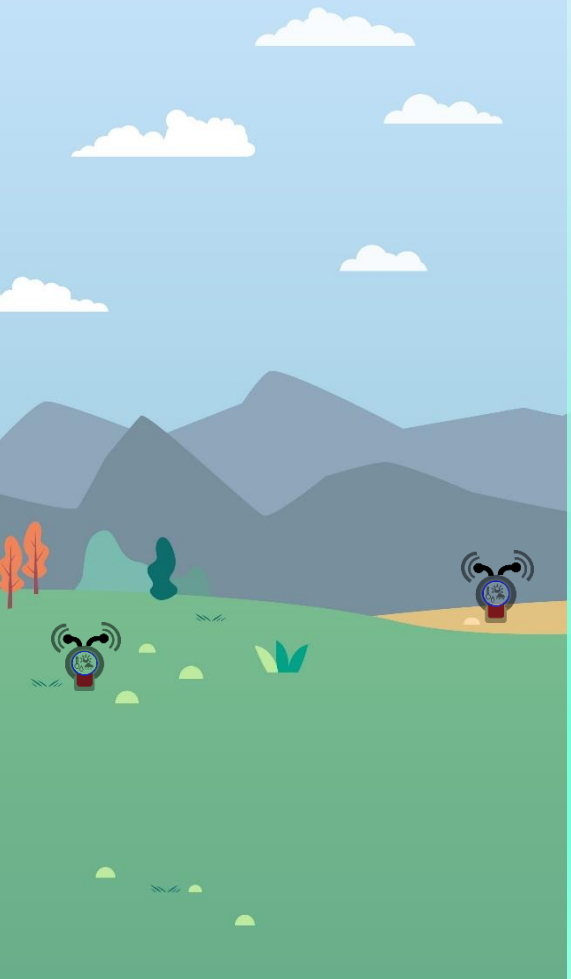

# IoT Smart Farm using Open-Platform WiMaRC System

## Wireless Sensor Network for Management and remote Control


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NECTEC a member of NSTDA

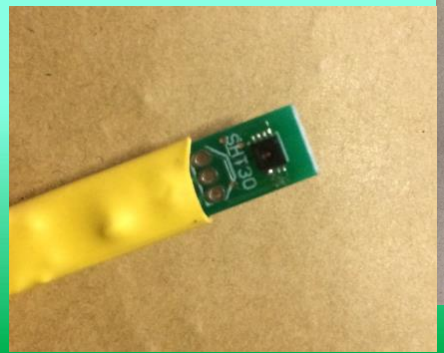
สวทช NSTDA

# Design Concept

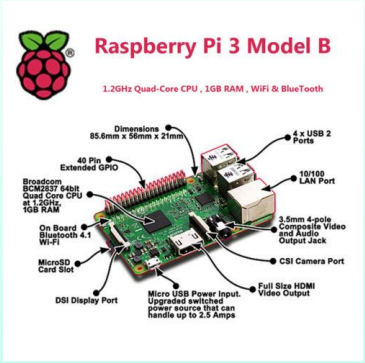
- High Reliability(7/24) ← Handshake, Load Balance
- OTA (over the air) update ← Online buffer
- Low Investment Cost (from 30-100 US dollar) ← Open source Hardware & Software
- Low Maintenance (once per year)
- Low Operation Cost (less than 10 US dollar/year) ← Low online traffic
- Self development ← Open source software

# Sensors for Agriculture

- Temp & Humid Sensor
- Soil Moisture Sensor
- Light Intensity Sensor
- Pressure Sensor
- CO2 Gas Sensor
- Conductivity Sensor
- pH Sensor



