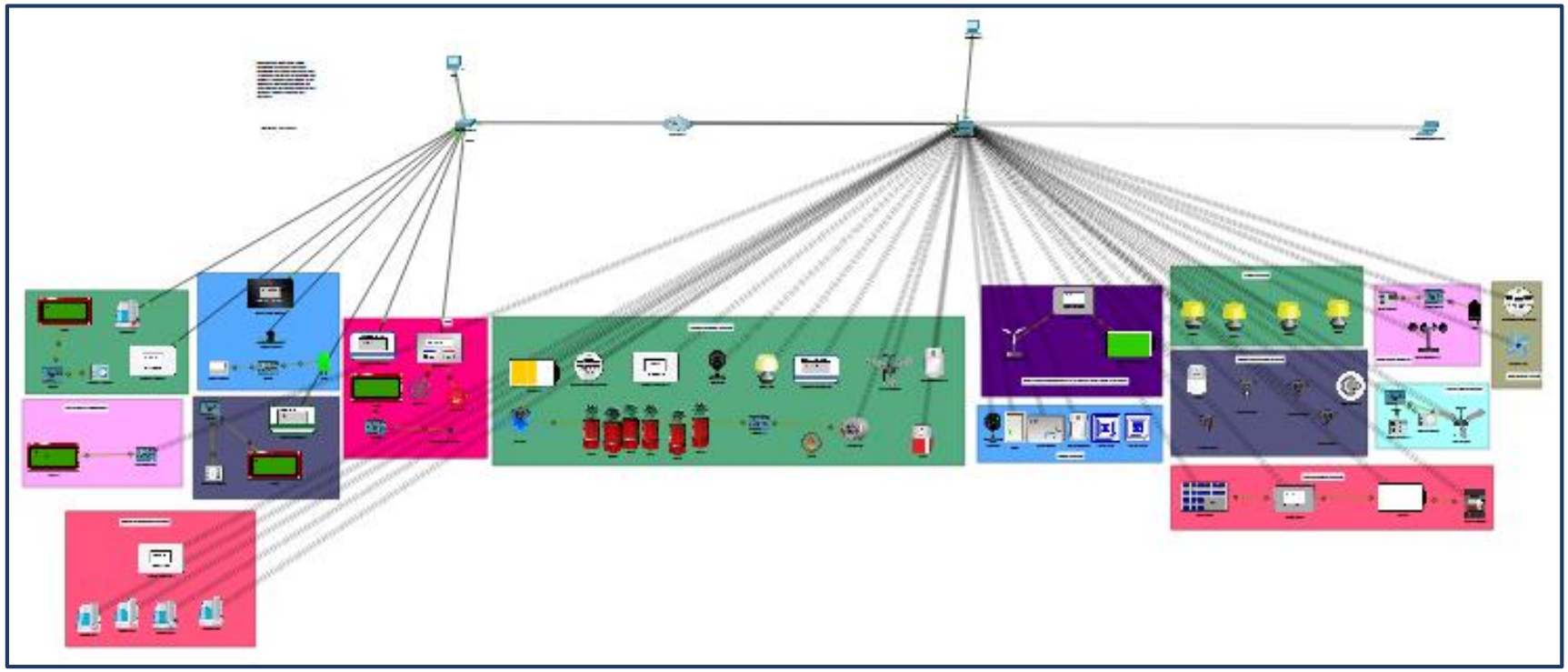
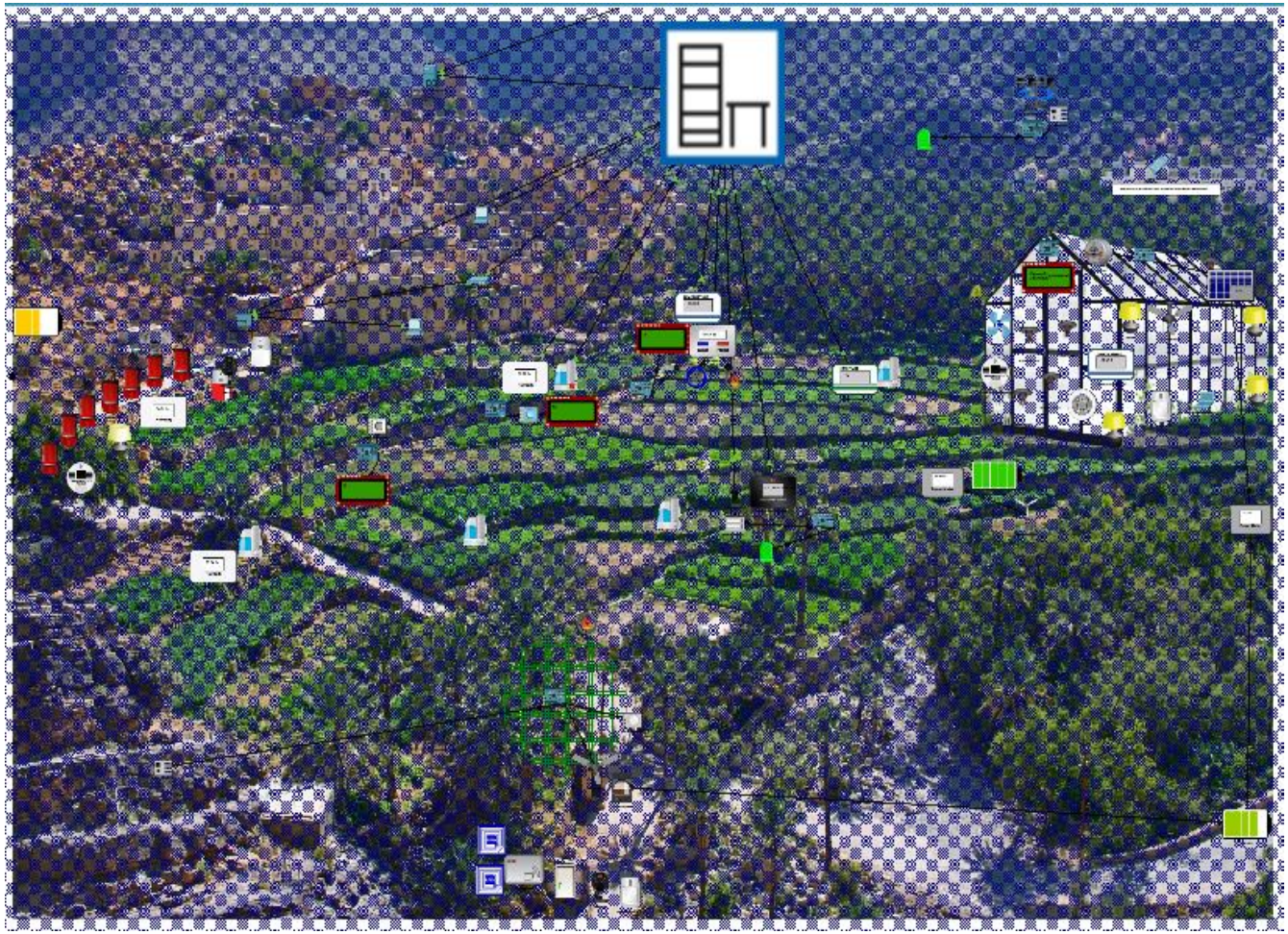
T_N	Tasks Specification
T1	Creating MCU's with programming it + (Make Up irrigation system with Add conditioner programing) + Other systems
T2	Adding IoT devices+ LCD screens + add A Mont of PC's + Lawn Sprinkler + Humiture Monitor, Thermostat, Siren… ect
T3	Smart Street light + Others Option's to reads temperature inside Farm+ apply Authentication in every IoT devices (we add' SMART_FARM' as a pass word in every device to be Hard to Hack it)
T4	DNS server+ Farm & the ministry offices connections Adding Cultesrs+ configurations IoT devices + Routers and servers + Wiring connection with wireless connections)
T5	Adding solar panel, betray+ link some lights & fan with wiring Ether-net & dominations IoT serves
T6	Editing Photos + upload it in the packet Tracers & adding some comments + Ip's Number of each object
T7	Design + Implements Farm to be smart + more Technical
T8	Smart garage system+ programing MCU + adding conditioners for all objects.
T9	organizing Topology of Farm Networking in Logical Part.
T10	dealing with Problems connections + solve it + searching for the best solitons
T11	Dealing with the link between Farm_Gatway and switch in different area + preparing building Supervisor (to be capable to remote access + secure channel) + Writing this Form.
T12	Building connections between Internet main devices + re-Check all Assessment requirements

