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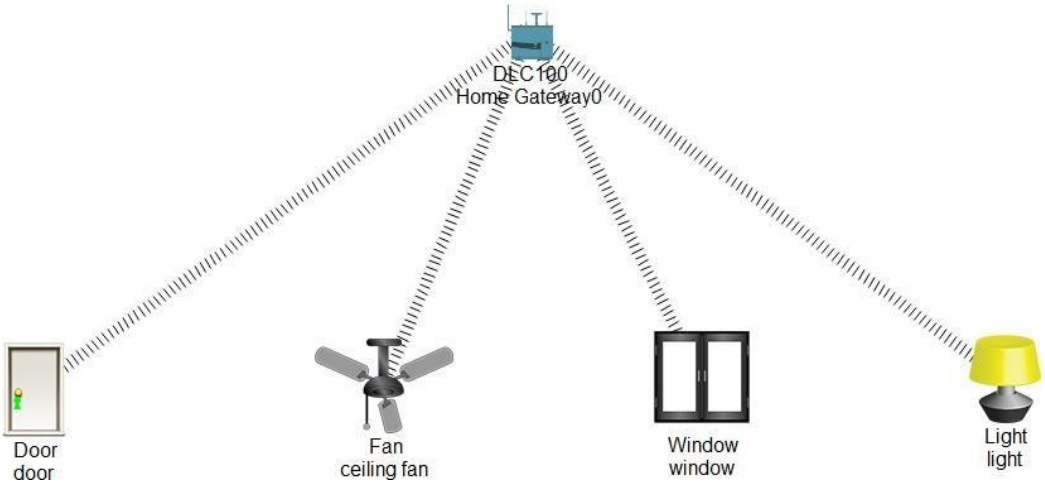
Section: BSCS-5A

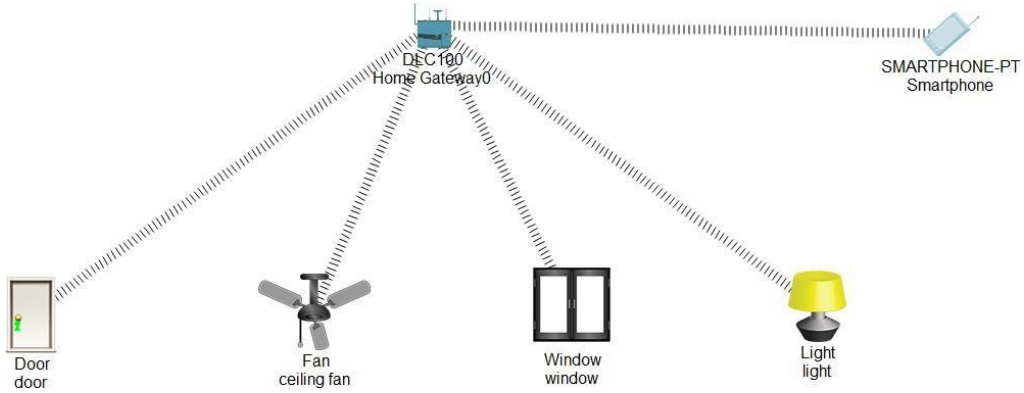
Computer Networks Project

Smart Home Using IOT Devices

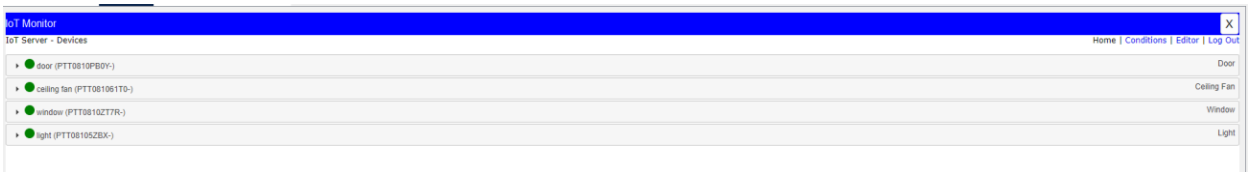
- First of all, we will use Home Gateway which is the control point of other IOT devices.
- Add a door, fan, window, and light to the workspace.
- Right click on the door and go to config tab where we will change the name of the door to “door”.
- Now to make a wireless connection between the door and the Home Gateway, we will go to the advanced settings of the door and set the Network Adapter to “PT-IOE-NM-1W” and save the settings.
- Under IP configuration, set it to DHCP so that the IP address of each device is assigned by default.
- Do the same for all devices.
- The wireless connections have been established and will look something like this:



