Green University of Bangladesh
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Faculty of Sciences and Engineering
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Lab Project Name: Smart Home Network Using Cisco Packet Tracer

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Lab Project Status

Marks: …………………………   Signature: ....

Comments: ....   Date: ....

Table of Contents

Chapter 1

Introduction

1.1 Introduction

Smart home is a living home that contains smart objects that can automate home tasks in advance without engaging users such as tracking home environment condition by different sensors (temperature, humidity, smoke, wind, sound) then ventilate the air depending on sensor details. Instead of providing protection security, smart home can have different functions by providing more automatic security using different alarm systems such as siren sound, LCD monitor and sending email to legitimate users if sensor detects security problems. Automation is common because it offers convenience, reliability and a safe environment. In our network, all smart devices are registered and operated by a legal entity at the home gateway. By using various sensors in home automation, smart home decreases user engagement in tracking home settings and managing home appliances. While the word "Internet of Things" (IoT) was first adopted, what is known as "Things" could be the primary issue. "Until recent years, the definition of IoT has been tried by groups of scholars and organizations. "Haller et al." proposed a definition of IoT with "an environment where physical objects are easily inserted into the knowledge network and where physical objects can become involved business process participants". IOT is an Internet of Things abbreviation that refers to uniquely recognizable objects (things) and their virtual manifestations in an Internet like structure. Currently, the Internet of Things (IoT) is a technology launched to automate connectivity by linking as part of the internet various objects around us. Integrated IoT of objects with remote and local control networking technologies.

Smart windows, smart lamps, smart doors, smart fans with various detectors and sensors are some of the items. We used recently released cisco packet tracer simulation tools to build and customize IOE systems with classical networking devices for smart home development.

1.2 Design Goals/Objective

- Explore the Existing Smart Home Network
- Add Wired IoT Devices to the Smart Home Network
- Add Wireless IoT Devices to the Smart Home Network

Chapter 2

Design/Development/Implementation of the Project

2.1 Design of the system

Here we have connected more than 13 IoT product which are commonly use in home. Lights, Fan, Air Condition which are the common utility product of home. The IoT system care about the security as well. This system has controlled security camera, automatic doors, automatic windows and smock detector via wireless system.
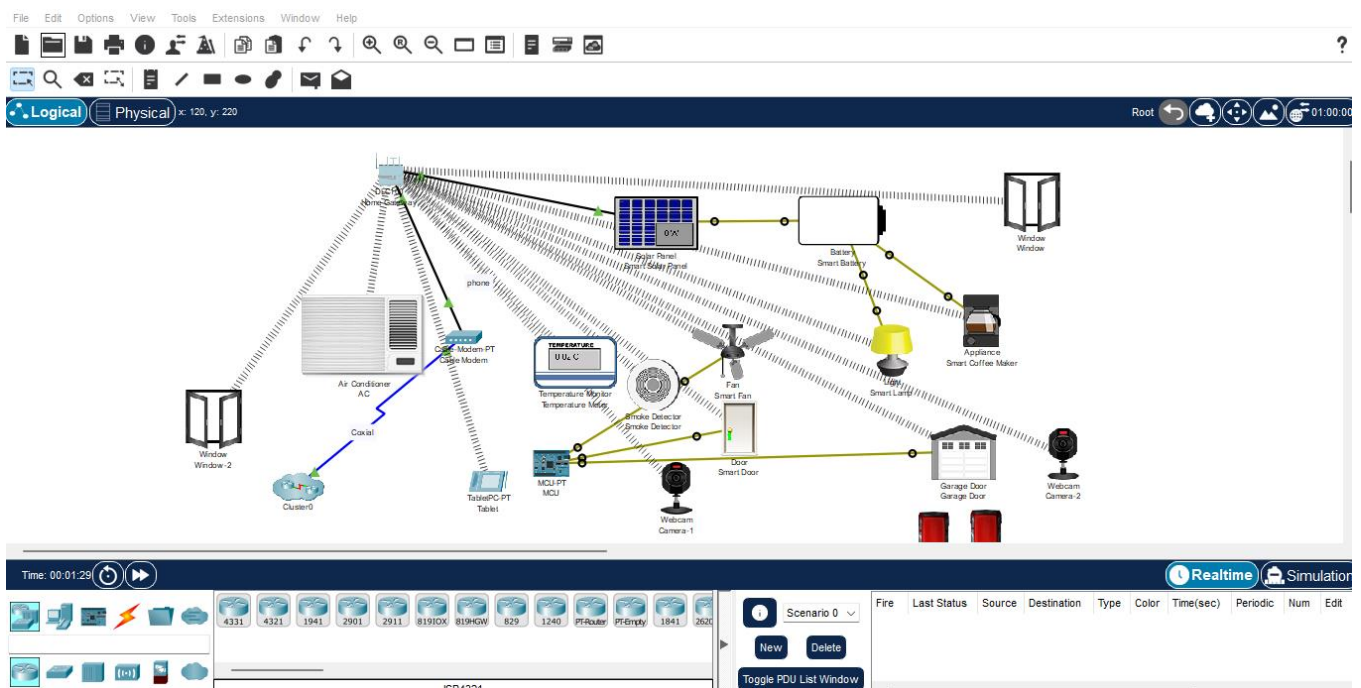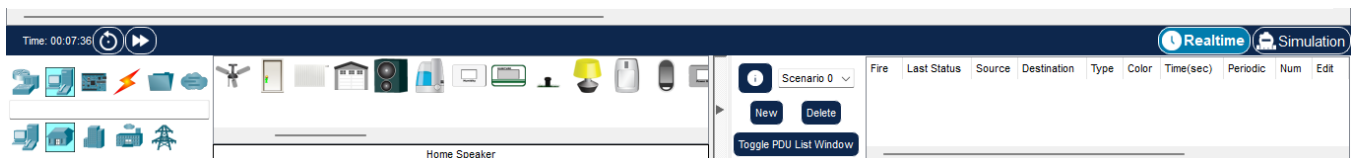
2.1.1 Visual Product