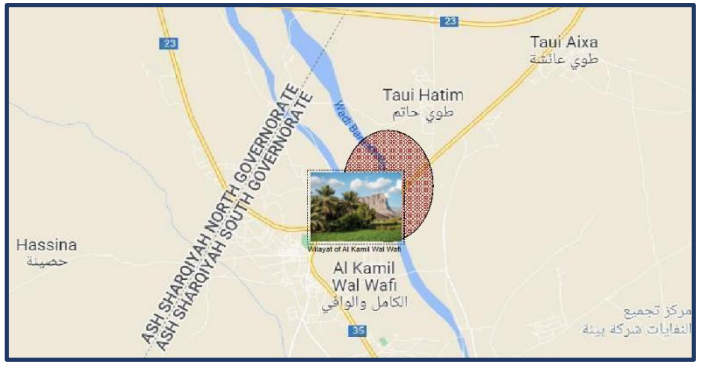
T13	organizing IoT devices of Farm Networking in physical Part.
T14	Building Cluster as an outside office of The Ministry of Agriculture, Fisheries and Water Resources (MoAFWR), to check all Farm IoT devices.
T15	Sending Massages to check all devices ware in connection.
T16	Building Smart Greenhouses inside Smart Farm+ With Adding lighting system & Fair system.

Smart Farm Topology Designs (Logical):