- Now add a smartphone to the workspace and rename it.
- Make a wireless connection between the Smartphone and Home Gateway in the same manner as we did for the other devices.
- Go to the settings of the Home Gateway, go to the config tab, go to Wireless, copy its SSID and paste it as the SSID of the Smartphone.
- A wireless connection will be established which looks like this:

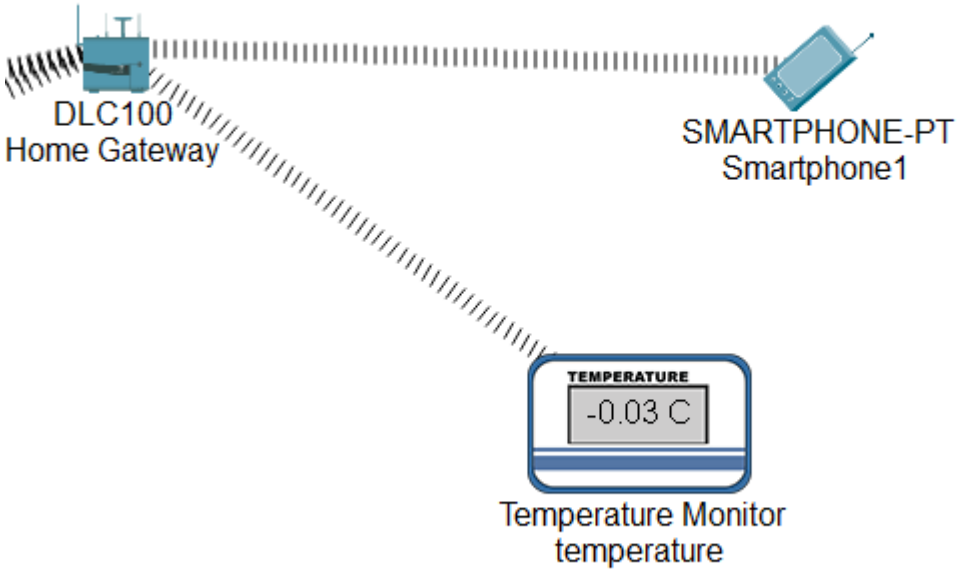


- To access the Home Gateway, right click on the Smartphone, go to Desktop, go to IOT Monitor app and login.
- After logging in, initially you won't be able to see any devices.
- This is because we have not registered any devices yet.
- To do that, right click on the door, go to the config tab, select the Home Gateway option under the IOT Server and save the settings.
- Do the same for all devices.
- Now we can see the devices listed in the IOT Monitor app of Smartphone after logging in, i-e:

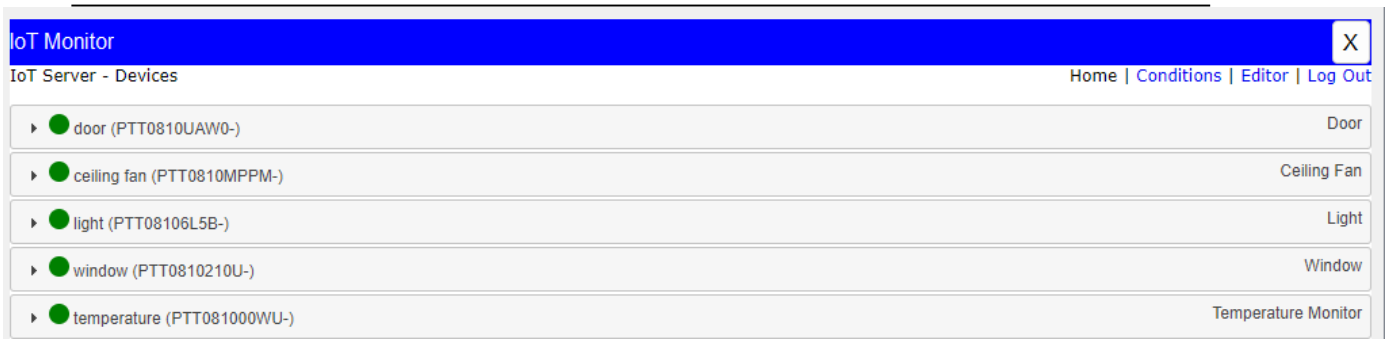


- You can use these to lock and unlock the door, turn on the fan, change its speed, or turn it off.
- You can also open and close the window, and turn on the light, change its brightness, and turn it off.