Figure 2.1: Smart home

Chapter 3

Performance Evaluation

3.1 Simulation Environment/ Simulation Procedure

Adding IoT device of smart home

Across the bottom of the Packet Tracer window, the Device-Specific Selection box displays the many different Smart Home IoT devices available. By, moving the mouse pointer over each device and notice that the descriptive name of the device is displayed at the bottom of the Device-Specific Selection box.
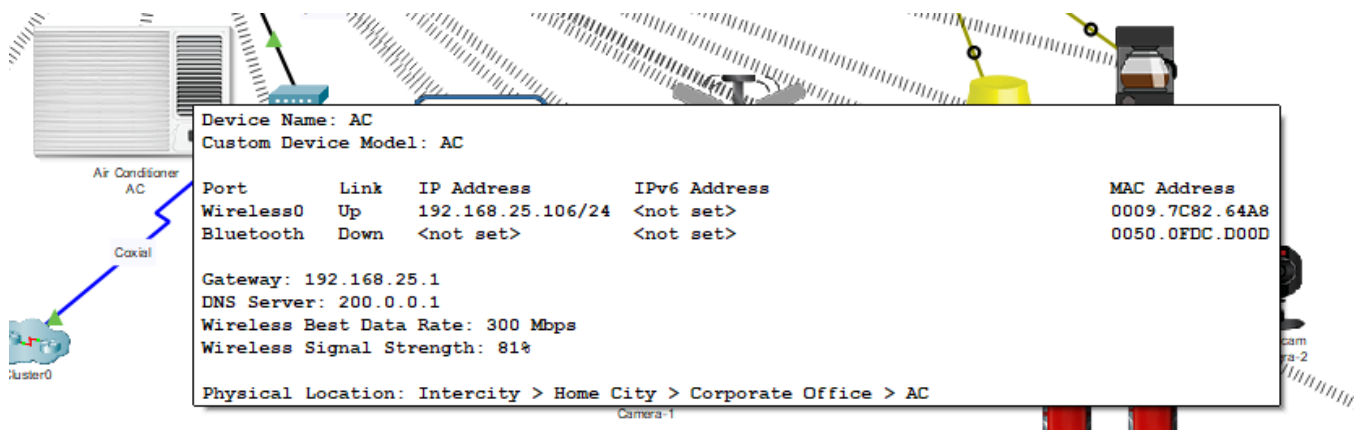
When we place the curser over a device, such as the Smart AC, an informational window opens containing basic network information about that device.
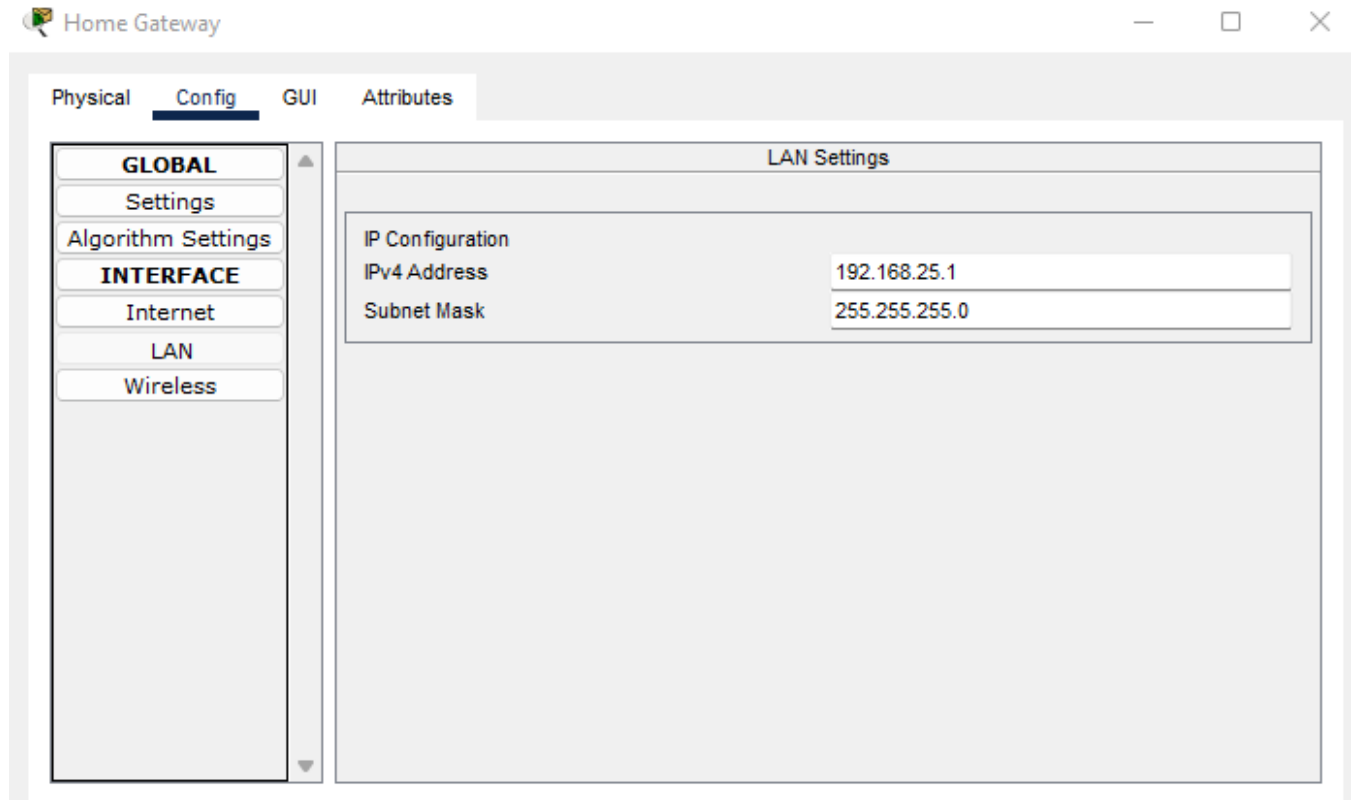
The smart home network also consists of infrastructure devices such as a home gateway. Click the Home Gateway icon to open the Home Gateway window.