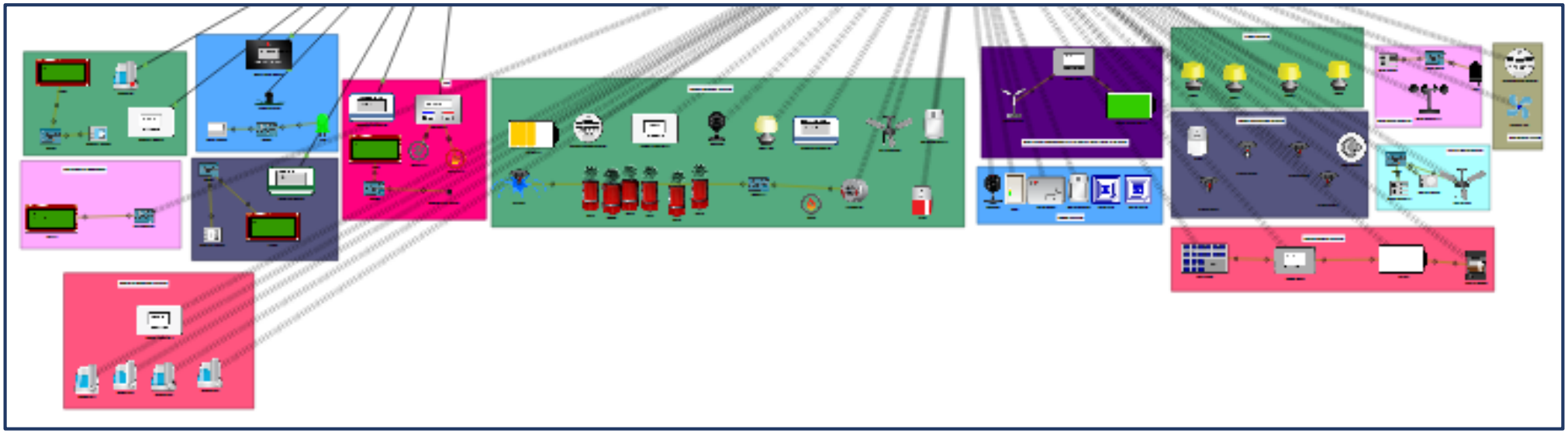


Smart Farm Implementation's (physical):





Project Features:



Project Features Methodology:

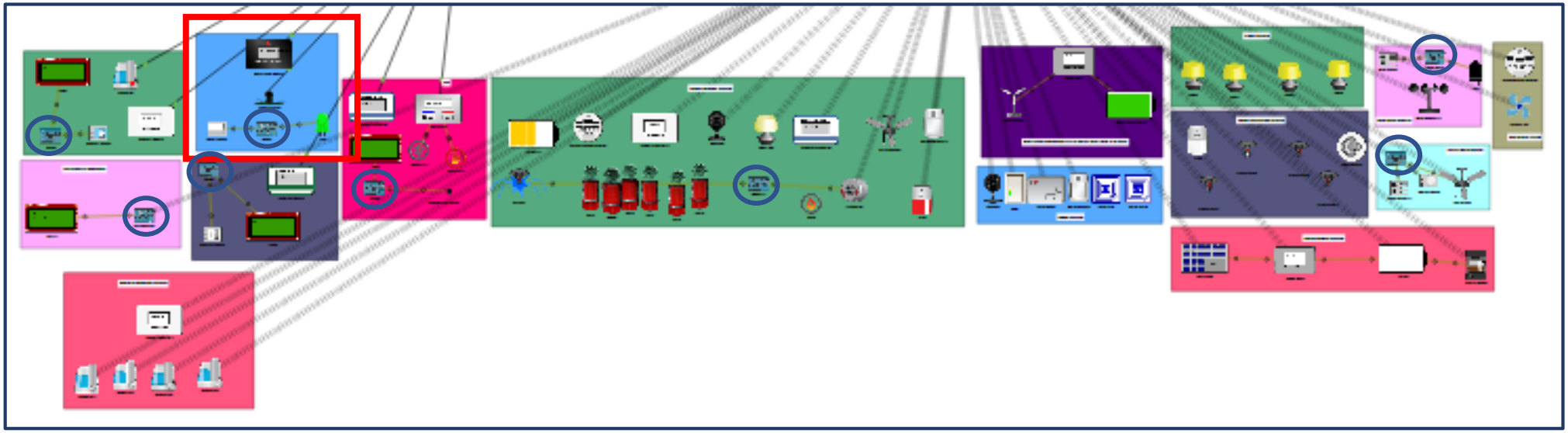
Main Assessment requirements:

This assignment focuses greatly on making agriculture from an ordinary field that is not connected by technology to a place full of assistive and smart devices.

It is also one of the most prominent problems in farms is how to create an automatic irrigation system that works, as it is connected to a sensor to measure water, and when the water reaches 6 cm, it stops irrigation automatically

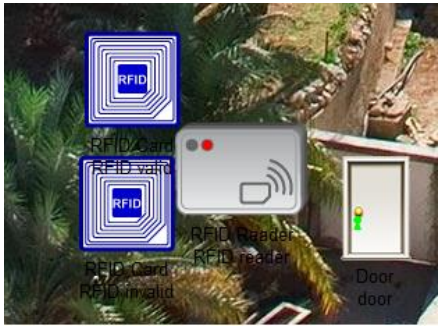
It is also a requirement of the Assignment is the presence of 4 MCU

And we achieved this goal by including 8



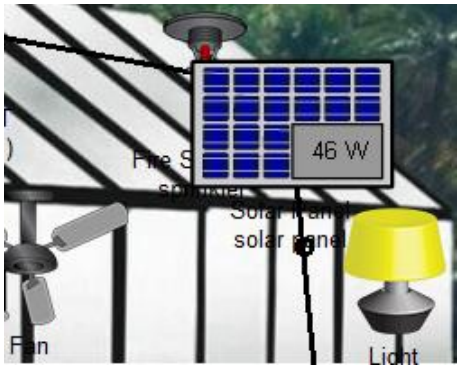
Addition Features:

- RFID-powered Door Lock: Only a valid RFID card may unlock the door. Anyone wishing to access the muscat office must provide an RFID card. If the RFID is legitimate, the door will open; otherwise, it will not.



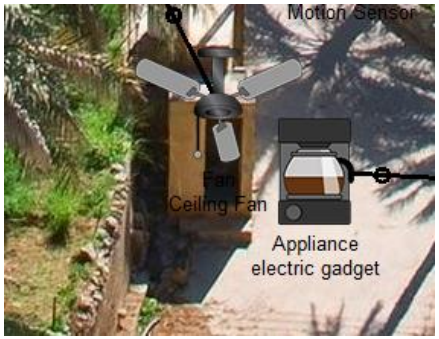
2- Wind Detector, based on light and Wind Sensor: Using a Wind Detector When there is excessive air movement, a notification is sent to Wind Sensor, and then the lamp lights up as a warning message.