# Sensor Network System: Gateway




**Sensors Analog Output : 0-5V**

**Sensors Analog Output : 4-20mA**

**Sensors Digital output**

Data Acquisition Board

**RF receiver**
**LORA**
**ARDUINO**

RS232

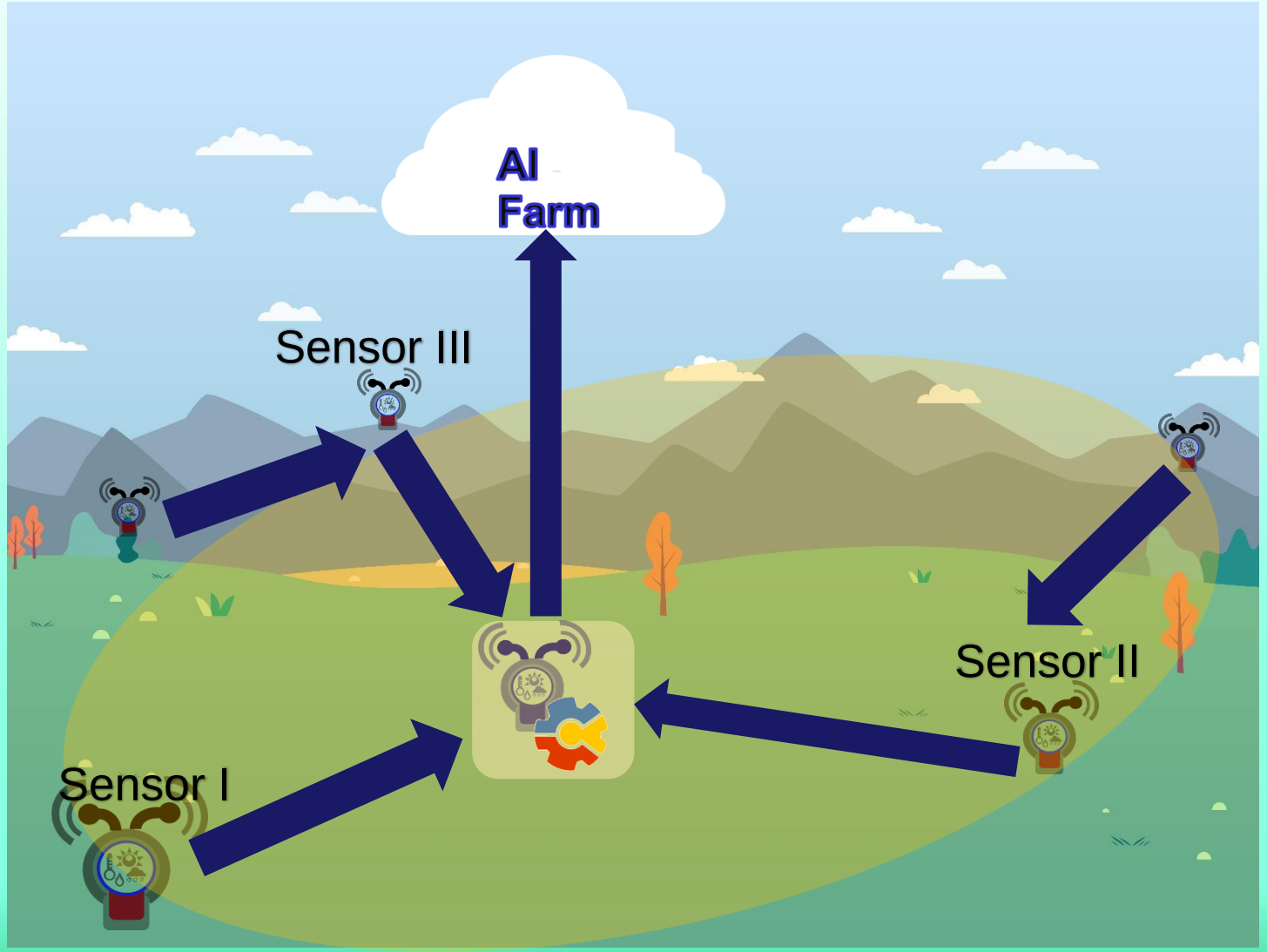
Singleboard Computer **Raspberry Pi**

10 or15 min.