- Add a Temperature Monitor to the workspace and make a wireless connection between the Home Gateway and Temperature Monitor in the same method as above.
- Register the device so that it could be controlled by the Smartphone.

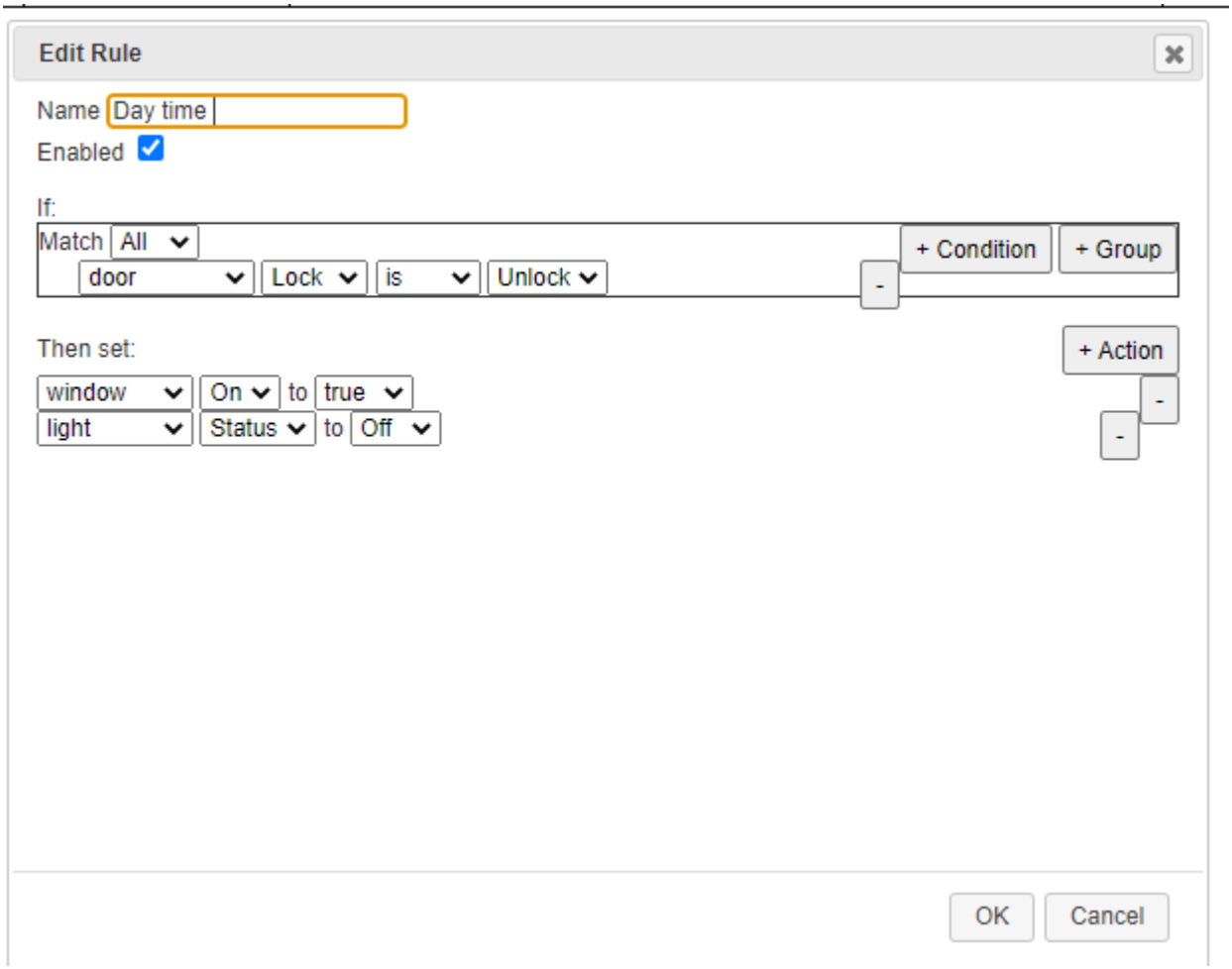


- Go to the Config tab of the Temperature Monitor and go to Wireless0 and choose DHCP under IP configuration.
- Now go to the Smartphone and check the IOT Monitor where you will see it listed in the registered devices.