3- Solar Power Battery Charging: The fan and light will function automatically on solar power. However, if the battery power runs out, they will not be able to operate. When there is enough light, the battery charges itself.



4-Webcam and Motion Detector: we used for security when someone come the motion detector has sensor and webcam take a picture.

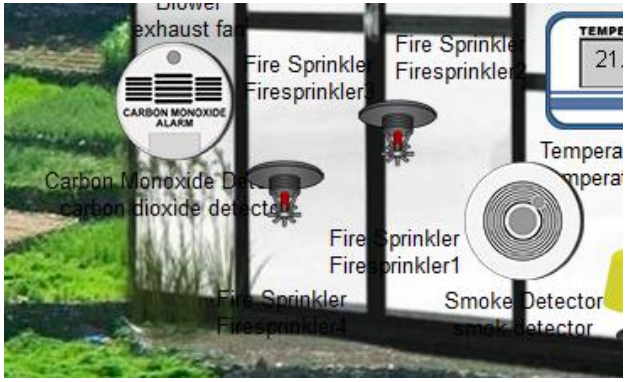
5. Auto fan and coffee maker: When someone arrives, the fan and coffee maker start on automatically, sensing motion.



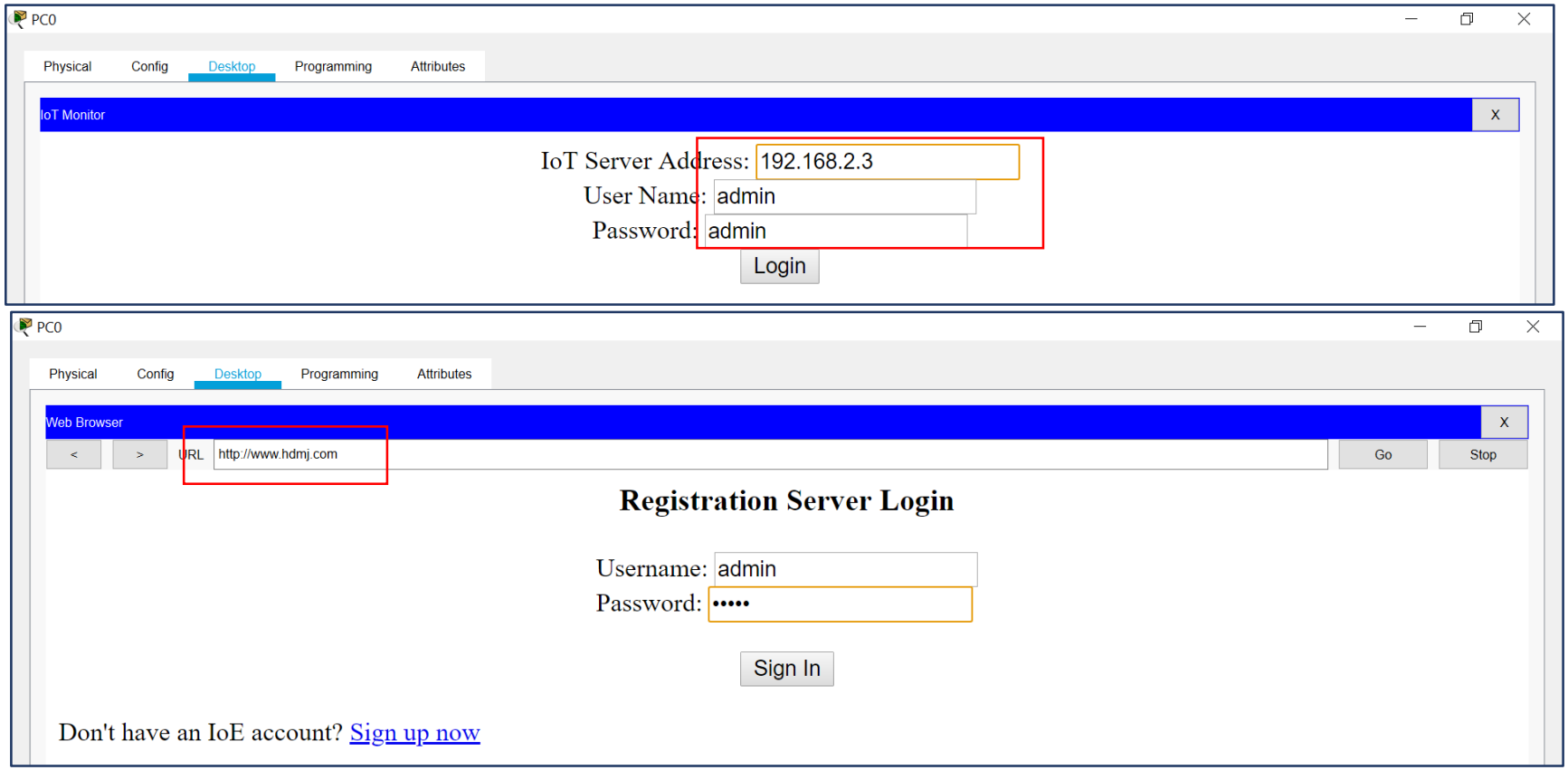
6-Humidifire: It has the control for humidity.

