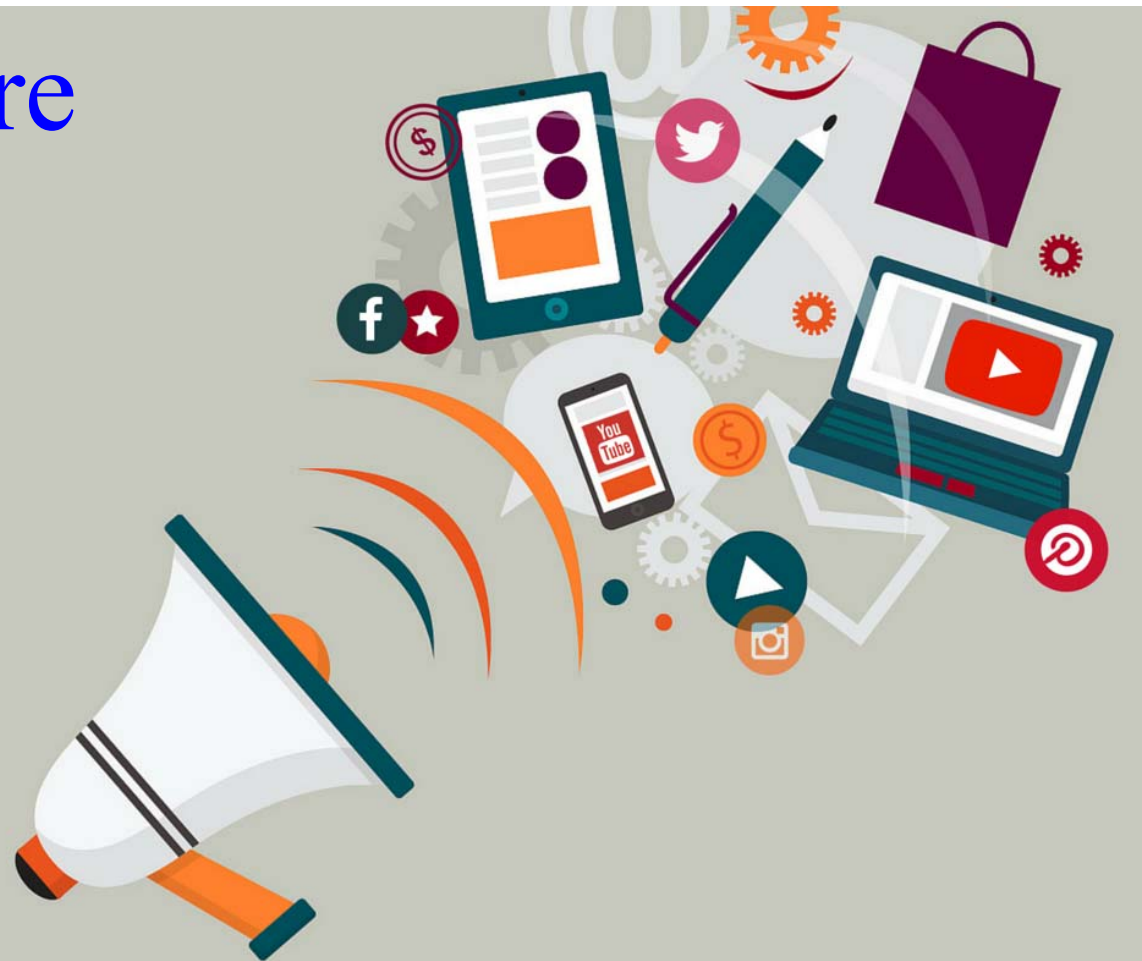
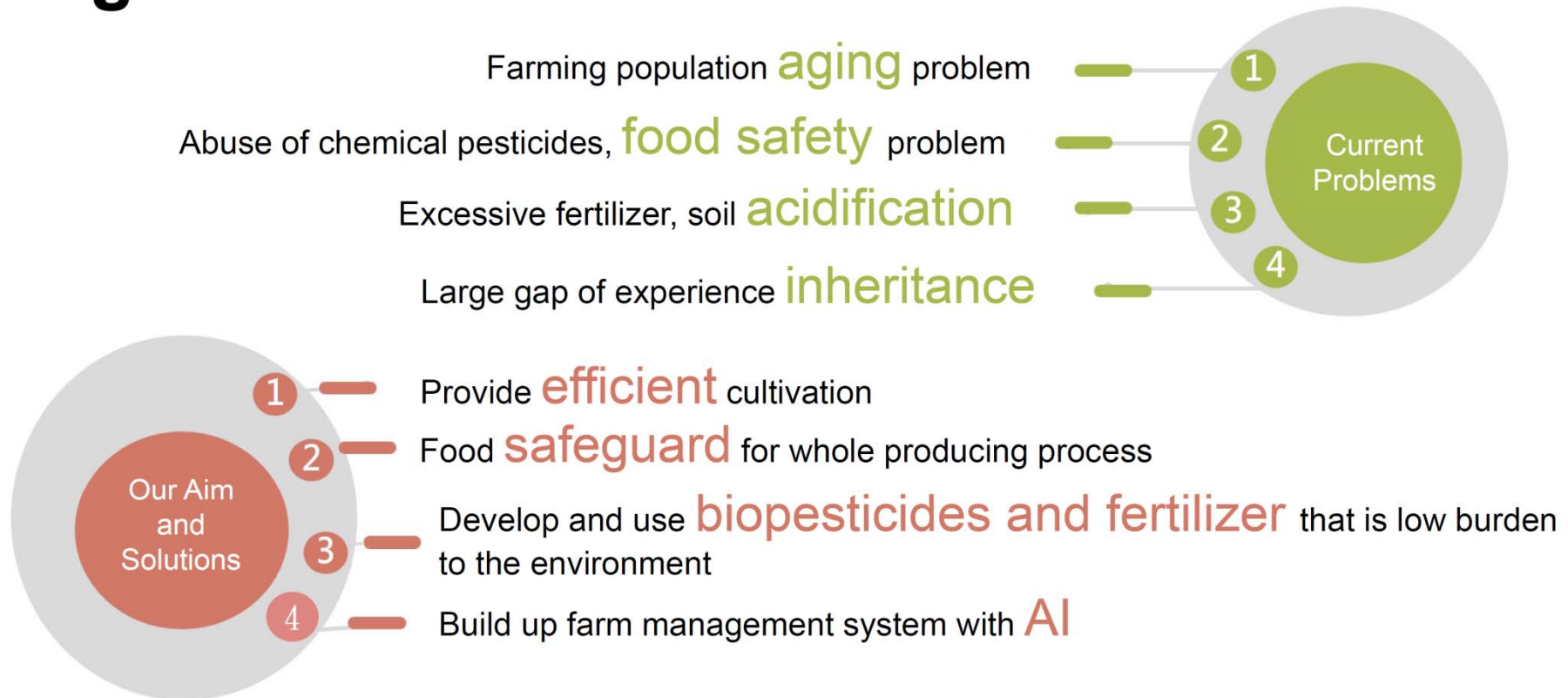