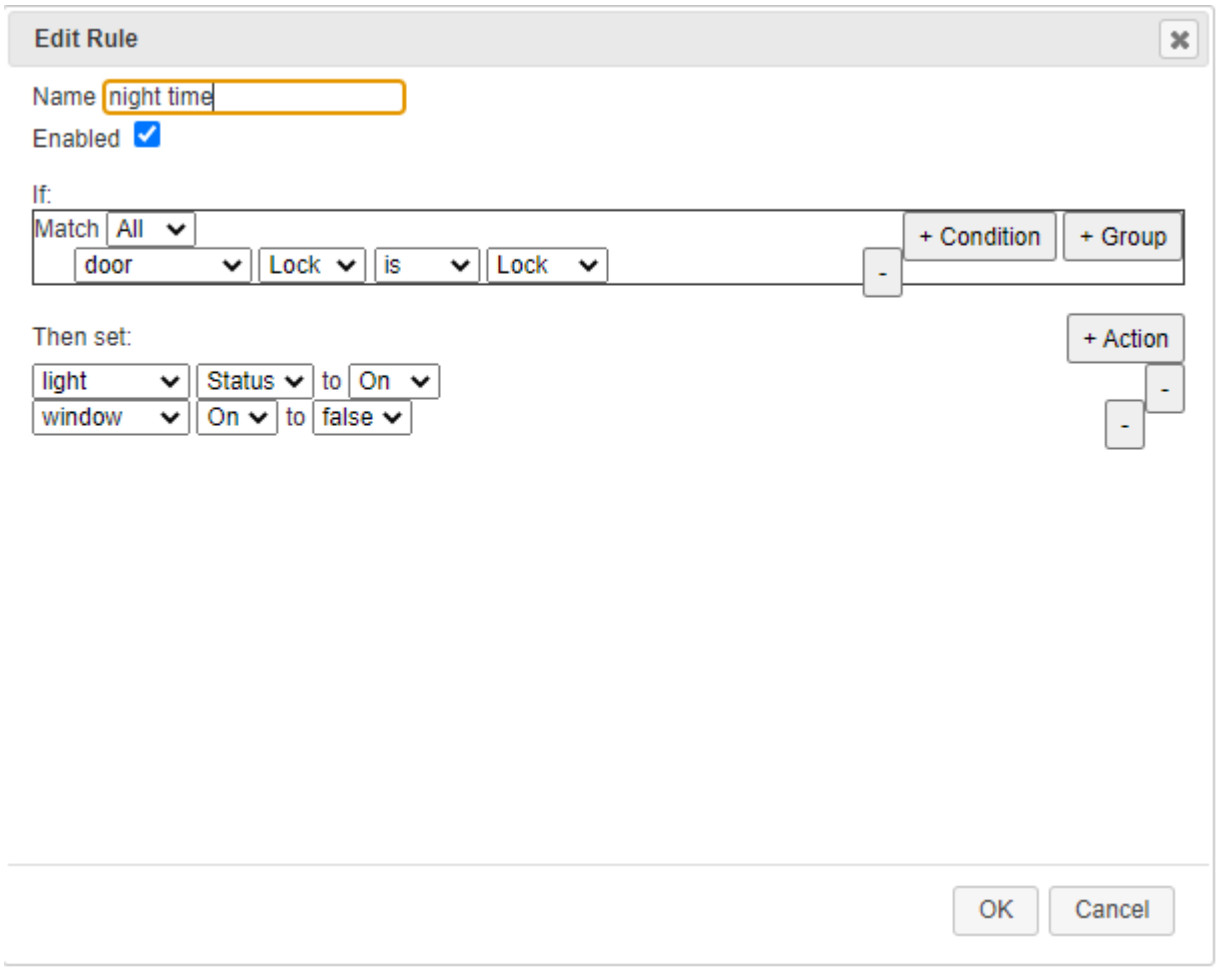


Now in the IOT Monitor of the Smartphone, add some conditions according to which the devices will work.