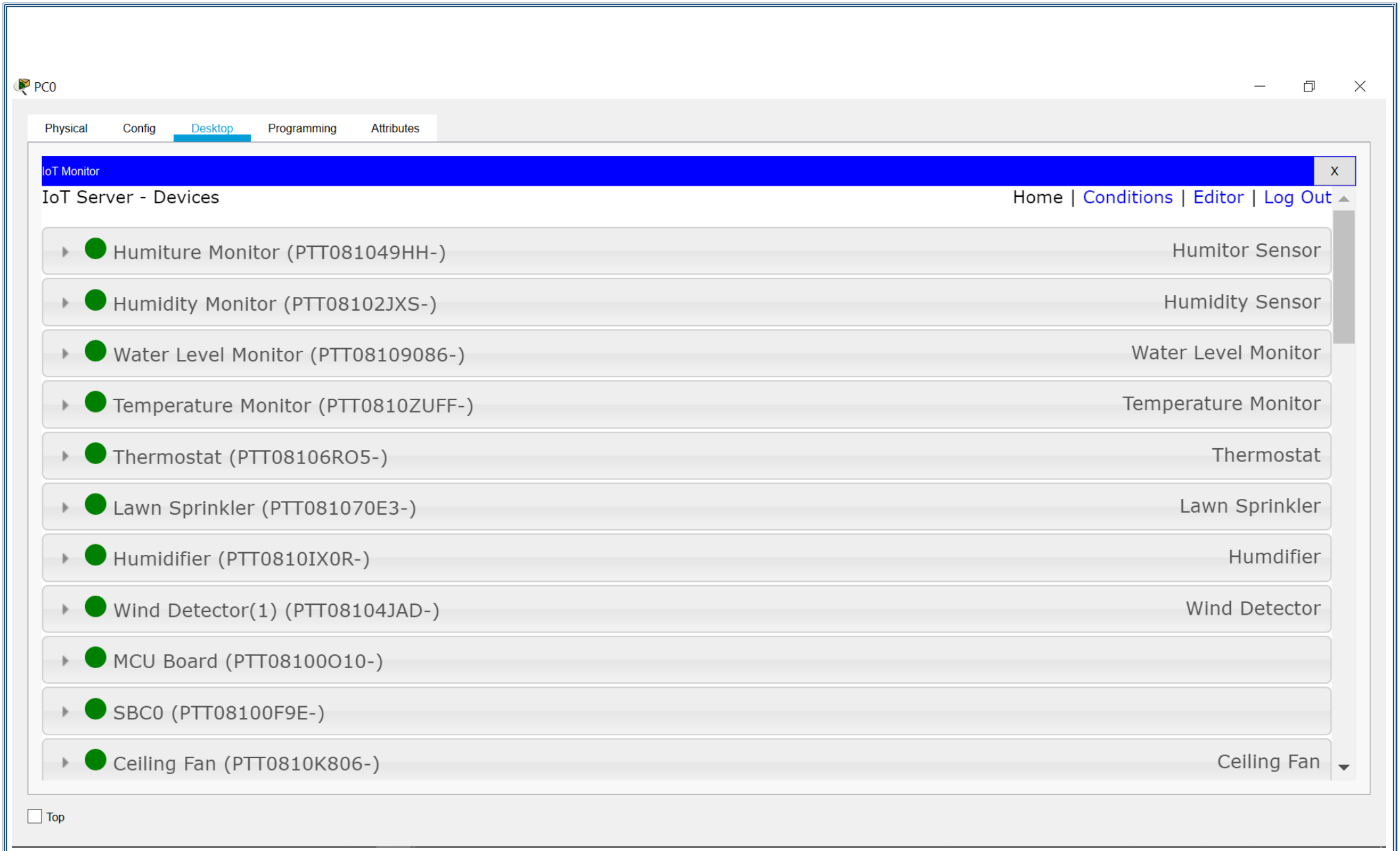
7-Carbon dioxide detector: It absorbs carbon from cars and help the planets and peoples to get fresh air.

8- Fire and smoke alarms: If anything catches fire, the fire detector will sound an alarm to inform everyone. If a vehicle emits an abnormally large amount of smoke near windows or doors, a smoke detector will sound an alarm.



IOT devices that we use it: Humidifier, Fan, light, Garage, Door, Battery, Siren, Solar panel, Appliance, Motion Detector, Street lamp, old cars, Fire monitor, RFID card, RFID reader, Trip sensor, Fire sprinkler, Smoke detector, Thermostat, Thermometers, Humidity Sensor, Water Sensor, Temperature Sensor, carbon dioxide detector, fair sprinkler, humidity monitor, web cam, smart light, siren, Wind Turbine, Wind turbines Betrry, Wind Detector.