Smart Agriculture

Dr. Yun-Wei Lin



Agricultural Problems



Total Solution - AgriTalk and 4 Regulation System



AgriTalk Platform



Pest Regulation



Disease Regulation



Irrigation Regulation



Soil Microbiome
& Fertility

AgriTalk - Platform that integrate all

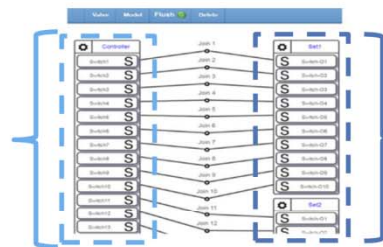


Sensors



Environmental data dashboard

Receive & Diagnosis



AgriTalk



Action



Spray



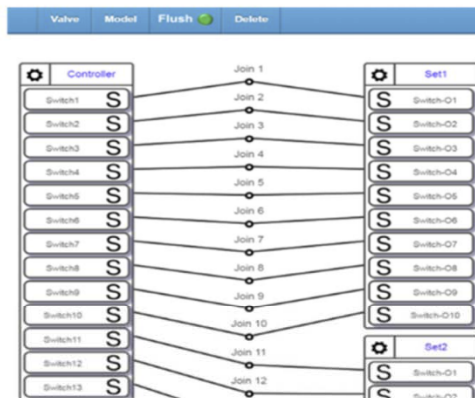
Fertilize



Irrigate

4 Regulation Systems – PDIM

4 AI for Agriculture



AgriTalk

P_{est} Regulation



Environmental data



Model Analysis



Pest distribution



D_{isease} Regulation



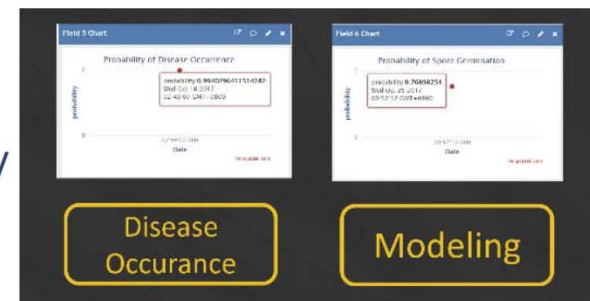
Prediction model



Occurrence probability

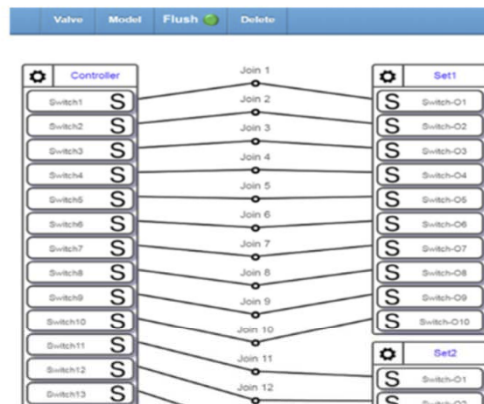


Prevention action



4 Regulation Systems – PDIM

4 AI for Agriculture



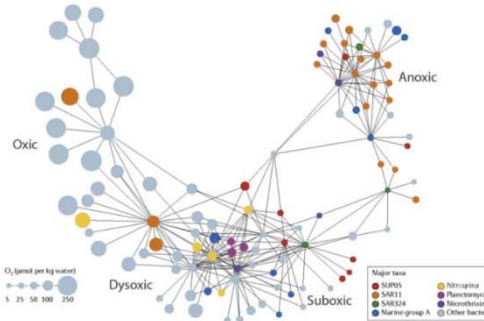
AgriTalk

Irrigation Regulation



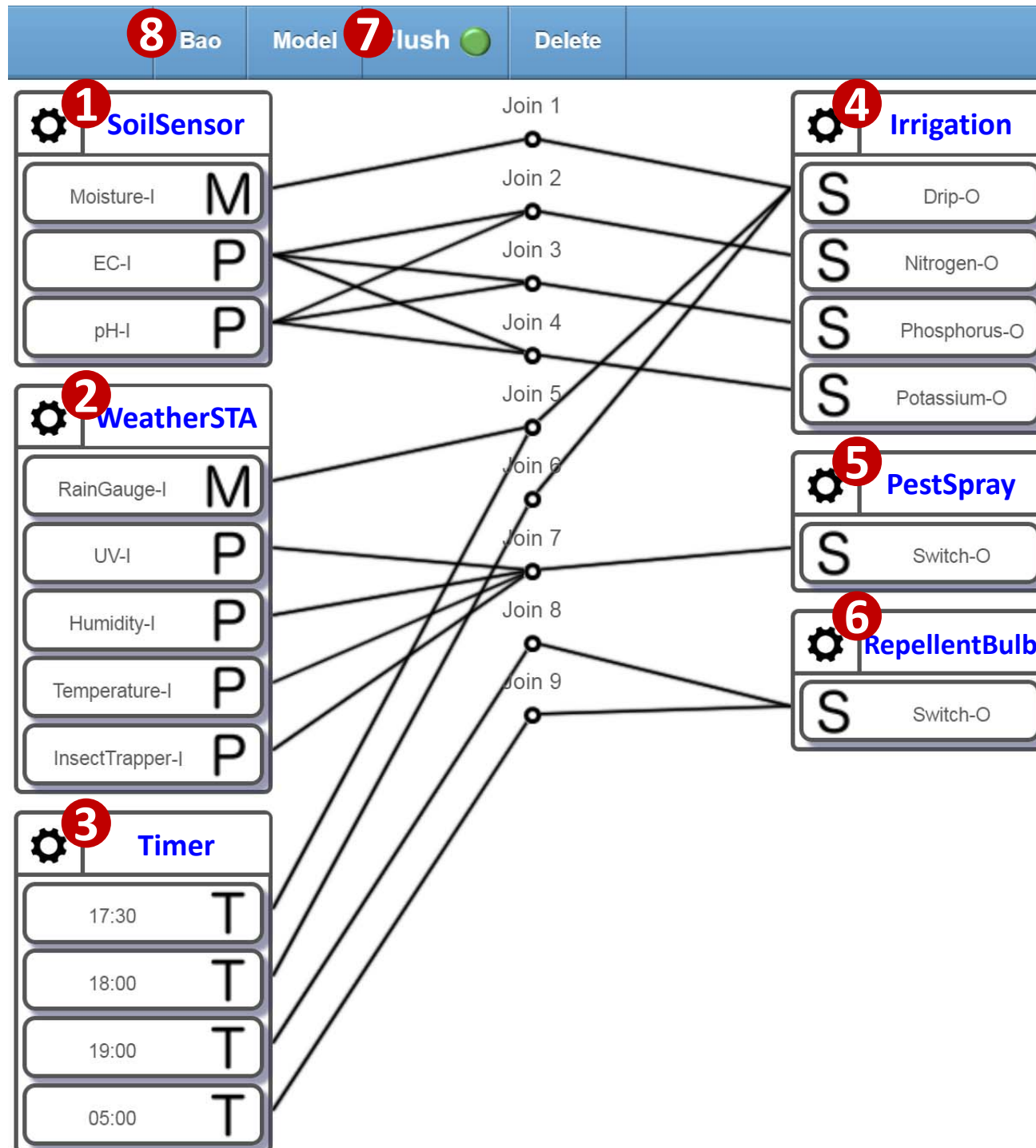
- ✓ Water saving 80%
- ✓ Precise irrigation
- ✓ Water & Fertilizer Integration