The Physical tab is selected by default and shows a picture of the Home Gateway.
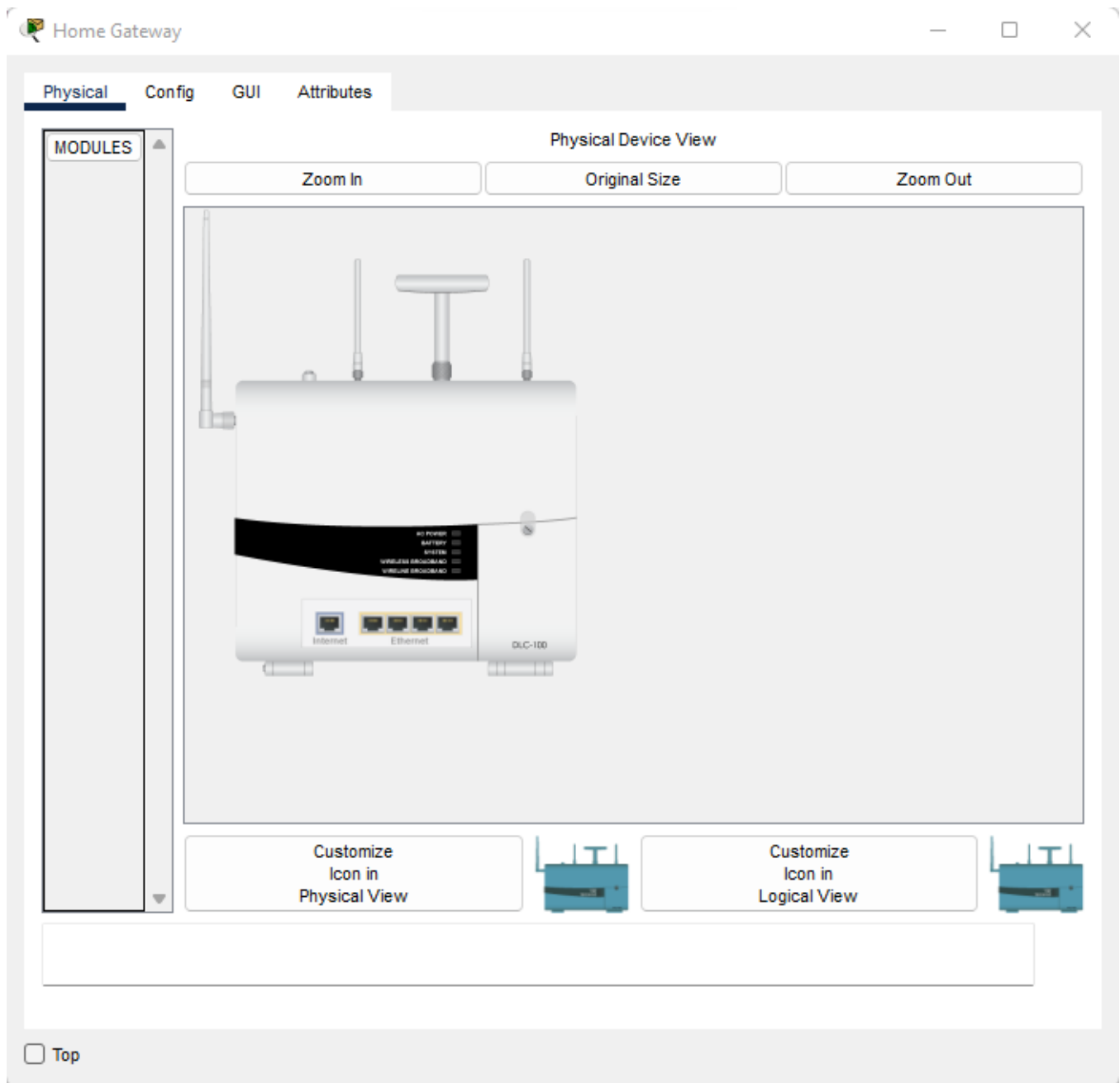
Next, click the Config tab and then in the left pane click LAN to view the LAN Settings of the Home Gateway.
Then we write down the IP Address of the home network for future reference.