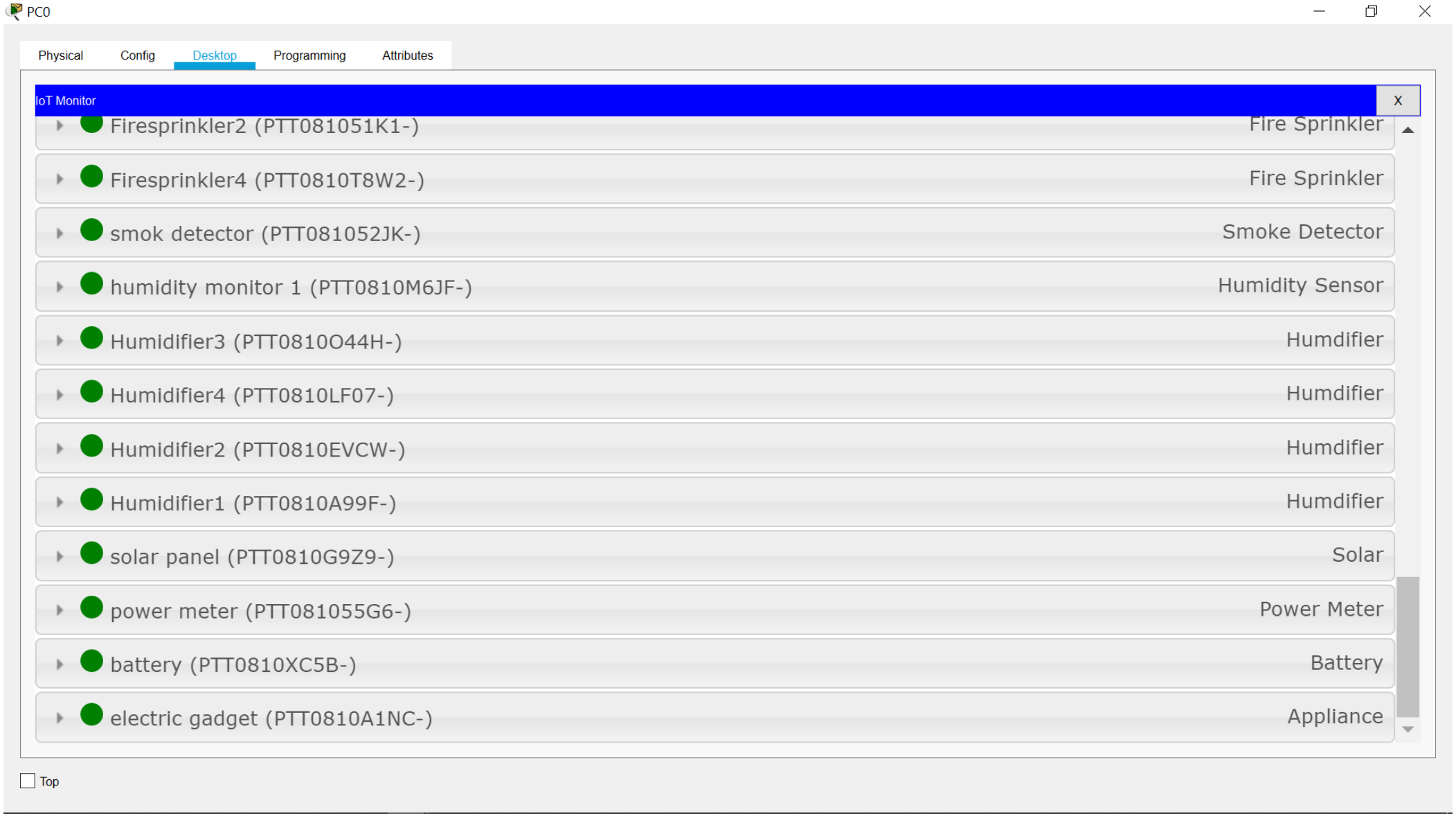



PC0
Physical
Config
Desktop
Programming
Attributes
IoT Monitor
X
IoT Server - Devices
Home | Conditions | Editor | Log Out
Humiture Monitor (PTT081049HH-)
Humitor Sensor
Humidity Monitor (PTT08102JXS-)
Humidity Sensor
Water Level Monitor (PTT08109086-)
Water Level Monitor
Temperature Monitor (PTT0810ZUFF-)
Temperature Monitor
Thermostat (PTT08106RO5-)
Thermostat
Lawn Sprinkler (PTT081070E3-)
Lawn Sprinkler
Humidifier (PTT0810IX0R-)
Humdifier
Wind Detector(1) (PTT08104JAD-)
Wind Detector
MCU Board (PTT08100O10-)
SBC0 (PTT08100F9E-)
Ceiling Fan (PTT0810K806-)
Ceiling Fan
Top


PC0
Close
Physical
Config
Desktop
Programming
Attributes
IoT Monitor
X
Wind Turbine (PTT0810SG47-)
Wind Turbine
battery(1) (PTT08107PKA-)
Battery
carbon dioxode detector (PTT0810T49E-)
Carbon Dixoide Detector
humidity monitor(1) (PTT08108H4D-)
Humidity Sensor
web cam (PTT0810QQSZ-)
Webcam
smart light (PTT081022W8-)
Light
temperature monitor (PTT0810D05A-)
Temperature Monitor
CEILING FAN (PTT0810M8PR-)
Ceiling Fan
motion detector(1) (PTT08101H5V-)
Motion Detector
siren (PTT08104N3Y-)
Siren
fire monitor (PTT0810120S-)
Fire Sensor
Top


PC0
Physical
Config
Desktop
Programming
Attributes
IoT Monitor
X
webcam (PTT0810M2UN-)
Webcam
door (PTT08107ZSW-)
Door
motion detector (PTT0810AO95-)
Motion Detector
RFID reader (PTT0810TR8G-)
lamp1 (PTT0810C7Z2-)
Light
lamp2 (PTT0810DFMF-)
Light
lamp4 (PTT0810OLS5-)
Light
lamp3 (PTT0810KAWE-)
Light
carbon dioxide detector (PTT081099IY-)
Carbon Monoxide Detector
exhaust fan (PTT0810YMVY-)
Blower Fan
Siren (PTT0810VPE6-)
Siren
Top


PC0
Physical
Config
Desktop
Programming
Attributes
IoT Monitor
X
Firesprinkler3 (PTT0810FQRB-)
Fire Sprinkler
Firesprinkler1 (PTT0810265P-)
Fire Sprinkler
Firesprinkler2 (PTT081051K1-)
Fire Sprinkler
Firesprinkler4 (PTT0810T8W2-)
Fire Sprinkler
smok detector (PTT081052JK-)
Smoke Detector
humidity monitor 1 (PTT0810M6JF-)
Humidity Sensor
Humidifier3 (PTT0810O44H-)
Humdifier
Humidifier4 (PTT0810LF07-)
Humdifier
Humidifier2 (PTT0810EVCW-)
Humdifier
Humidifier1 (PTT0810A99F-)
Humdifier
solar panel (PTT0810G9Z9-)
Solar
Top