Microbiome & Fertility Regulation

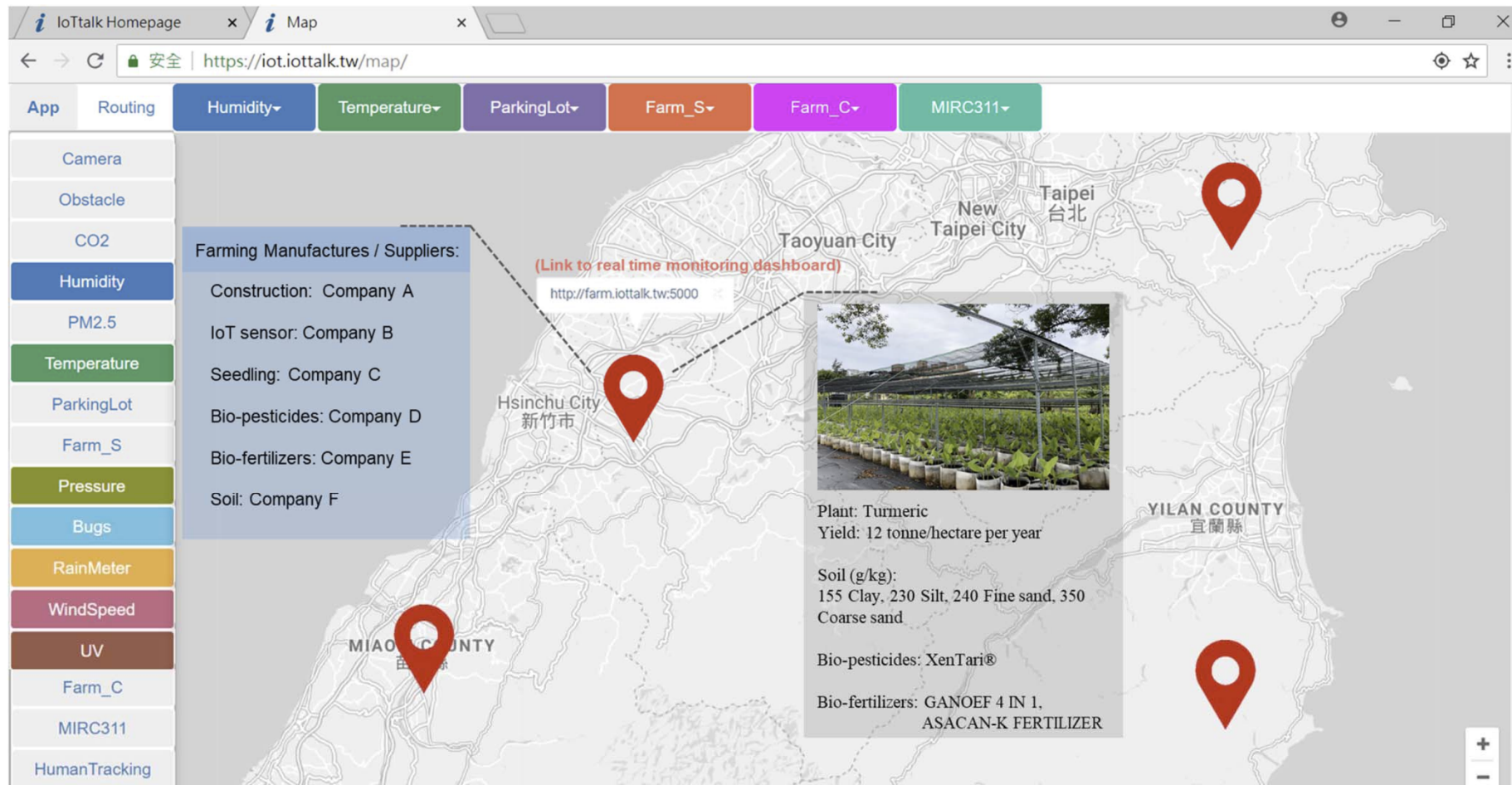


Regulation network

- ✓ Yield prediction
- ✓ High quality of crops



GIS System - Easy management on the map

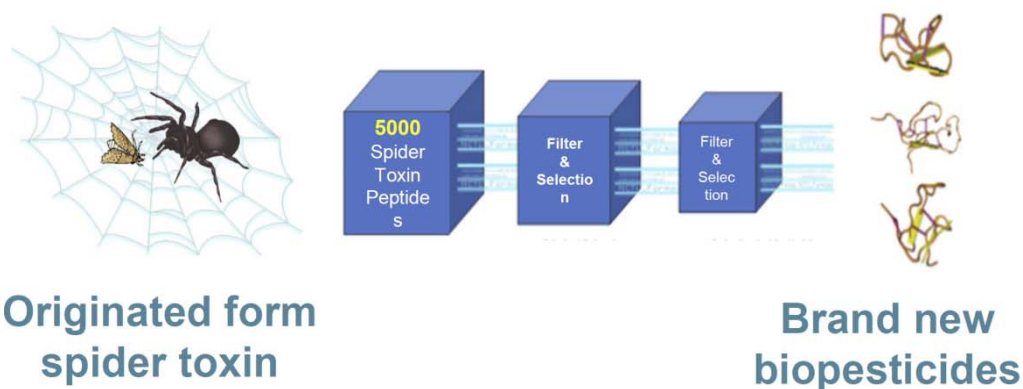




Biopesticides (Pantide)

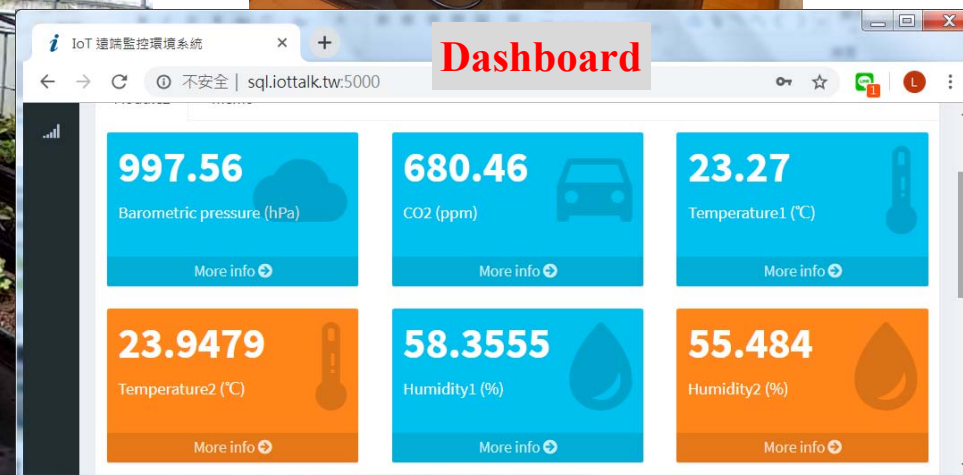
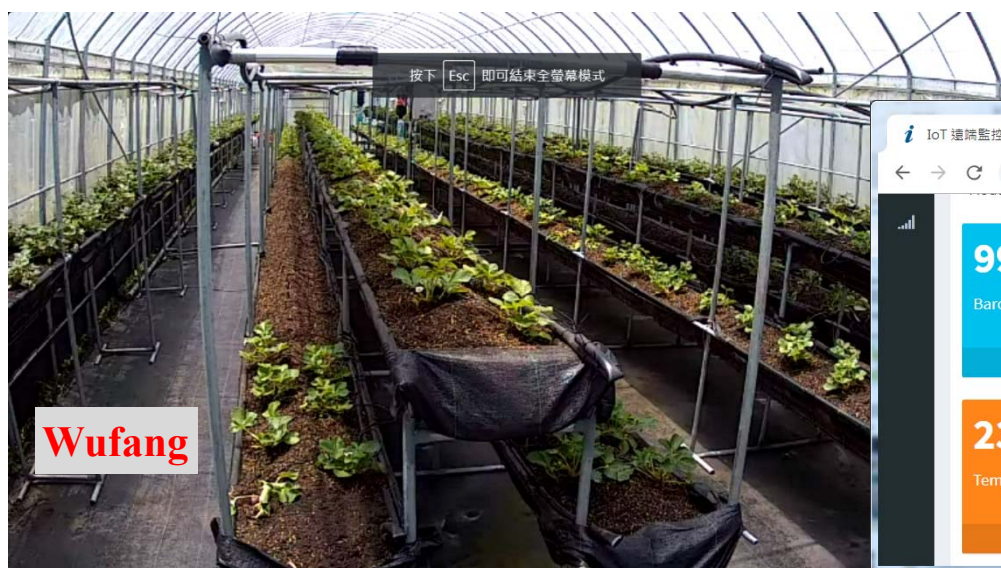
Advantages

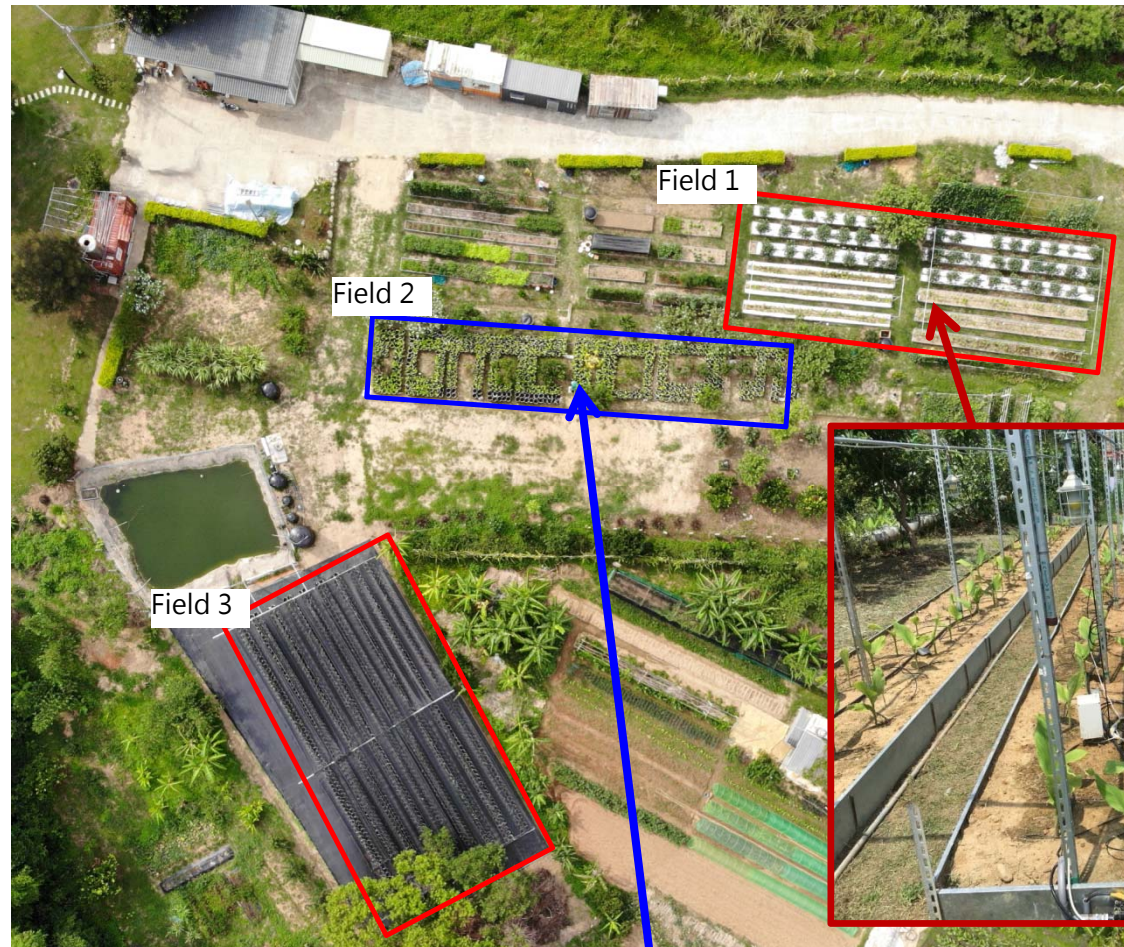
- 1 Non-toxic to mammals and pollinators
- 2 Eco-friendly
- 3 High specificity to pests
- 4 Low drug resistant



