

CPP Community Garden Meeting Note

An Pham

Calpoly Pomona

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Overview

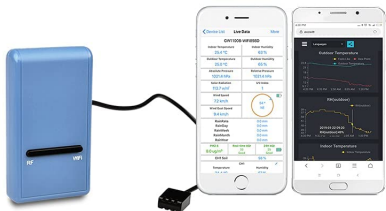
- ➊ Revisit the new sensor kit.
- ➋ Analyze LORAWAN compared to ECOWITT set up.
- ➌ Trade study for irrigation system.
- ➍ Continue work needed.

Ecowitt Sensors Kit

- Objectives: Build Remote sensing and Remote Imaging Solution
- Success Criteria:
 - ▶ Easy to deploy / Cost effective.
 - ▶ Set up one time and let it be.
 - ▶ Wifi compatibility.
 - ★ Mounting on rooftop.
 - ★ Mounting on tree.
- Limitation:
 - ▶ Require 2.4gz bandwidth (set up router to run in this mode).
 - ▶ Wifi Router is required.

Ecowitt Sensors Kit Cont.

Wi-Fi Weather Sensor Series



Works with the following weather sensors(all sold separately):



WH32

Outdoor
Temp & Humidity Sensor



WS68

Wireless Anemometer



WH40

Rain Gauge Sensor



WH31

Multi-Channel
Temp & Humidity Sensor



WH41/WH45

Air Quality Sensor



WH51

Soil Moisture Sensor

Ecowitt Sensors Kit Cont.

SELF-EMPTYING RAIN COLLECTOR

100M/300FEET WIRELESS TRANSMISSION RANGE



How to configure for AWS cloud?

- Getting JSON data directly via ecowitt website (Gateway)
 - ▶ Configure the device to upload the data to ECowitt Server.
 - ▶ Then, fetch the data or make an API call (lambda function) to produce the data for dynamoDB.
- Send the sensors data to a mini server and convert it to mqtt. Refer source:
<https://github.com/bachya/ecowitt2mqtt>
- Refer source: <https://www.cougar.eu.com/useful-guides/weewx-guides/raspberry-pi/add-ecowitt/index.html>
Raspberry Pi Guide

LORAWAN

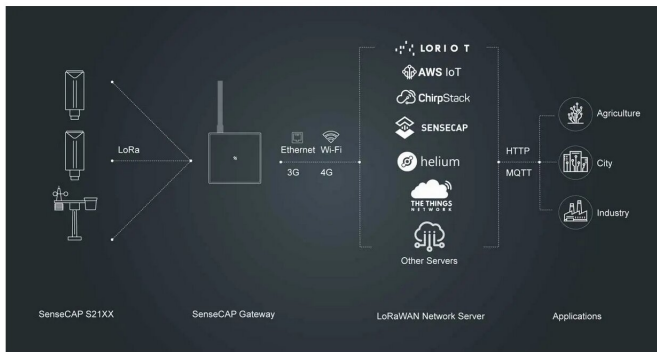
Why?

- Arduino compatible and Raspberry Pi Compatible
- Radio Technology (LORAWAN vs Wifi).
- LORA + WAN (cover up to 3 kilometers).
- LoRA gateway (for soil moisture, rain sensor, and light sensors).
- How to build one?
 - ▶ Purchase the add-on hat for raspberry pi 4
 - ▶ Convert it to LORAWAN internet gateway.

LoRaWAN Gateway Module



LoRaWAN Gateway Module



LoRaWAN Gateway Module

LoRaWAN Pump Control

Features

- ✓ Long range wireless, battery operated LoRaWAN valve
- ✓ **Solenoid** or **Motorized** valve technologies
- ✓ "Smart" operations: pulse counting, shut-off based on Digital Inputs change or counter value, time-controlled Open/Close, etc.
- ✓ Ultra-low consumption (10+ years autonomy)
- ✓ Fraud resistant with tamper
- ✓ License free operation on EU868 (Europe, Middle East) – US915 (North & South America/Australia) – AU915 (South America/Australia), AS923 (-1, -2, -3, -4) and IN865 (India – Class A only)
- ✓ IoT ready (compliant with all Internet of Things platforms)
- ✓ DN10 (3/8") to DN80 (3") – bigger valve sizes using add-on board
- ✓ Bi-directional deep indoor communication
- ✓ Industrial grade (PN25, IP67, fluid up to 140°C/60°F...)
- ✓ Extreme range links: 15+ km/10+ mi. in LOS – 2+ km/1+ mi. in urban areas – 22+ floors inside buildings
- ✓ Available with minimal flow in close position (trickle of 50L/h) and "slow closing" edition
- ✓ Android/iOS mobile App



Help Needed

- Install wifi for new sensor.
- Configure sensor for http request.
- Mount the equipment.

Reference

Sources

- https://www.youtube.com/watch?v=ciL0M0tm50A&t=118s&ab_channel=MilesightIoTLORAWAN
- https://wiki.seeedstudio.com/WM1302_Pi_HAT/Pi_HAT