PC0
Physical
Config
Desktop
Programming
Attributes
IoT Monitor
X
Firesprinkler2 (PTT081051K1-)
Fire Sprinkler
Firesprinkler4 (PTT0810T8W2-)
Fire Sprinkler
smok detector (PTT081052JK-)
Smoke Detector
humidity monitor 1 (PTT0810M6JF-)
Humidity Sensor
Humidifier3 (PTT0810O44H-)
Humdifier
Humidifier4 (PTT0810LF07-)
Humdifier
Humidifier2 (PTT0810EVCW-)
Humdifier
Humidifier1 (PTT0810A99F-)
Humdifier
solar panel (PTT0810G9Z9-)
Solar
power meter (PTT081055G6-)
Power Meter
battery (PTT0810XC5B-)
Battery
electric gadget (PTT0810A1NC-)
Appliance
Top

PC0

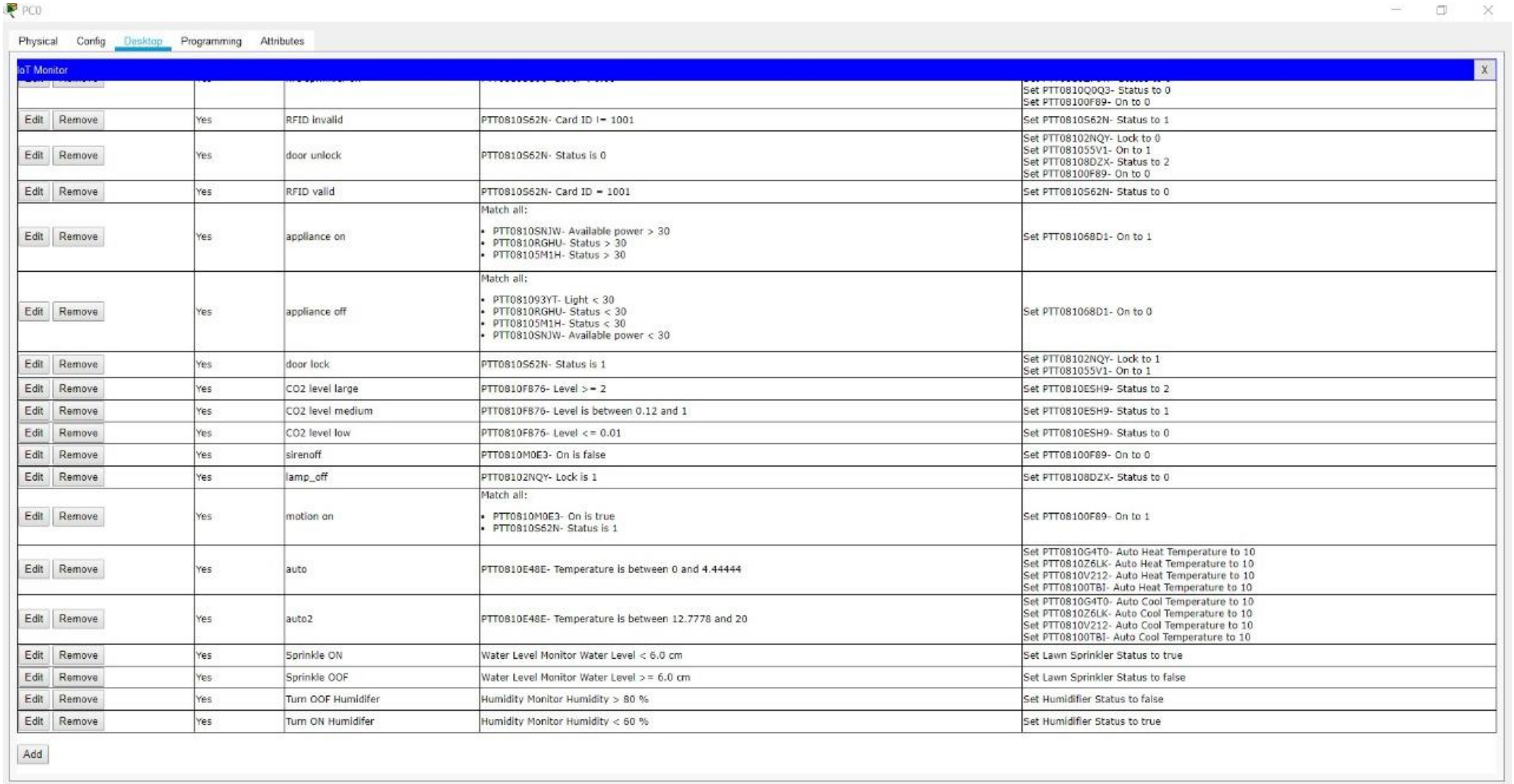
Physical Config Desktop Programming Attributes