Representative Pests	Scientific Order	Pest Examples
	Lepidoptera	<i>Tineola bisselliella</i> <i>Sitotroga cerealella</i> <i>Synanthedon exitiosa</i>
	Diptera	<i>Tabanidae</i> <i>Tephritidae</i> <i>Muscidae</i>
	Orthoptera	<i>Tettigoniidae</i> <i>Gryllidae</i> <i>Acrididae</i>
	Coleoptera	<i>Carabidae</i> <i>Gyrinidae</i> <i>Scarabaeidae</i>

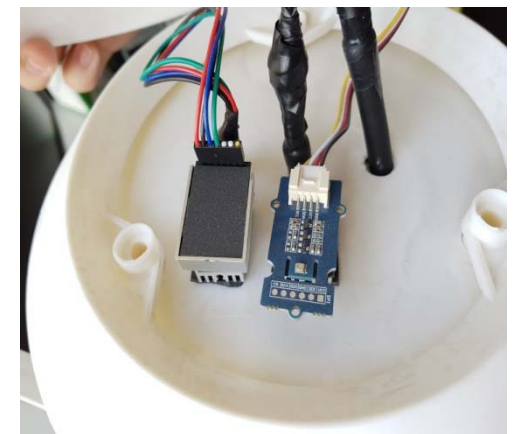
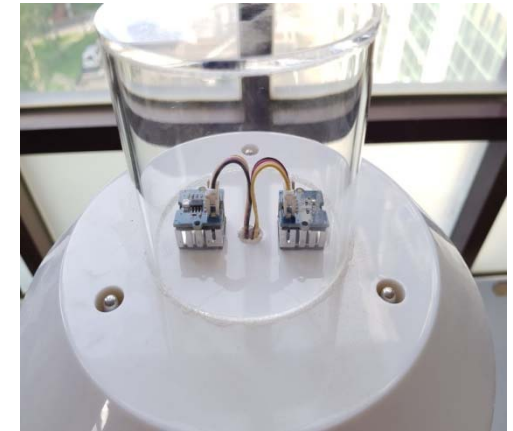
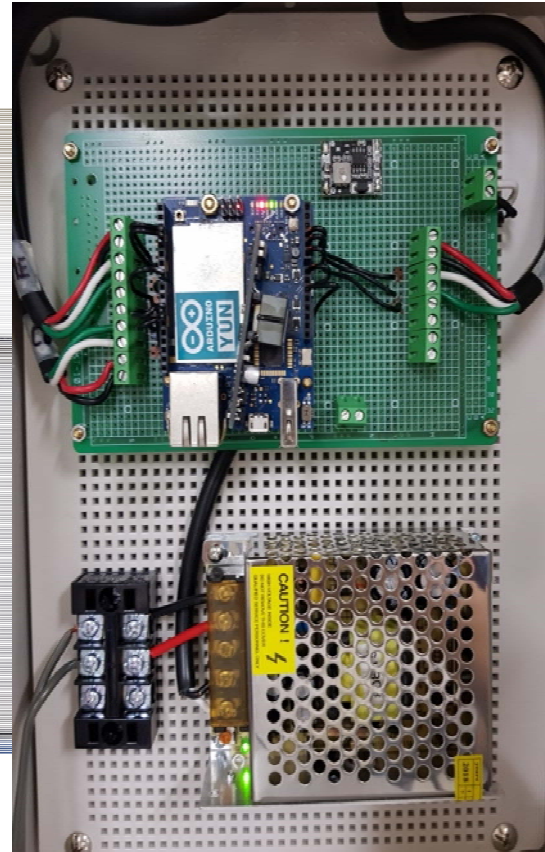
ArgiTalk Farm