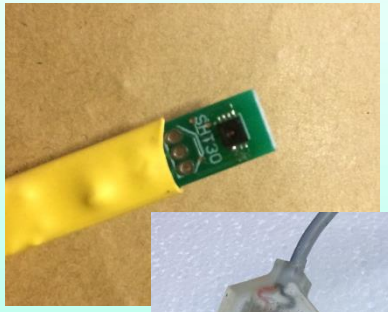
Cloud Server

Working Period: always

# Wireless Sensor Network in open Field



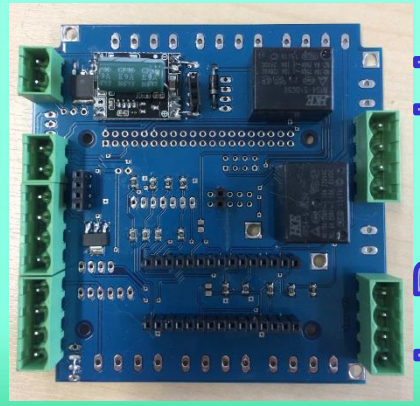
# Master Node



Up to 8 sensors

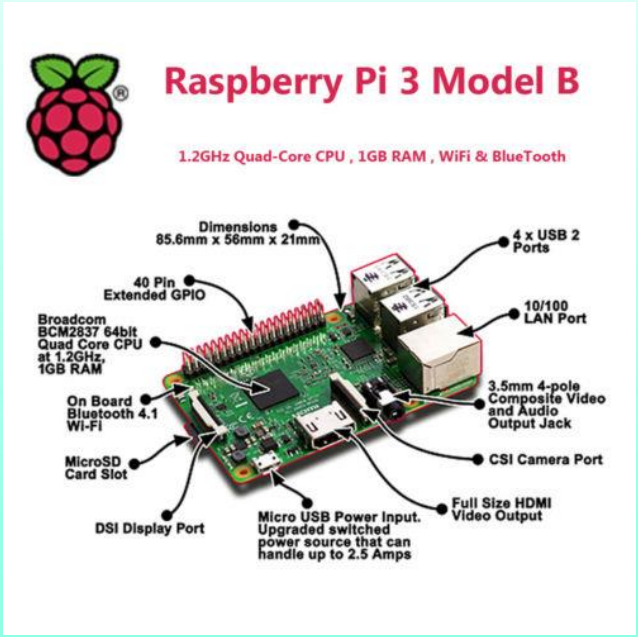
Data Acquisition Board

