

# CPP Community Garden Meeting Note

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# Overview

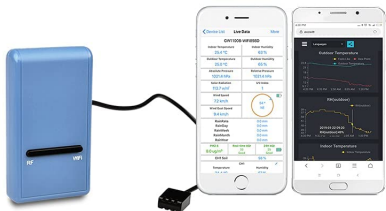
- ➊ Revisit the new sensor kit.
- ➋ Analyze LORAWAN compared to ECOWITT set up.
- ➌ Trade study for irrigation system.
- ➍ Continue work needed.

# 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/ecowitt2mqttecowitt-to-mqtt>
- Refer source: <https://www.cougar.eu.com/useful-guides/weewx-guides/raspberry-pi/add-ecowitt/index.html>  
Raspberry Pi Guide

# LORAWAN

Why?

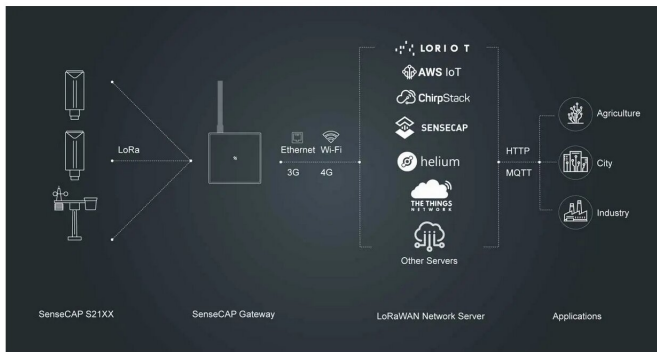
- Arduino compatible and Raspberry Pi Compatible
- Radio Technology (LORAWAN vs Wifi).
- LORA + WAN (cover up to 3 kilometers).
- LoRA gateway (for soil moisture, rain sensor, and light sensors).
- How to build one?
  - ▶ Purchase the add-on hat for raspberry pi 4
  - ▶ Convert it to LORAWAN internet 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://www.youtube.com/watch?v=ciL0M0tm50A&t=118s&ab_channel=MilesightIoTLORAWAN)
- [https://wiki.seeedstudio.com/WM1302\\_Pi\\_HAT/Pi\\_HAT](https://wiki.seeedstudio.com/WM1302_Pi_HAT/Pi_HAT)