微氣象站

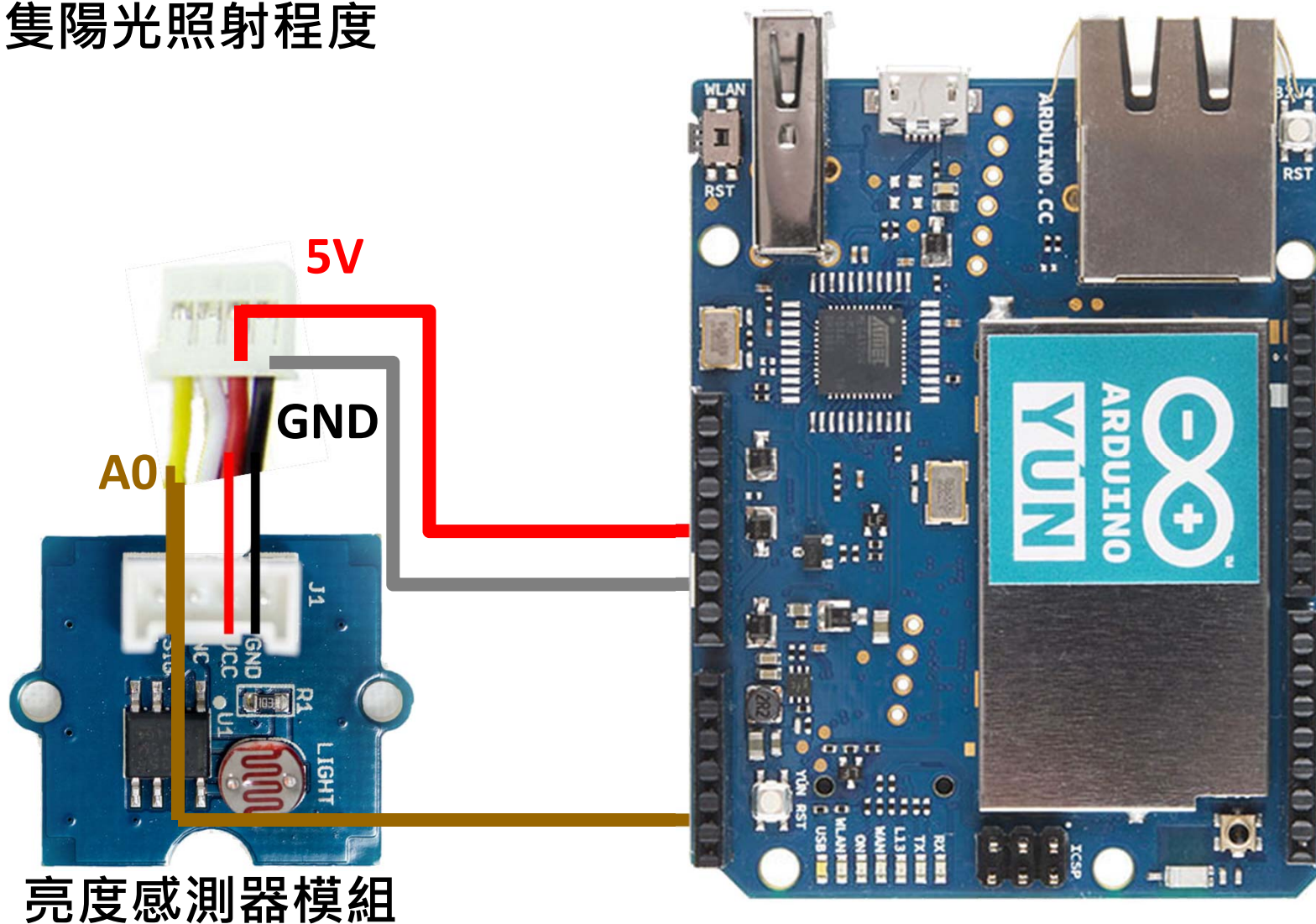


Micro Weather Station

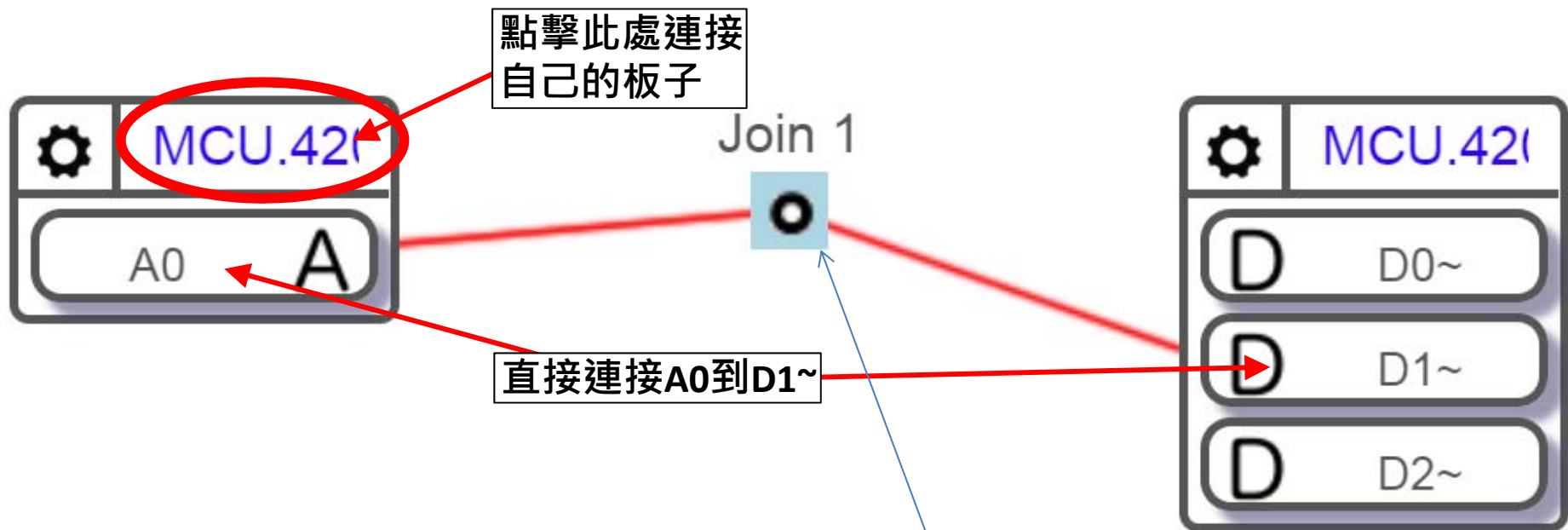
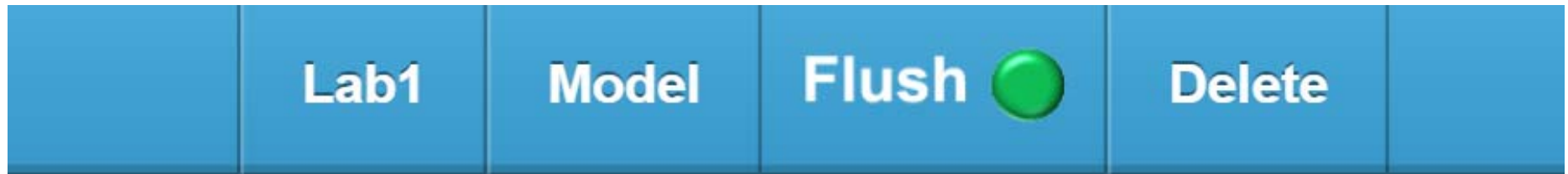