RF module



-LoRa module

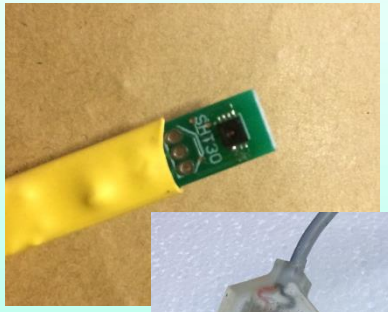
Gateway




## Raspberry Pi

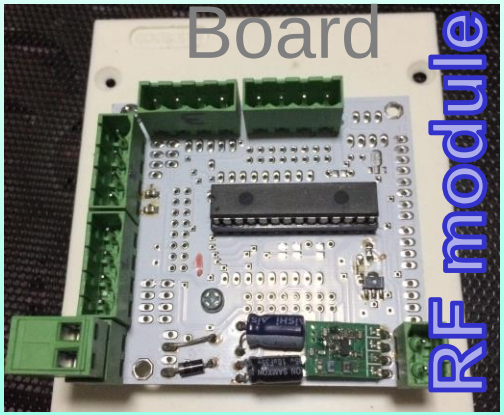
- NETPIE
- Local Database
- FTP

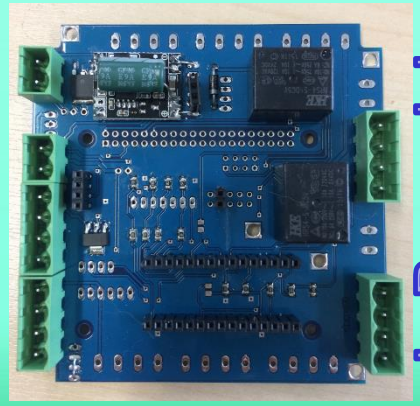
# Client Node




Up to 8 sensors