IoT Monitor

IoT Server - Device Conditions

Home | Conditions | Editor | Log Out

Actions	Enabled	Name	Condition	Actions
Edit Remove	Yes	heater on	PTT0810E48E- Temperature <= 0	Set PTT0810G4T0- Status to 2 Set PTT0810Z6LK- Status to 2 Set PTT0810V212- Status to 2 Set PTT08100TBI- Status to 2
Edit Remove	Yes	cooler on	PTT0810E48E- Temperature >= 20	Set PTT0810G4T0- Status to 1 Set PTT0810Z6LK- Status to 1 Set PTT0810V212- Status to 1 Set PTT08100TBI- Status to 1
Edit Remove	Yes	fire sprinkler on	PTT08105U9B- Level >= 0.1	Set PTT08100F89- On to 1 Set PTT08101T94- Status to 1 Set PTT0810KP99- Status to 1 Set PTT0810ZP0W- Status to 1 Set PTT0810QOQ3- Status to 1
Edit Remove	Yes	fire sprinkler off	PTT08105U9B- Level < 0.06	Set PTT08101T94- Status to 0 Set PTT0810KP99- Status to 0 Set PTT0810ZP0W- Status to 0 Set PTT0810QOQ3- Status to 0 Set PTT08100F89- On to 0
Edit Remove	Yes	RFID invalid	PTT0810S62N- Card ID != 1001	Set PTT0810S62N- Status to 1
Edit Remove	Yes	door unlock	PTT0810S62N- Status is 0	Set PTT08102NQY- Lock to 0 Set PTT081055V1- On to 1 Set PTT08108DZX- Status to 2 Set PTT08100F89- On to 0
Edit Remove	Yes	RFID valid	PTT0810S62N- Card ID = 1001	Set PTT0810S62N- Status to 0
Edit Remove	Yes	appliance on	Match all: • PTT0810SNJW- Available power > 30 • PTT0810RGHU- Status > 30 • PTT08105M1H- Status > 30	Set PTT081068D1- On to 1
Edit Remove	Yes	appliance off	Match all: • PTT081093YT- Light < 30 • PTT0810RGHU- Status < 30 • PTT08105M1H- Status < 30 • PTT0810SNJW- Available power < 30	Set PTT081068D1- On to 0
Edit Remove	Yes	door lock	PTT0810S62N- Status is 1	Set PTT08102NQY- Lock to 1 Set PTT081055V1- On to 1
Edit Remove	Yes	CO2 level large	PTT0810F876- Level >= 2	Set PTT0810ESH9- Status to 2
Edit Remove	Yes	CO2 level medium	PTT0810F876- Level is between 0.12 and 1	Set PTT0810ESH9- Status to 1
Edit Remove	Yes	CO2 level low	PTT0810F876- Level <= 0.01	Set PTT0810ESH9- Status to 0
Edit Remove	Yes	sirenoff	PTT0810M0E3- On is false	Set PTT08100F89- On to 0
Edit Remove	Yes	lamp_off	PTT08102NQY- Lock is 1	Set PTT08108DZX- Status to 0
Edit Remove	Yes	motion on	Match all: • PTT0810M0E3- On is true • PTT0810S62N- Status is 1	Set PTT08100F89- On to 1



				Set PTT0810Q0Q3- Status to 0 Set PTT08100F89- On to 0
Edit Remove	Yes	RFID invalid	PTT0810S62N- Card ID != 1001	Set PTT0810S62N- Status to 1
Edit Remove	Yes	door unlock	PTT0810S62N- Status is 0	Set PTT08102NQY- Lock to 0 Set PTT081055V1- On to 1 Set PTT08108DZX- Status to 2 Set PTT08100F89- On to 0
Edit Remove	Yes	RFID valid	PTT0810S62N- Card ID = 1001	Set PTT0810S62N- Status to 0
Edit Remove	Yes	appliance on	Match all: • PTT0810SNJW- Available power > 30 • PTT0810RGHU- Status > 30 • PTT08105M1H- Status > 30	Set PTT081068D1- On to 1
Edit Remove	Yes	appliance off	Match all: • PTT081093YT- Light < 30 • PTT0810RGHU- Status < 30 • PTT08105M1H- Status < 30 • PTT0810SNJW- Available power < 30	Set PTT081068D1- On to 0
Edit Remove	Yes	door lock	PTT0810S62N- Status is 1	Set PTT08102NQY- Lock to 1 Set PTT081055V1- On to 1
Edit Remove	Yes	CO2 level large	PTT0810FB76- Level >= 2	Set PTT0810ESH9- Status to 2
Edit Remove	Yes	CO2 level medium	PTT0810FB76- Level is between 0.12 and 1	Set PTT0810ESH9- Status to 1
Edit Remove	Yes	CO2 level low	PTT0810F876- Level <= 0.01	Set PTT0810ESH9- Status to 0
Edit Remove	Yes	sirenoff	PTT0810M0E3- On is false	Set PTT08100F89- On to 0
Edit Remove	Yes	lamp_off	PTT08102NQY- Lock is 1	Set PTT08108DZX- Status to 0
Edit Remove	Yes	motion on	Match all: • PTT0810M0E3- On is true • PTT0810S62N- Status is 1	Set PTT08100F89- On to 1
Edit Remove	Yes	auto	PTT0810E48E- Temperature is between 0 and 4.44444	Set PTT0810G4T0- Auto Heat Temperature to 10 Set PTT0810Z6LK- Auto Heat Temperature to 10 Set PTT0810V212- Auto Heat Temperature to 10 Set PTT08100TBI- Auto Heat Temperature to 10
Edit Remove	Yes	auto2	PTT0810E48E- Temperature is between 12.7778 and 20	Set PTT0810G4T0- Auto Cool Temperature to 10 Set PTT0810Z6LK- Auto Cool Temperature to 10 Set PTT0810V212- Auto Cool Temperature to 10 Set PTT08100TBI- Auto Cool Temperature to 10
Edit Remove	Yes	Sprinkle ON	Water Level Monitor Water Level < 6.0 cm	Set Lawn Sprinkler Status to true
Edit Remove	Yes	Sprinkle OOF	Water Level Monitor Water Level >= 6.0 cm	Set Lawn Sprinkler Status to false
Edit Remove	Yes	Turn OOF Humidifer	Humidity Monitor Humidity > 80 %	Set Humidifier Status to false
Edit Remove	Yes	Turn ON Humidifer	Humidity Monitor Humidity < 60 %	Set Humidifier Status to true

Add