以亮度感測器為例

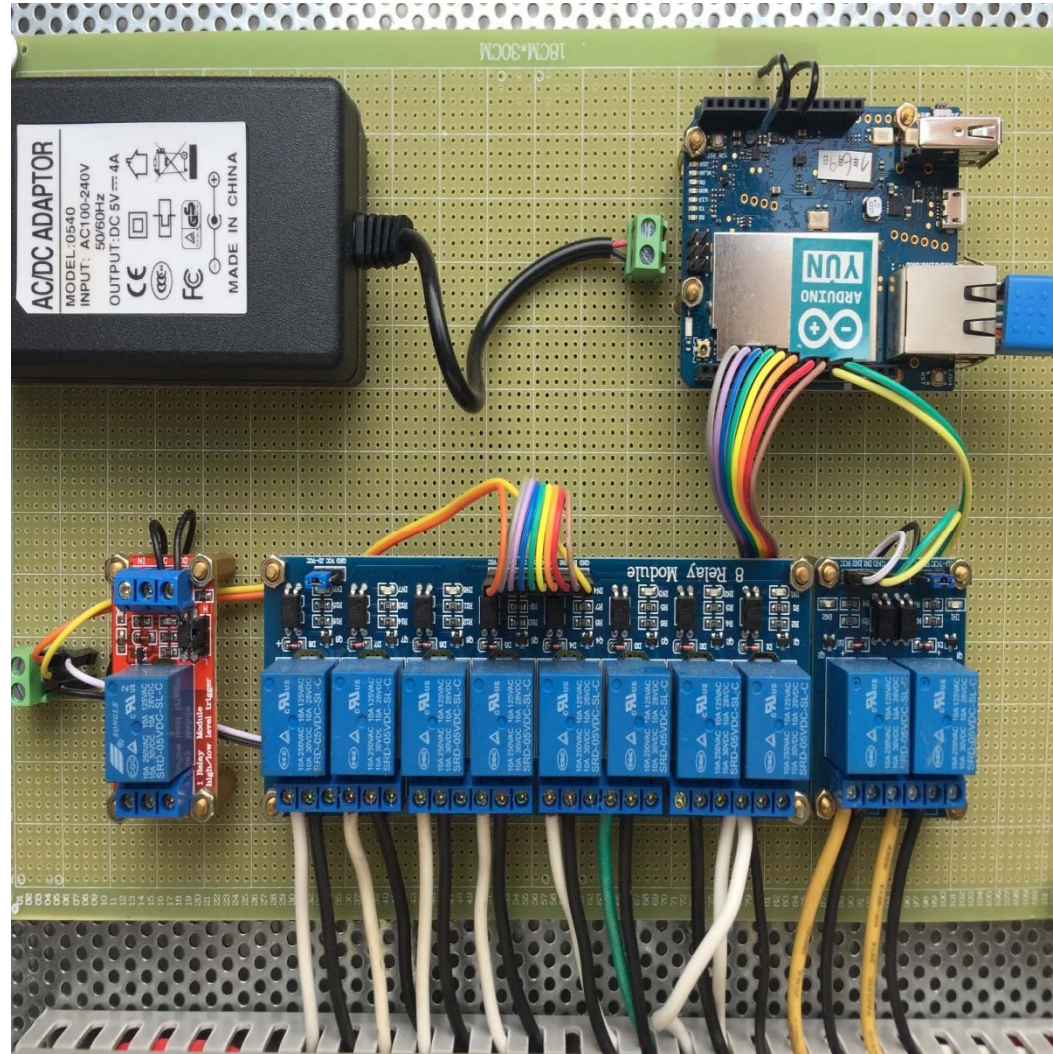
使用亮度感測器當試驗，感測農作物
受到隻陽光照射程度



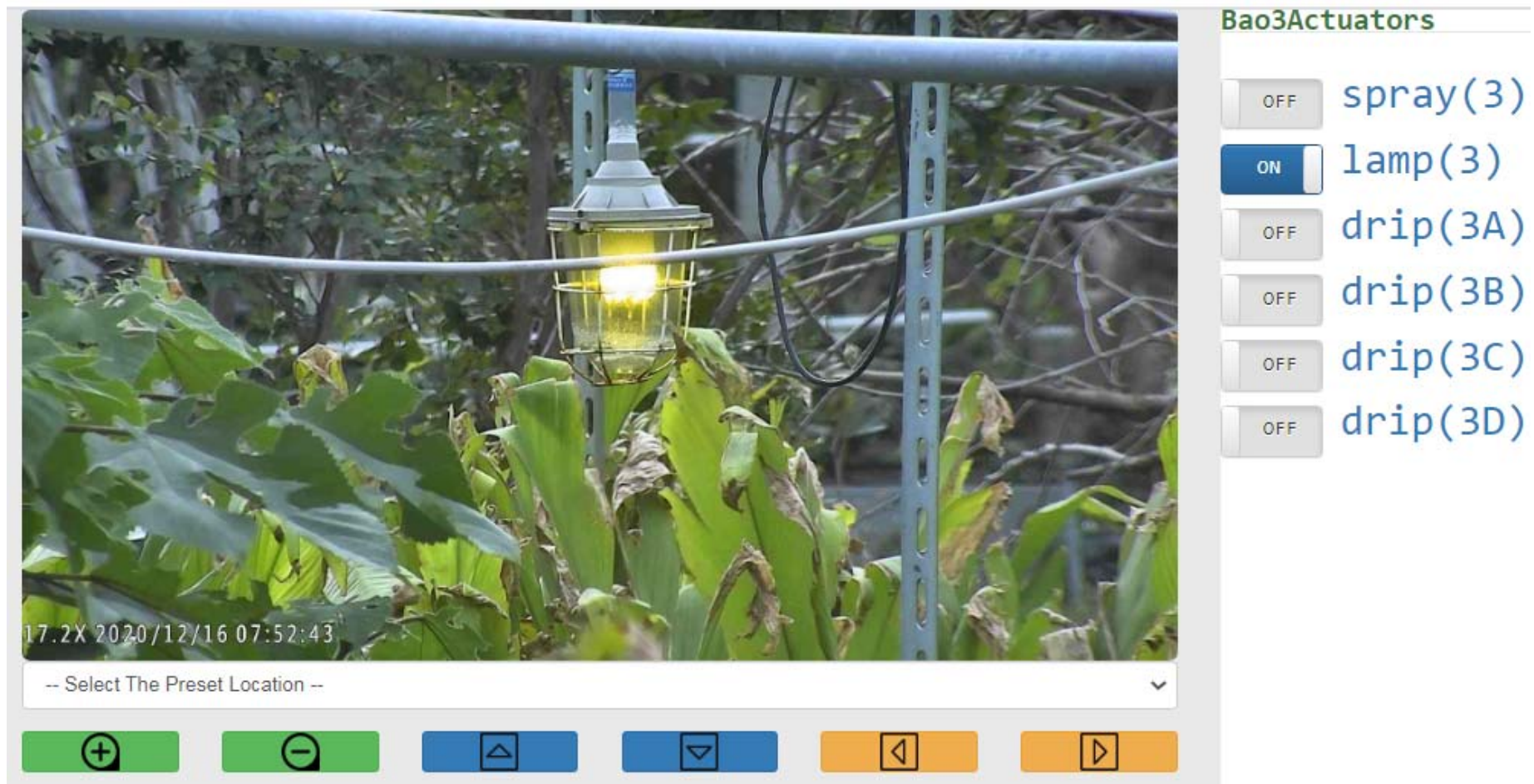
以亮度感測器作為 補光燈開啟判斷



Actuators



Actuators - Lamp



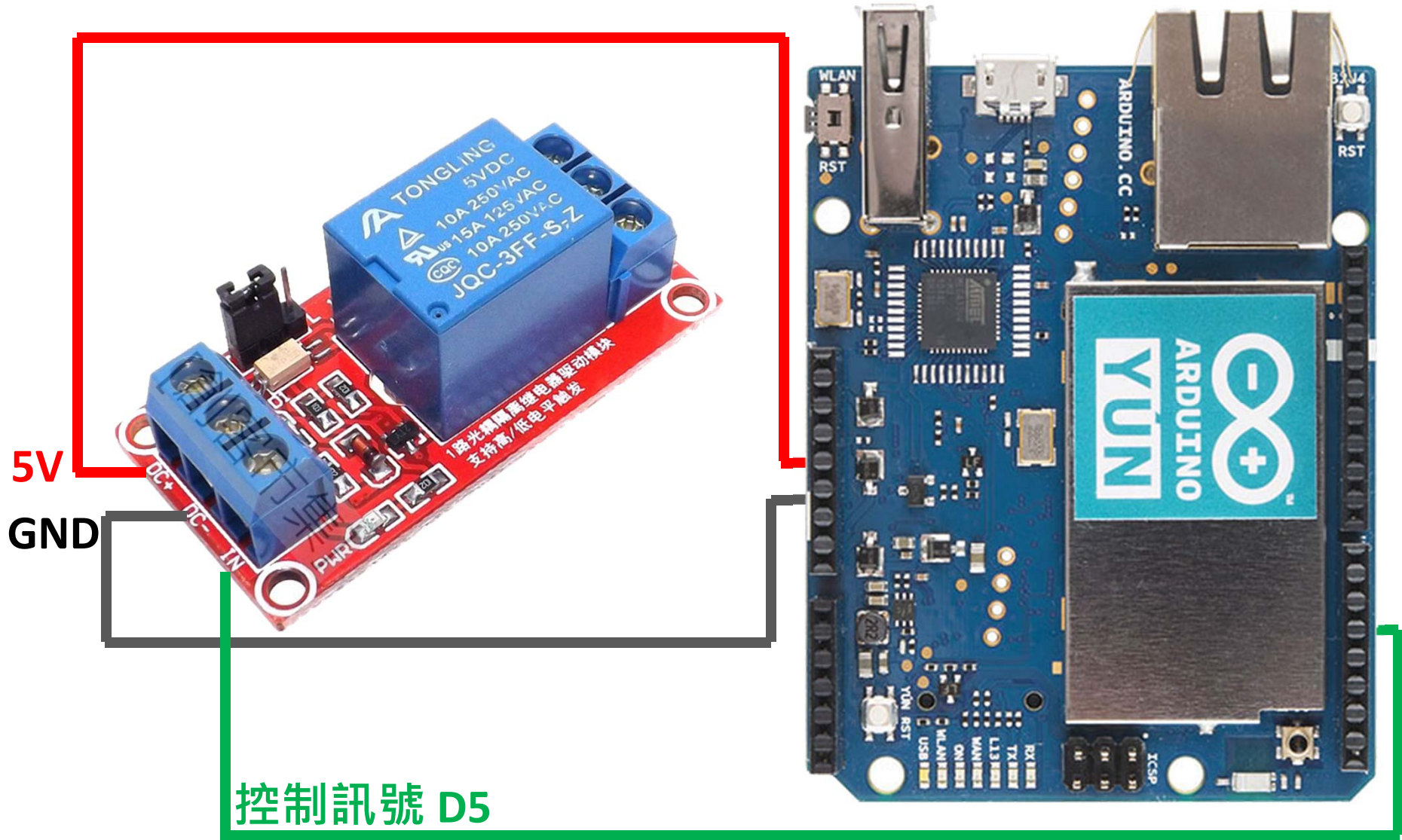
17.2X 2020/12/16 07:52:43

-- Select The Preset Location --

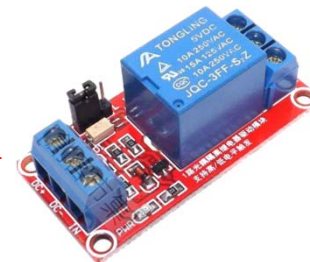
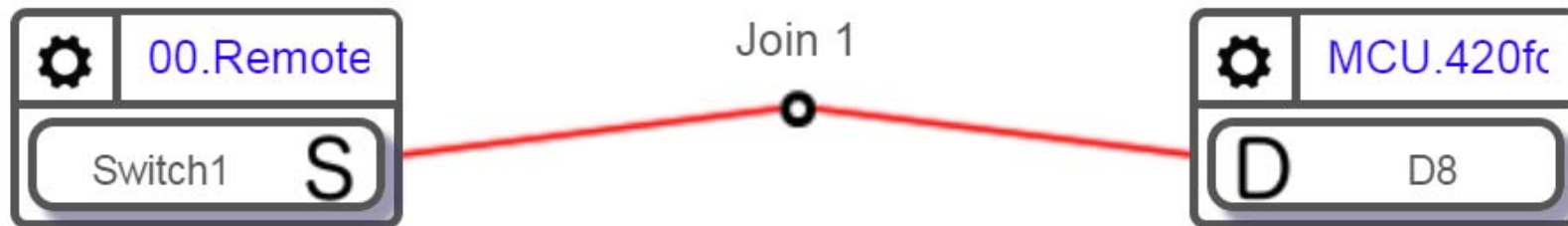
Bao3Actuators

- ☐ OFF spray(3)
- ☒ ON lamp(3)
- ☐ OFF drip(3A)
- ☐ OFF drip(3B)
- ☐ OFF drip(3C)
- ☐ OFF drip(3D)