Data Acquisition Board



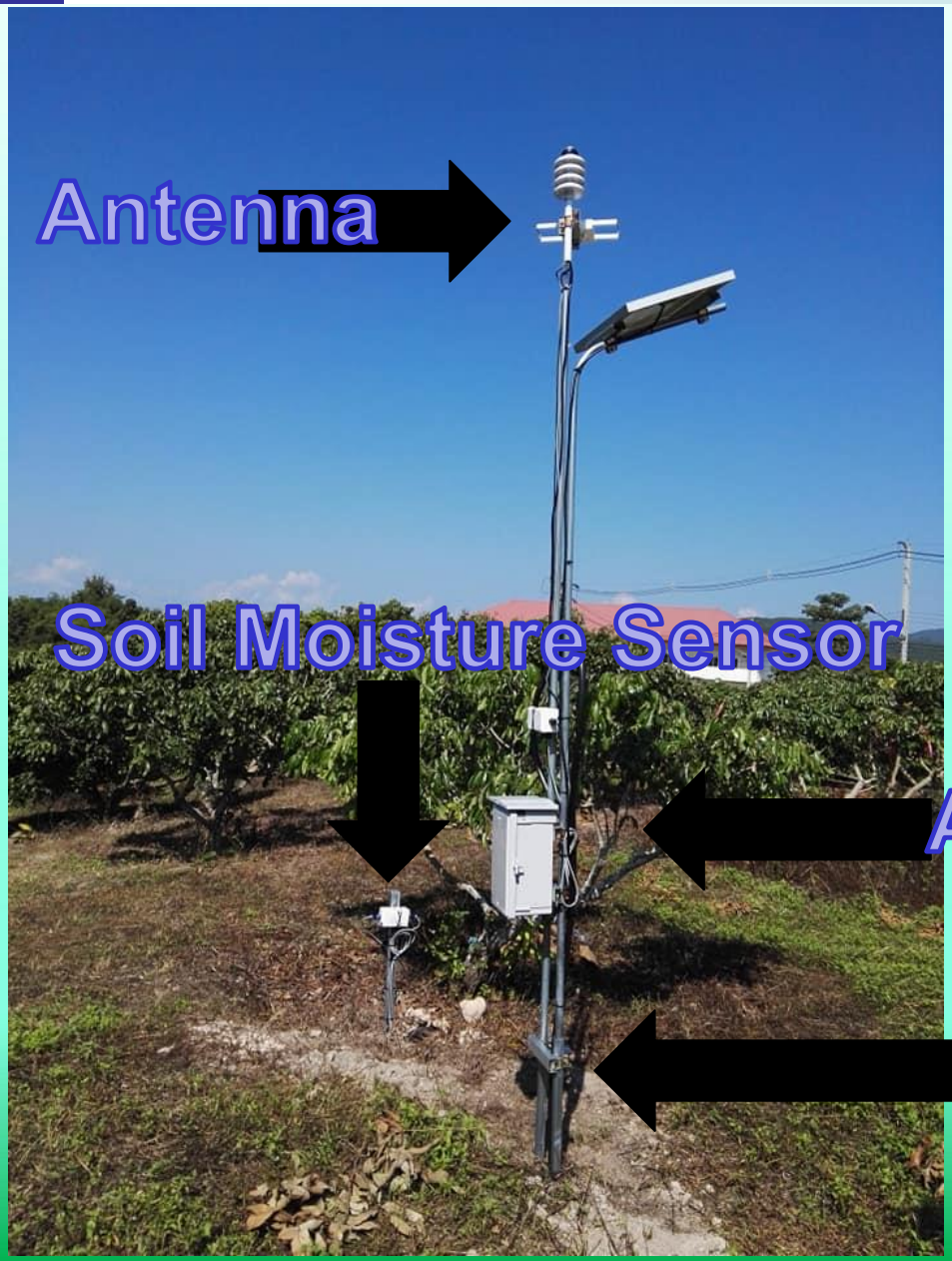




Gateway/option

# MaejoLORA

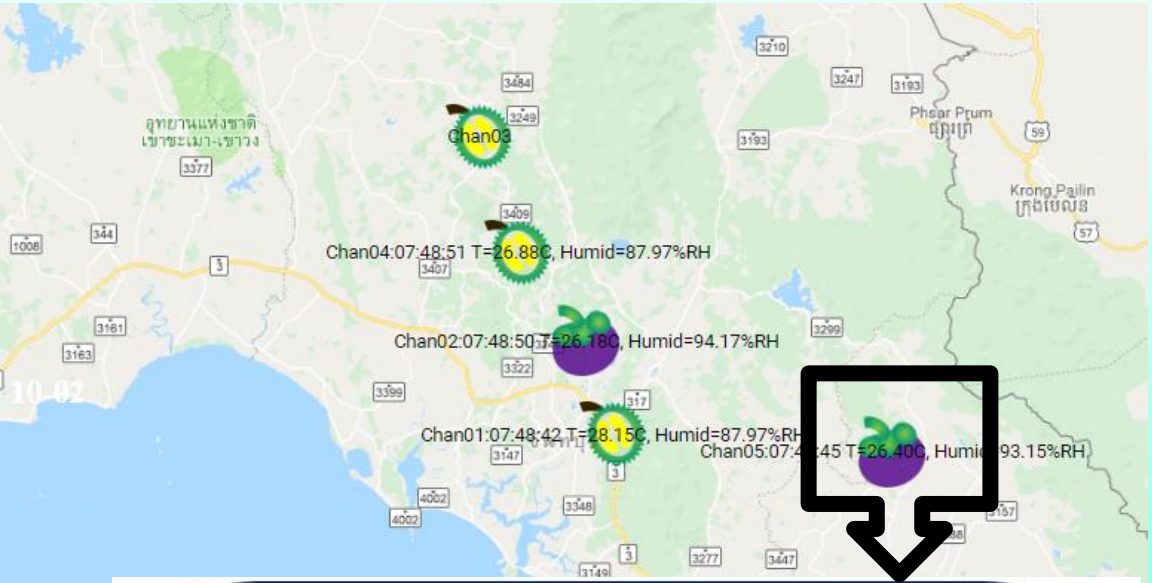
# Master Node Open Field Installation

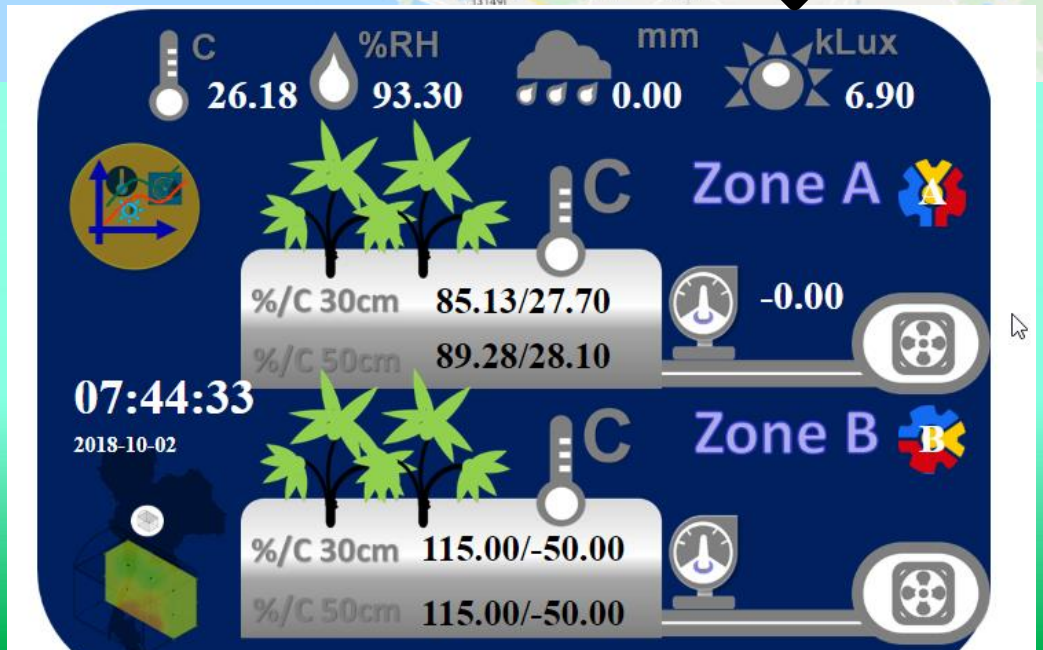
# Client Node Open Field Installation



