CPP Community Garden Meeting Note

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August 31, 2023

Overview

1. Report conceptual design.
2. Revisition AWS IoT Core Services.
3. Describe the Soil Sensors (LORA version).
4. Publish and Discuss bill of material for lab environment.
5. Establish the challenges as well as problem while implementing new tech stack.

Recape the hardware in the Project

- Problem:
  - Most of soil moisture sensors fail.
    - losing connection.
    - inconsistent of uptime.
    - can't operate in outdoor environment.
  - Soil dryness.
- Need:
  - How to detect dryness and maintain the wetness of the garden soil?
  - A type of soil sensors technology that is reliable.
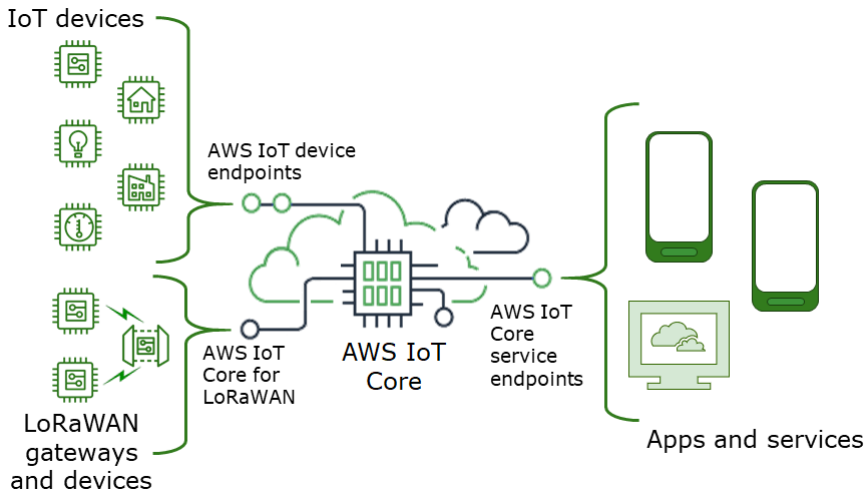
AWS with Lora and non-Lora System

IoT devices

AWS IoT device endpoints

AWS IoT Core for LoRaWAN

AWS IoT Core

AWS IoT Core service endpoints

LoRaWAN gateways and devices

Apps and services

Figure: AWS IoT Core Overview (Source: AWS)

IoT HUb

- What Software Included:
    1. AWS LoRa Basics Station - https://github.com/lorabasics/basicstation.
    2. ecowitt2mqtt - https://github.com/bachya/ecowitt2mqtt

- AWS LoRA Basic Station is used to forward lora signal to AWS IoT Core.

- ecowitt2mqtt is used to forward mqtt signal to AWS IoT Core.

Lora Moisture Sensors

- Refer for completion of the project:
  https://www.makerfabs.com/lora-soil-moisture-sensor-v3.html

Agenda (reviewed on Aug 15)

- Discuss with Melvin and Myriam regarding DIY gateway solution and Implementing AWS IoT Core
  - IoT can aggregate the signal sent from devices.
  - Address the previous of Melvin's Research on Greengrass.
    - What features we need on Greengrass?
    - Can the functions performed remotely?
- Decide the prototype for Product Demo in Fall 2023 presentation.
  - Outcome: Able to set up LORA soil moisture sensors along with AWS iot Core.

Reference

Sources

- https://docs.aws.amazon.com/iot/latest/developerguide/connect-to-iot.html LORA and Non-LORA AWS IoT Core.

- https://github.com/lorabasics/basicstation BasicStation.

- https://docs.aws.amazon.com/iot/latest/developerguide/connect-to-iot.html.

- https://www.makerfabs.com/lora-soil-moisture-sensor-v3.html.