Actuators



	Lab1	Model	Flush 	Delete	
--	------	-------	---	--------	--



連接後即可用Switch1控制繼電器模組，
繼電器啟動時可以聽到答一聲，COM跟
NO兩個腳位就會接通。

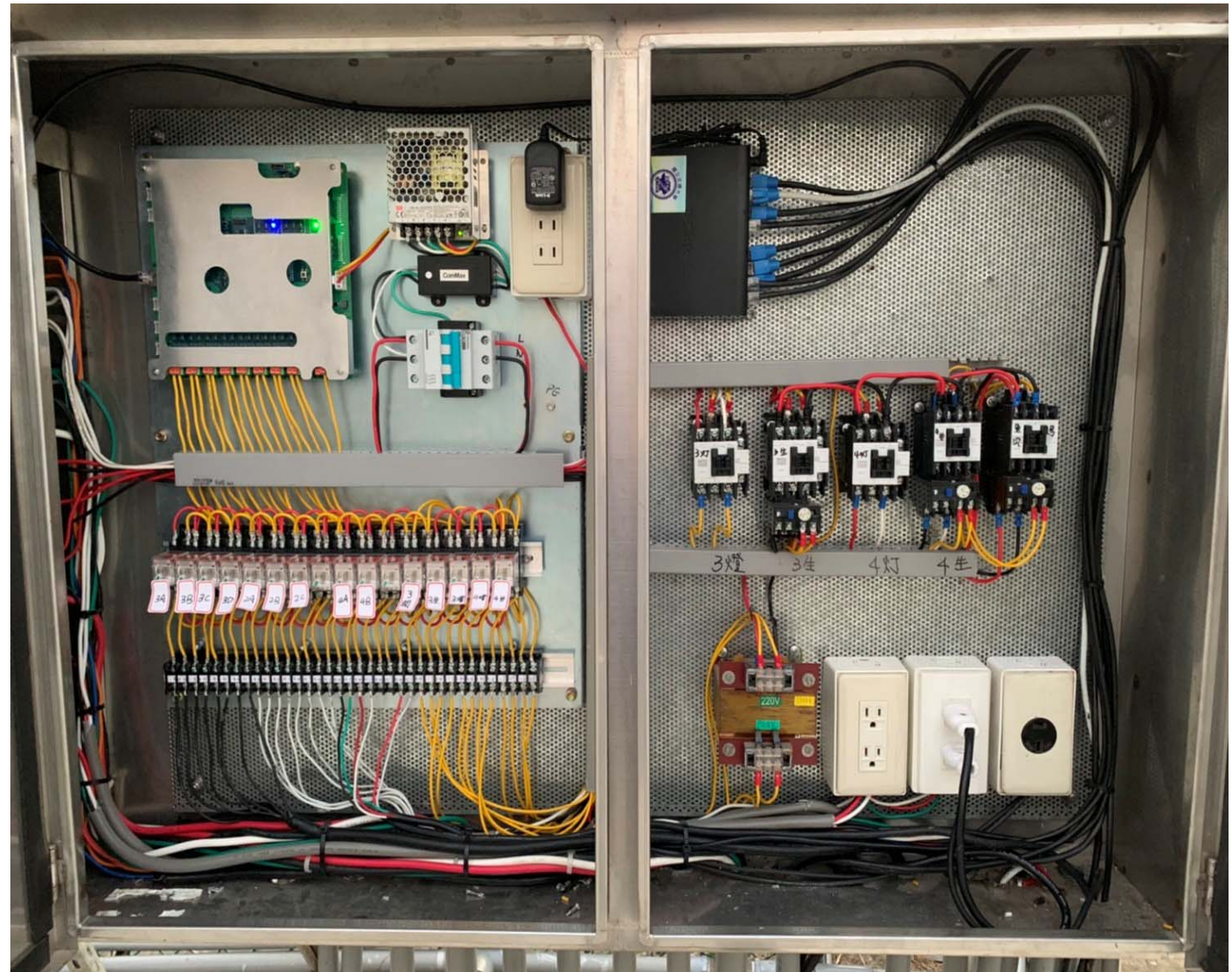
若以光感測器模組取代Switch1，變成光感開關。

廣達工業級 微氣象站

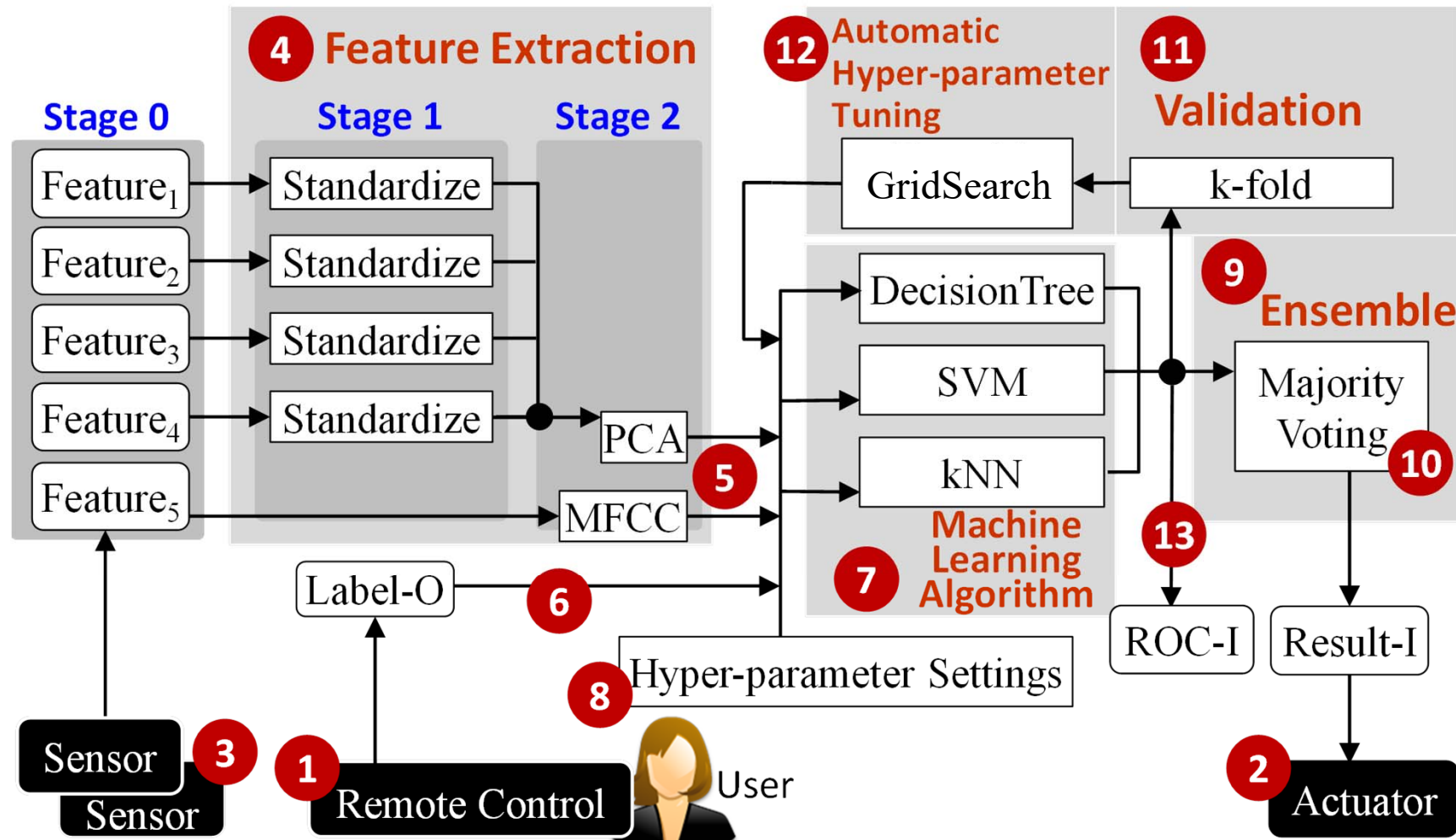


Actuators

- 繼電器
- 滴灌
- 灑水
- 驅蟲燈



Altalk: IoTtalk with Machine Learning



Fan Control using IoTtalk

- Click the device features of the two devices to create a link between them.
- Then, the user controls the Fan using Keypad through IoTtalk