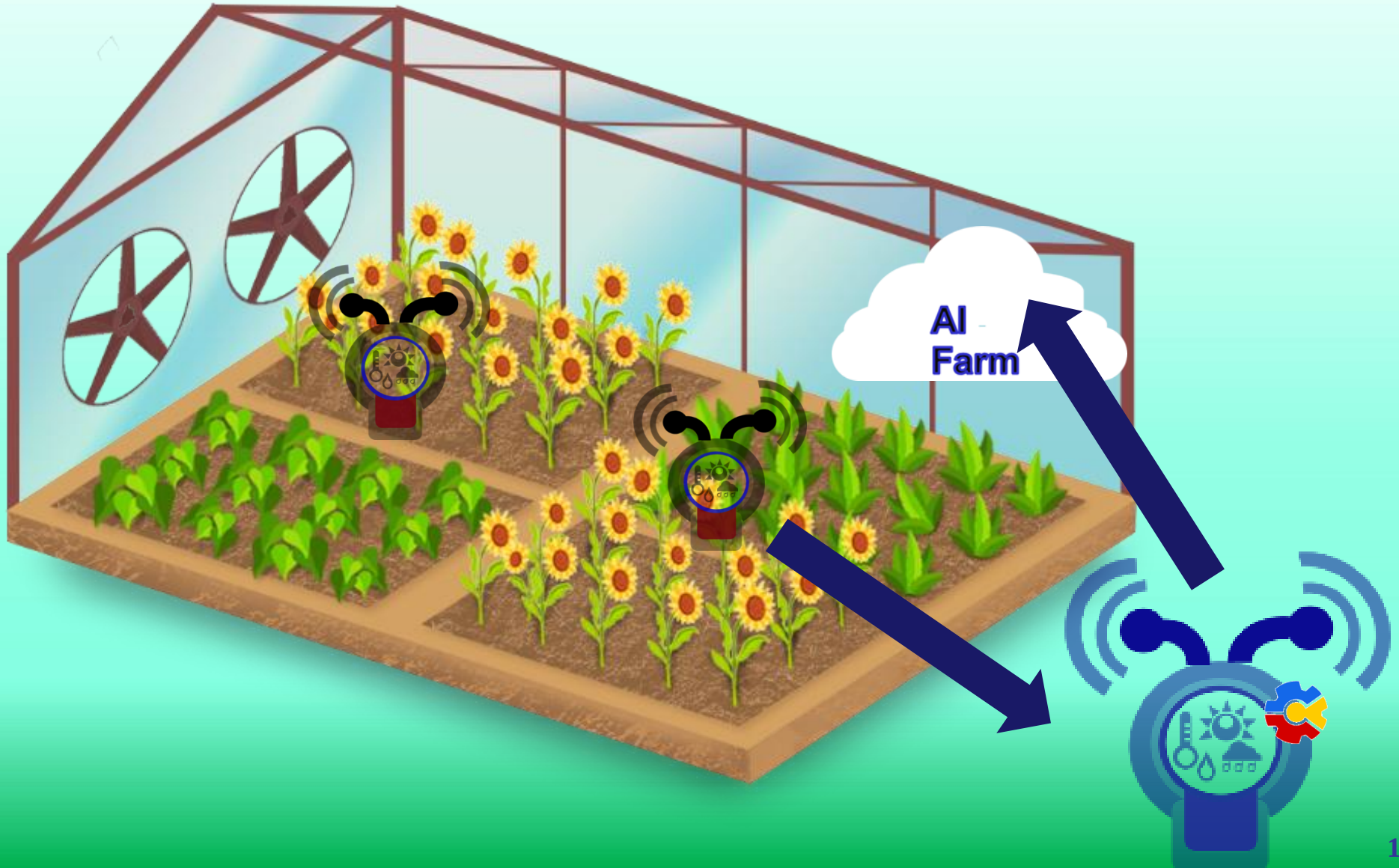


# Open Field System



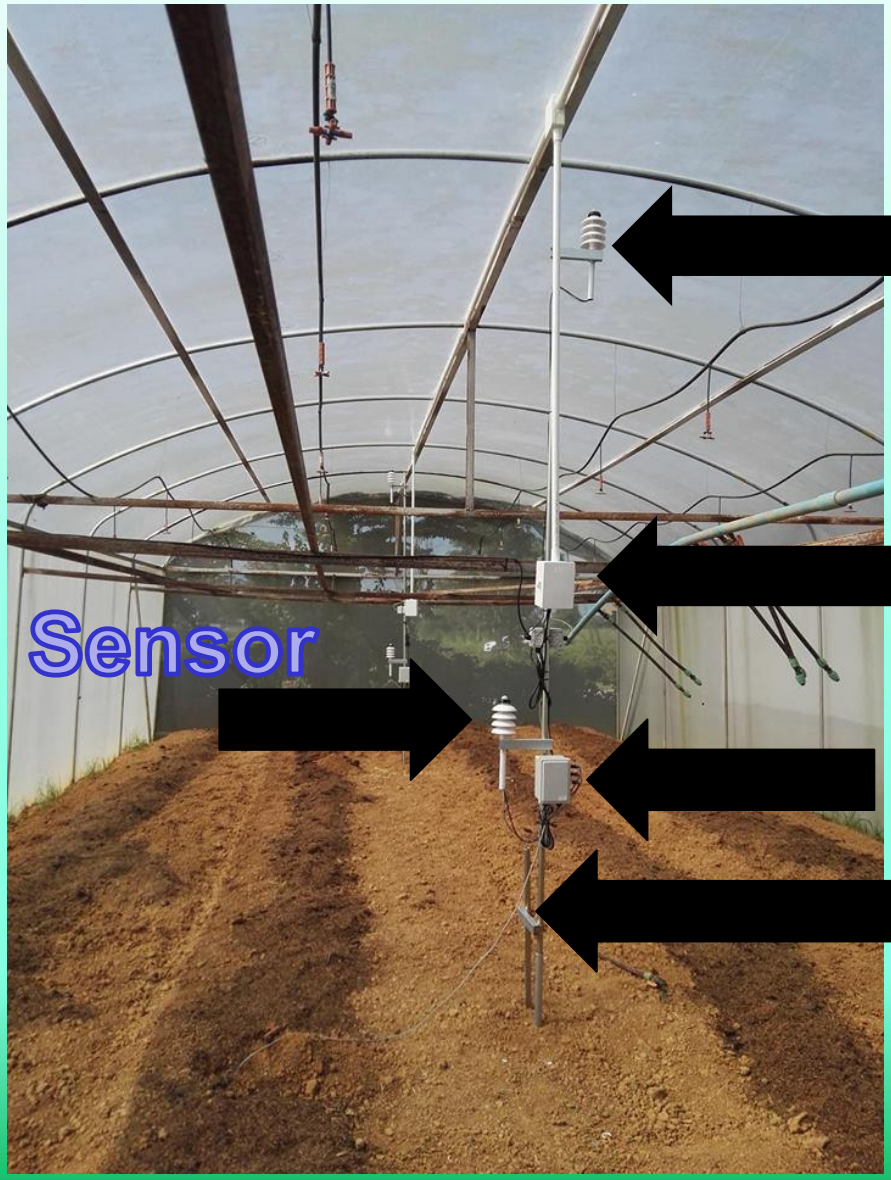



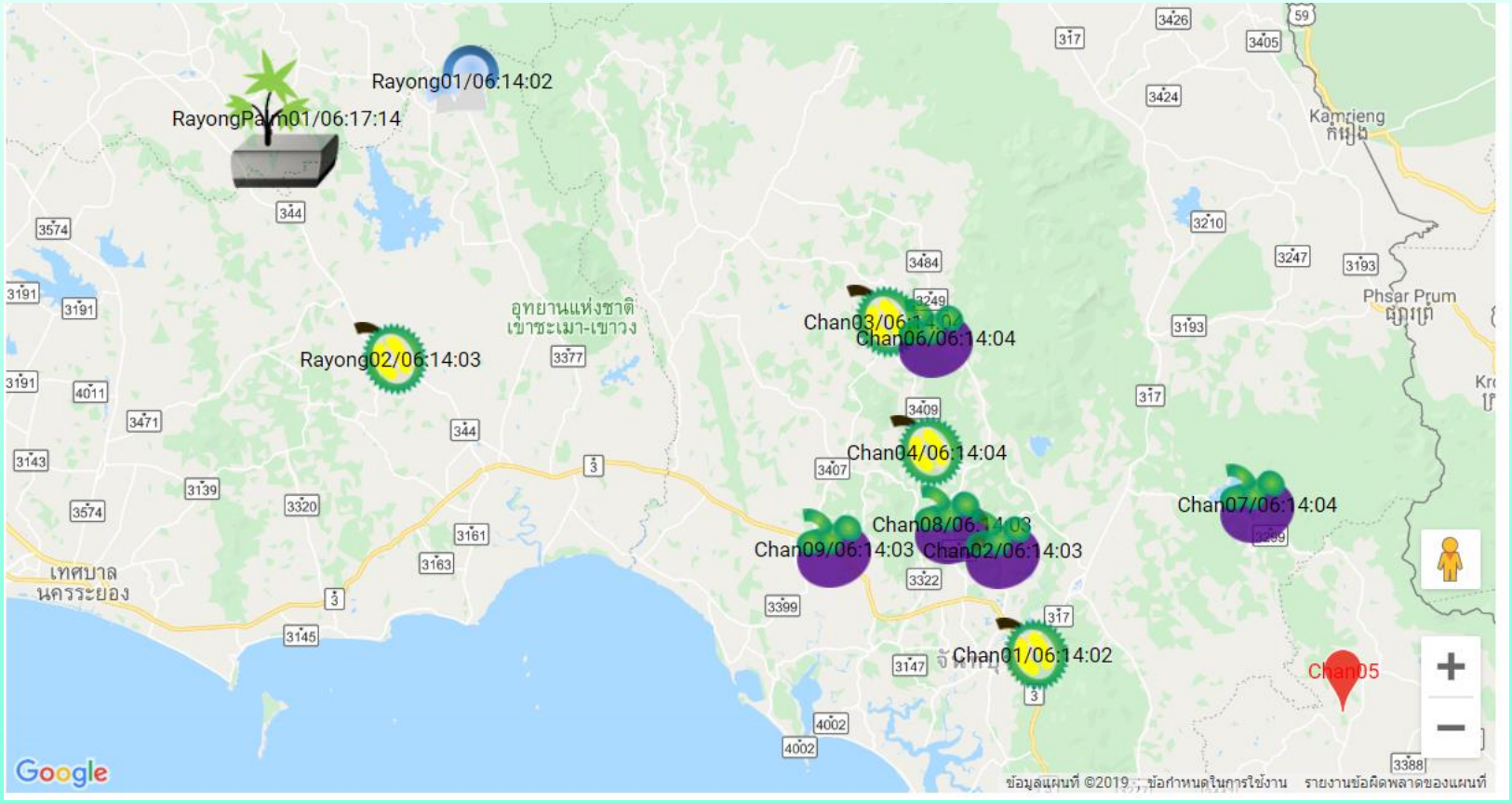

# Wireless Sensor Network in Greenhouse



# Master Node Greenhouse Installation

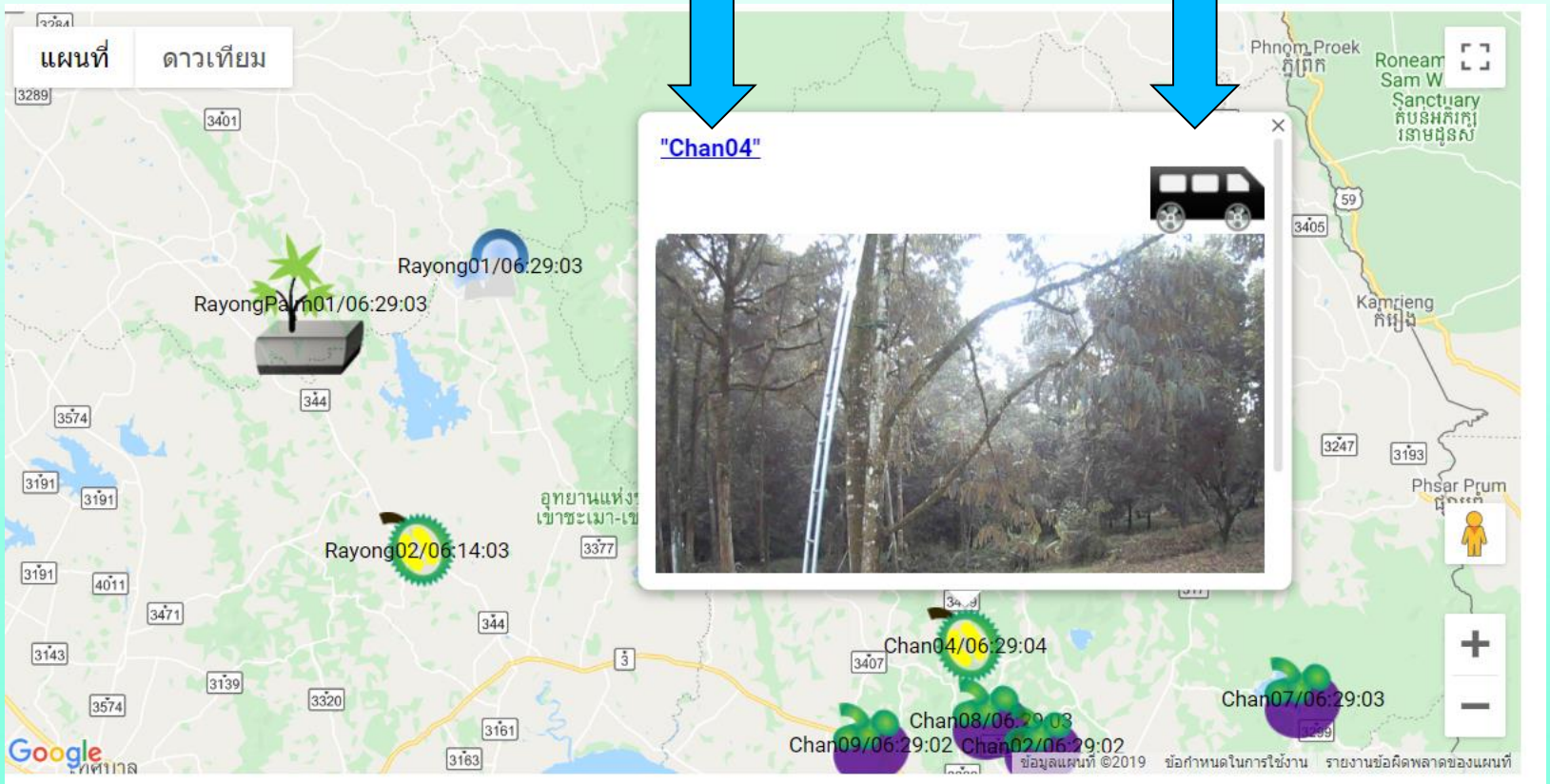