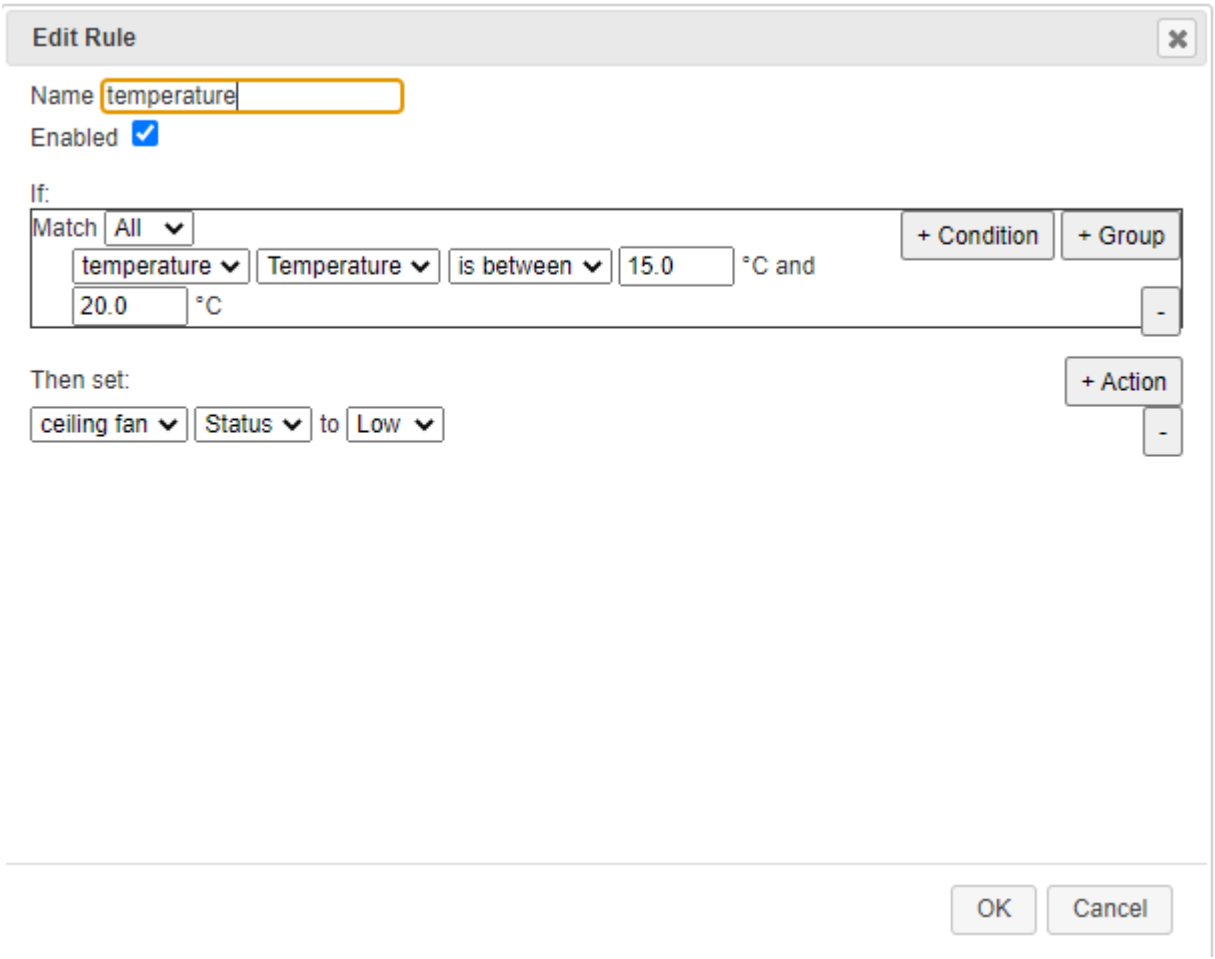
- The first condition will be to open the window and turn off the light if it is daytime, i-e: the door is unlocked.



