) for our sensor and generated certificates and policies and used the same for connecting MQTT client to AWS. The security protocols used are SSL/TLS. We have implemented the code in python and executed it on Raspberry Pi.

Block Diagram of the Design



Photographs of the Developed System





Demo Video Link

https://www.youtube.com/watch?v=4Q8IvH-SkcE&feature=youtu.be

Problems Faced

There was a problem while displaying sensor data on the LCD screen which was resolved by replacing the LCD as it was faulty. There was problem connecting MQTT client to AWS as there was three different types of certificate required for authentication and there was no proper documentation of which certificate is required in what field.

Conclusion

The project helped us to get some insight about embedded systems. This was our first experience with Raspberry Pi. This project aims on accessing sensor data from anywhere in the world. There can be many more applications of the project using different sensors like fire detection, home security etc.

References

1. https://circuitdigest.com/tutorial/getting-started-with-amazon-aws-for-iot-pro
2. https://circuitdigest.com/microcontroller-projects/publish-sensor-data-to-amazon-aws-raspberry

Acknowledgement: Course Code CSN-252, BTech II Year (CSE), Dept. of CSE
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