# Client Node Greenhouse Installation






http://203.150.37.159/YSF/NETPIE

# ชื่อสวน เส้นทางไป



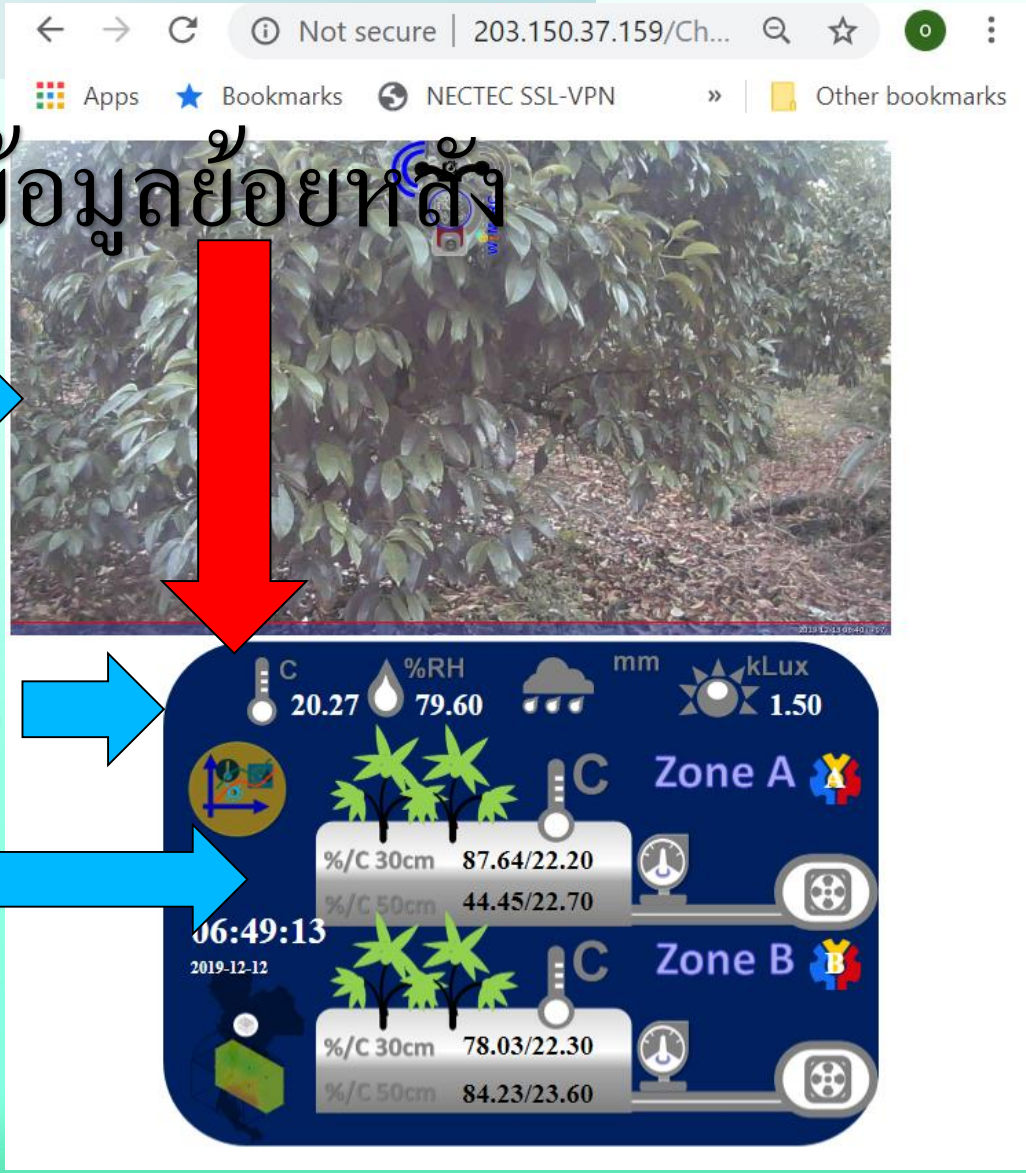

http://203.150.37.159/YSF/NETPIE

# ข้อมูลย้อยหลัง

ภาพจากสวน

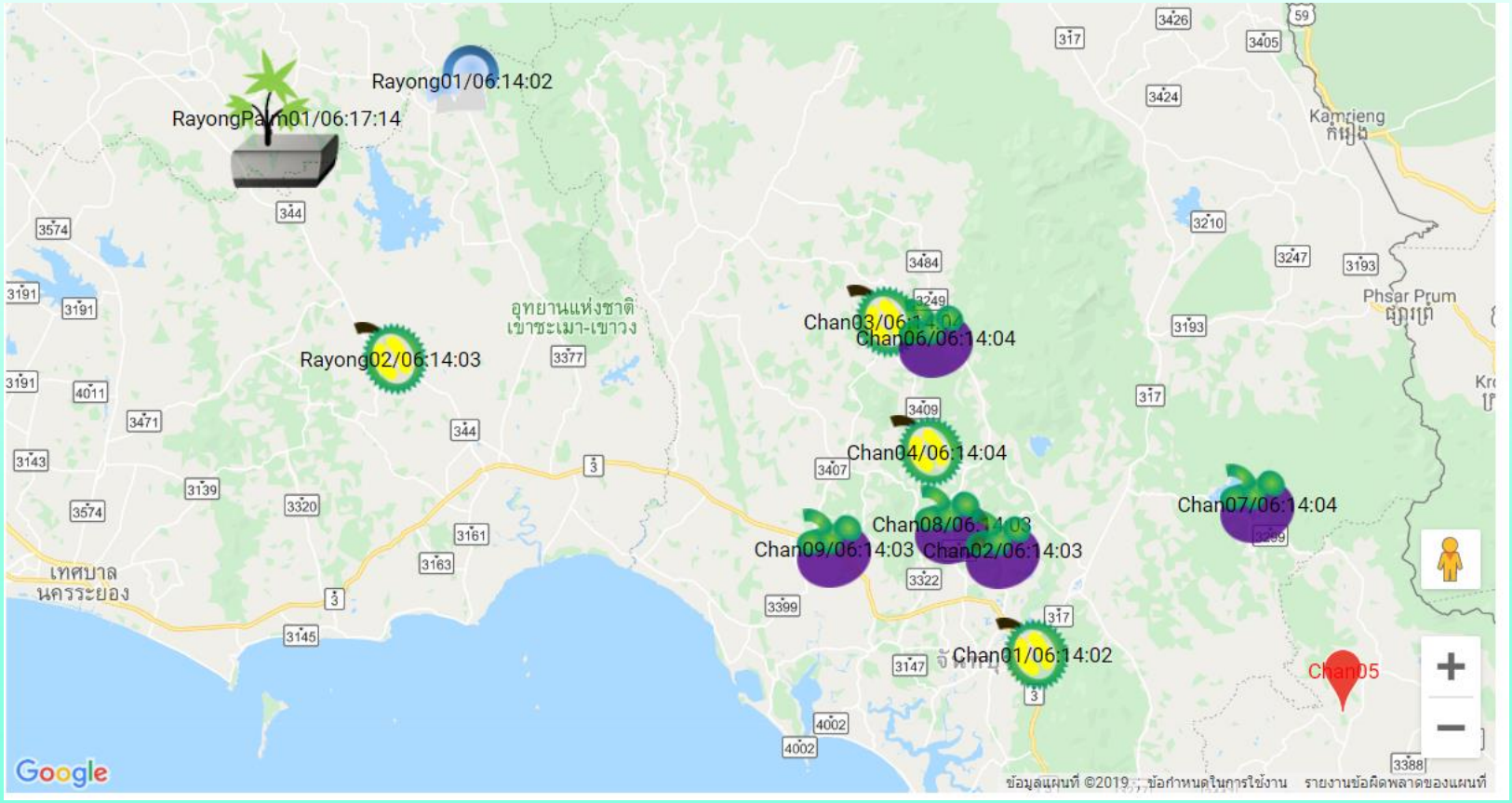