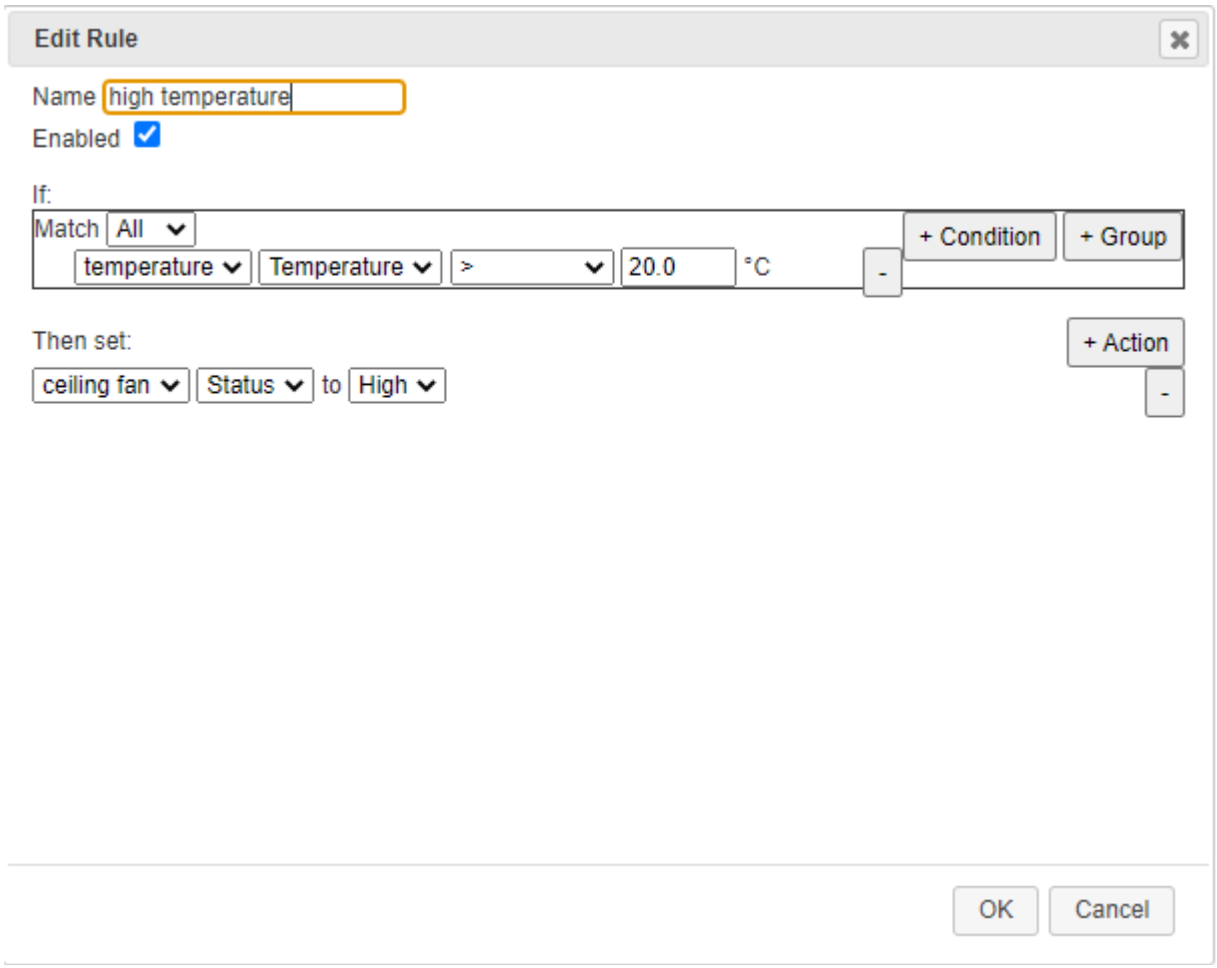
- The next condition will be the complete opposite of that.



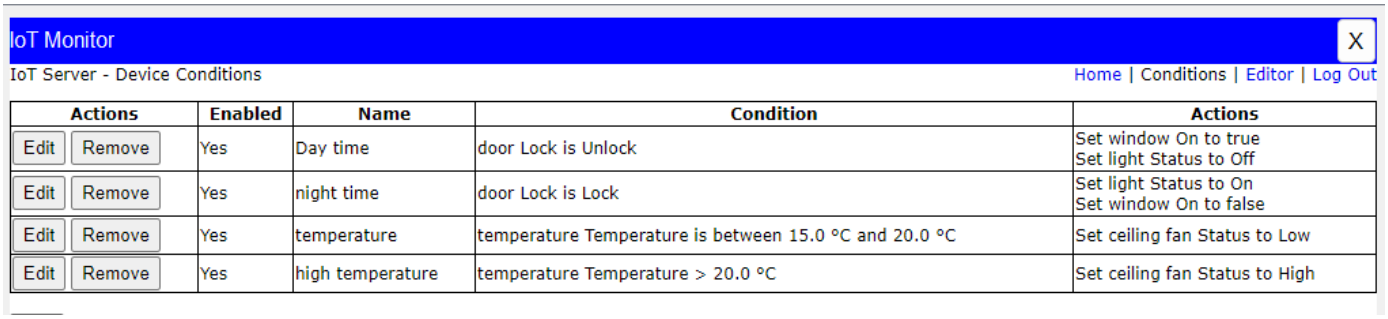
- Next if the temperature is somewhere between 15C and 20C, then set the speed of the fan to low.