FanModelFlushDeleteSimulationOFFImportExport

RemoteKeypad14

Join 1

FanController5

CHIMEI Fan

123456789*0#

Remote



Connection Name: Join 1DeleteSave

Controller (IDF)Delete

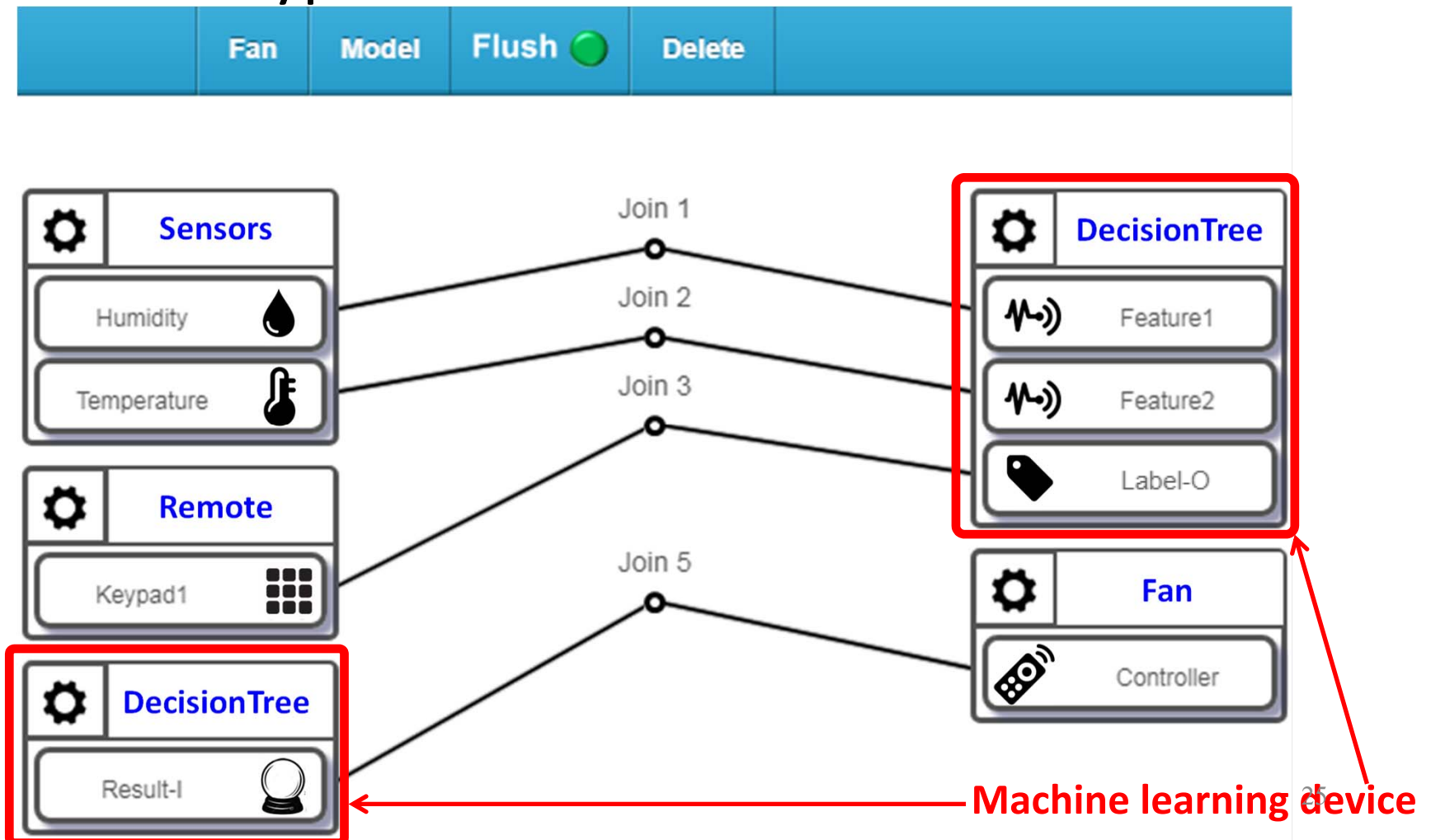
Keypad1	Type	Function
x1	sample	disabled

Fan (ODF)Delete

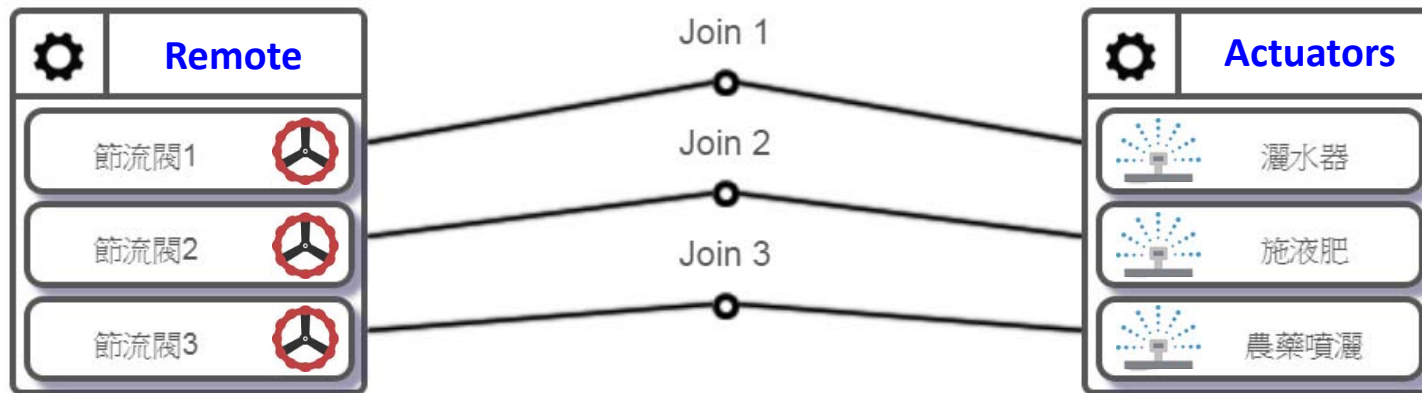
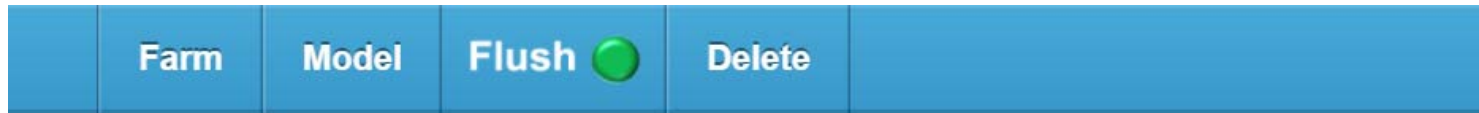
Controller	Function
y1	disabled

Smart Fan using IoTtalk with Machine Learning

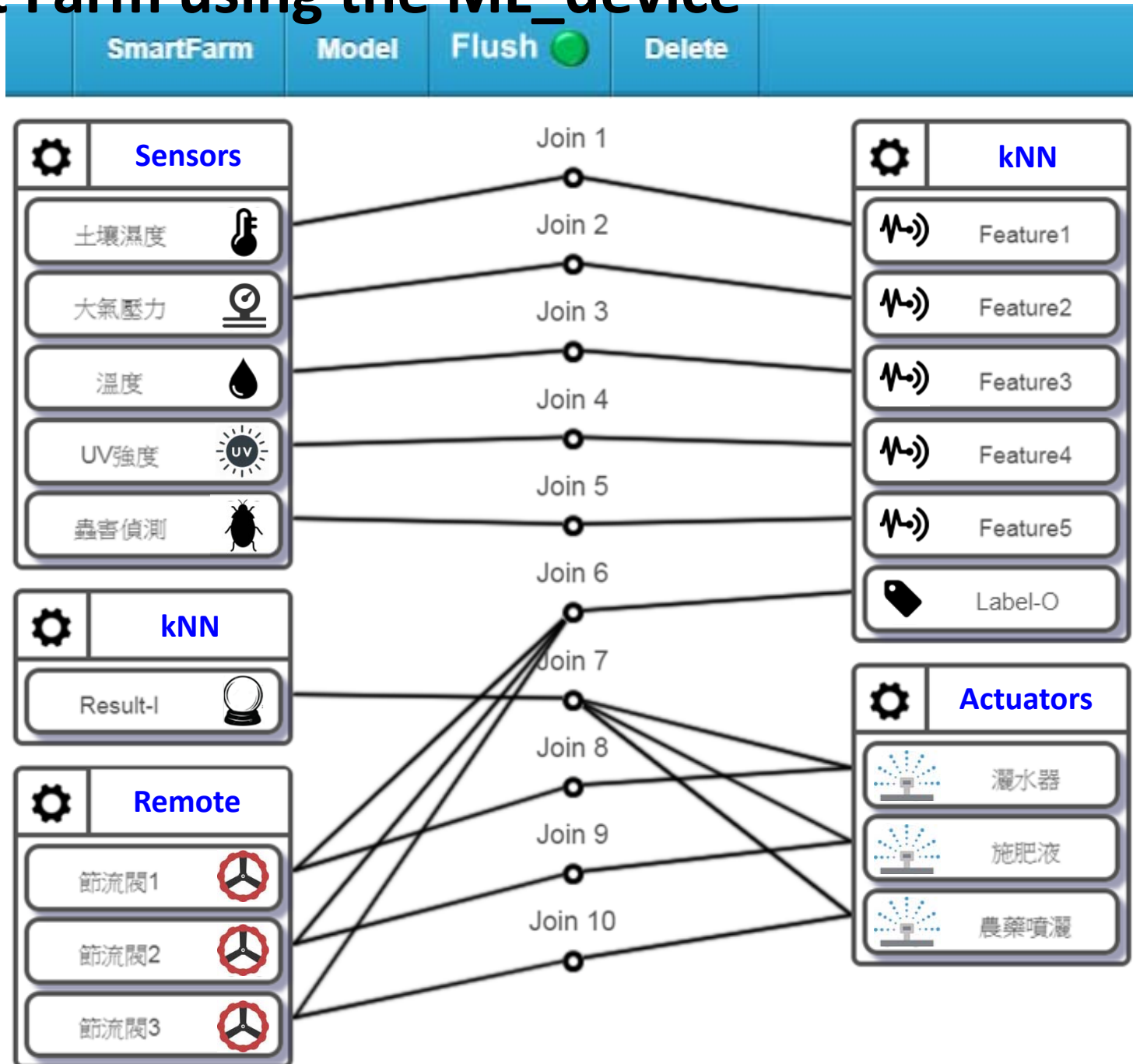
- Insert a machine learning device and sensors between Keypad and Fan.



Farm Management using IoTtalk



Smart Farm using the ML_device



Q&A