สภาวะแวดล้อมในสวน

ความชื้นดิน



# เลือกช่วงเวลา

# ขอชื่อสวน ขอ logo

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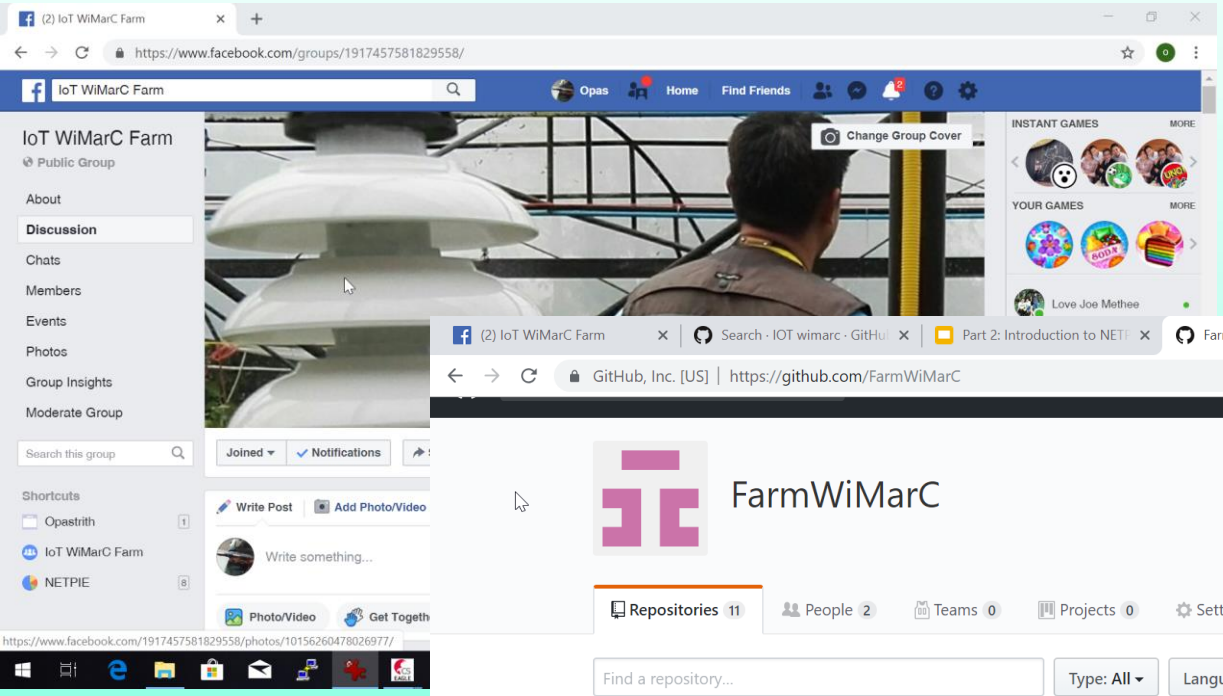


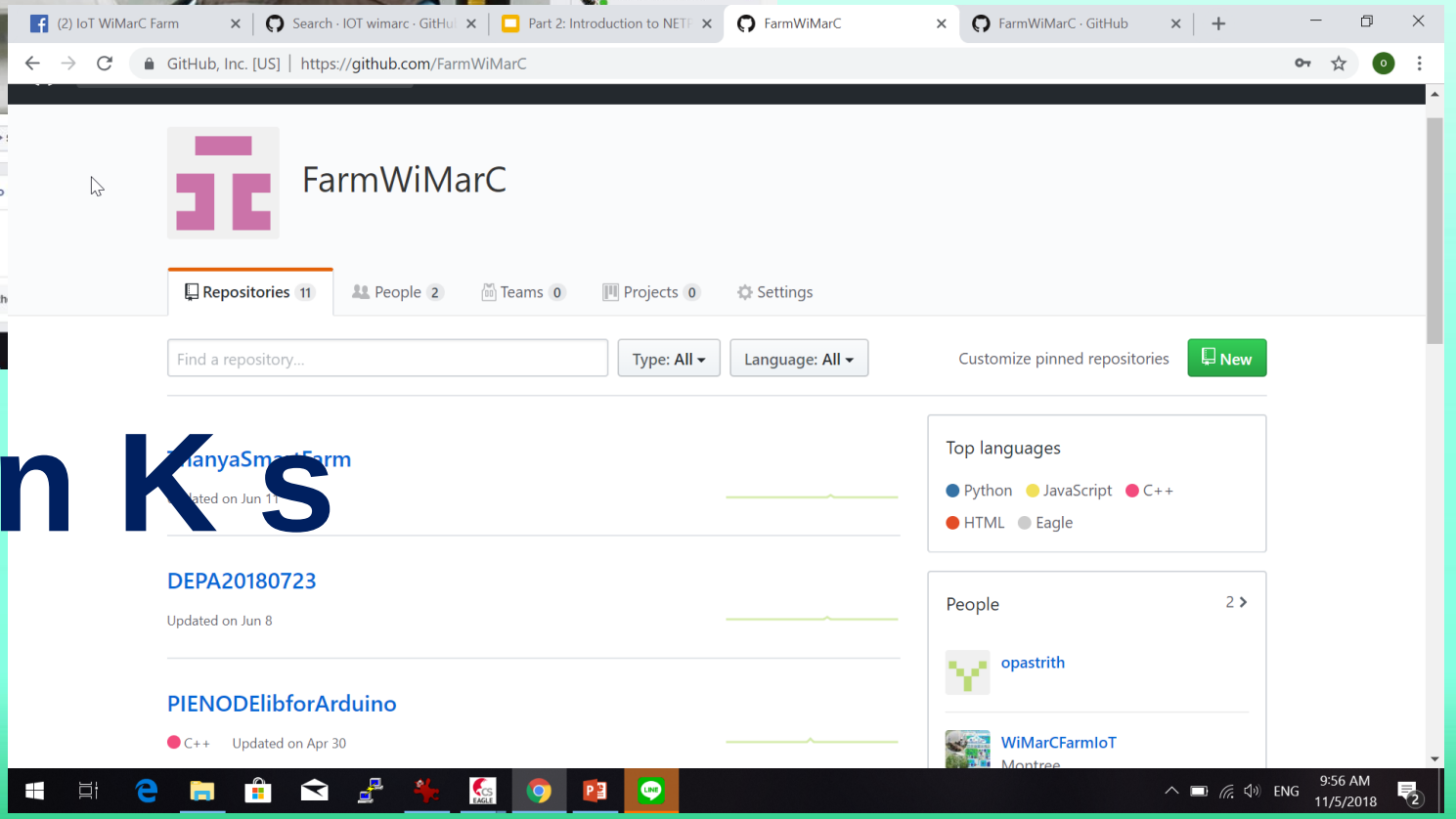


# Thanks

opas.trithaveesak@nectec.or.th