- Otherwise the fan’s speed will be high.

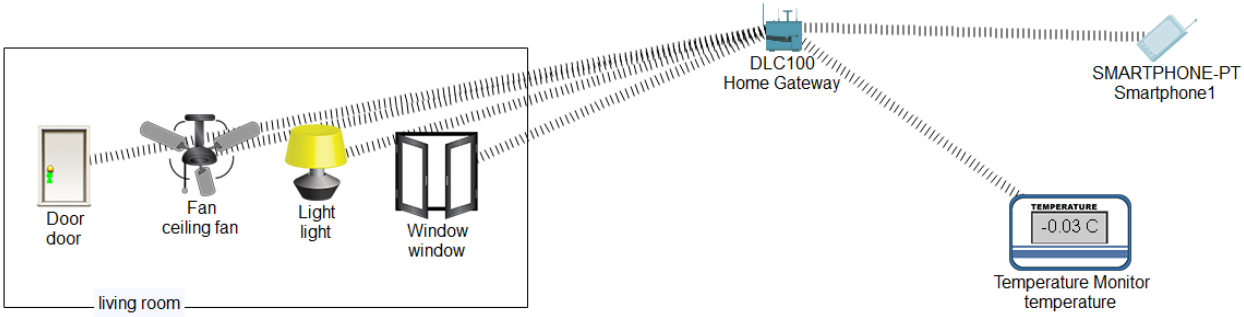


- This is the set of conditions:

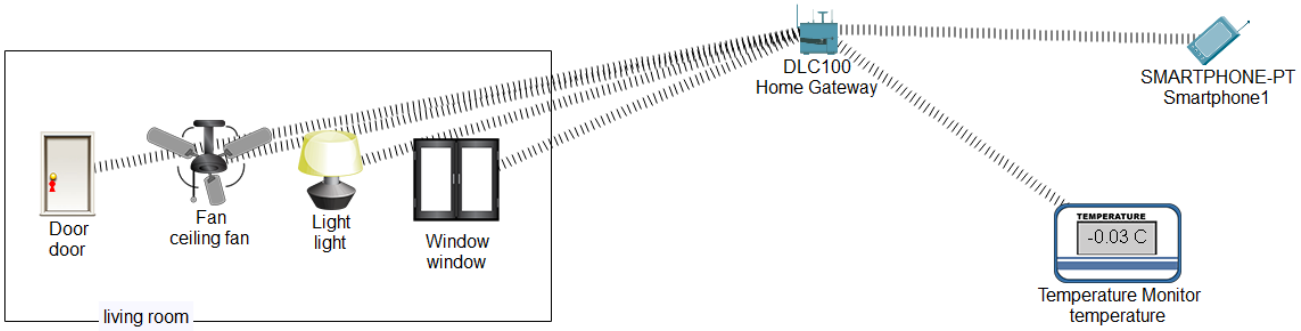


Actions	Enabled	Name	Condition	Actions
Edit Remove	Yes	Day time	door Lock is Unlock	Set window On to true Set light Status to Off
Edit Remove	Yes	night time	door Lock is Lock	Set light Status to On Set window On to false
Edit Remove	Yes	temperature	temperature Temperature is between 15.0 °C and 20.0 °C	Set ceiling fan Status to Low
Edit Remove	Yes	high temperature	temperature Temperature > 20.0 °C	Set ceiling fan Status to High

- In the following scenario, the light is off and the window is open when the door is unlocked (daytime):



- This is the night time scenario:



- Also we can notice that the fan is at low speed. This is because the temperature is not between 15C and 20C.