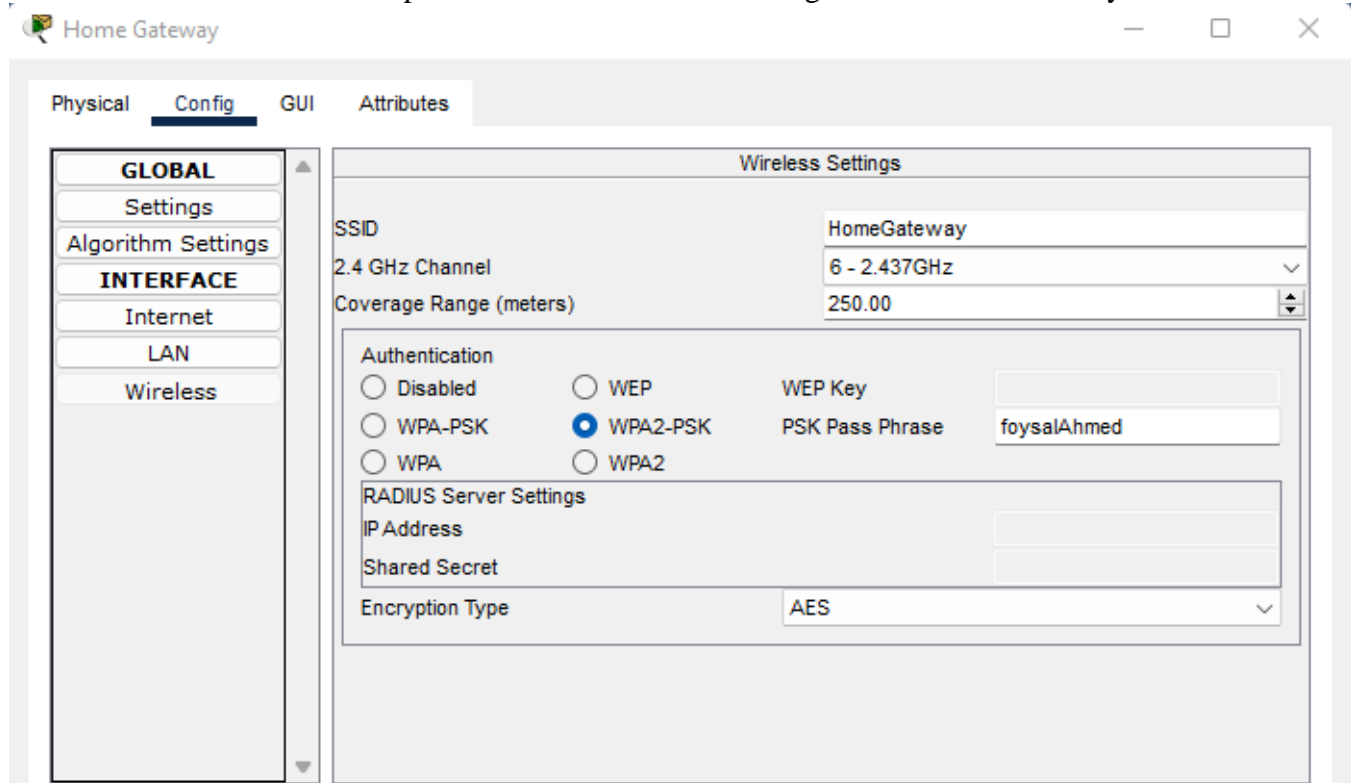
Then click Wireless in the left pane to view the wireless settings of the Home Gateway.

Next, we click the Tablet device icon to open the Tablet window.

TabletPC-PT
Tablet
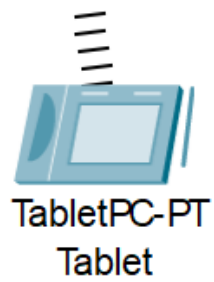
In the Tablet window, we select the Desktop tab and then click the Web Browser icon.
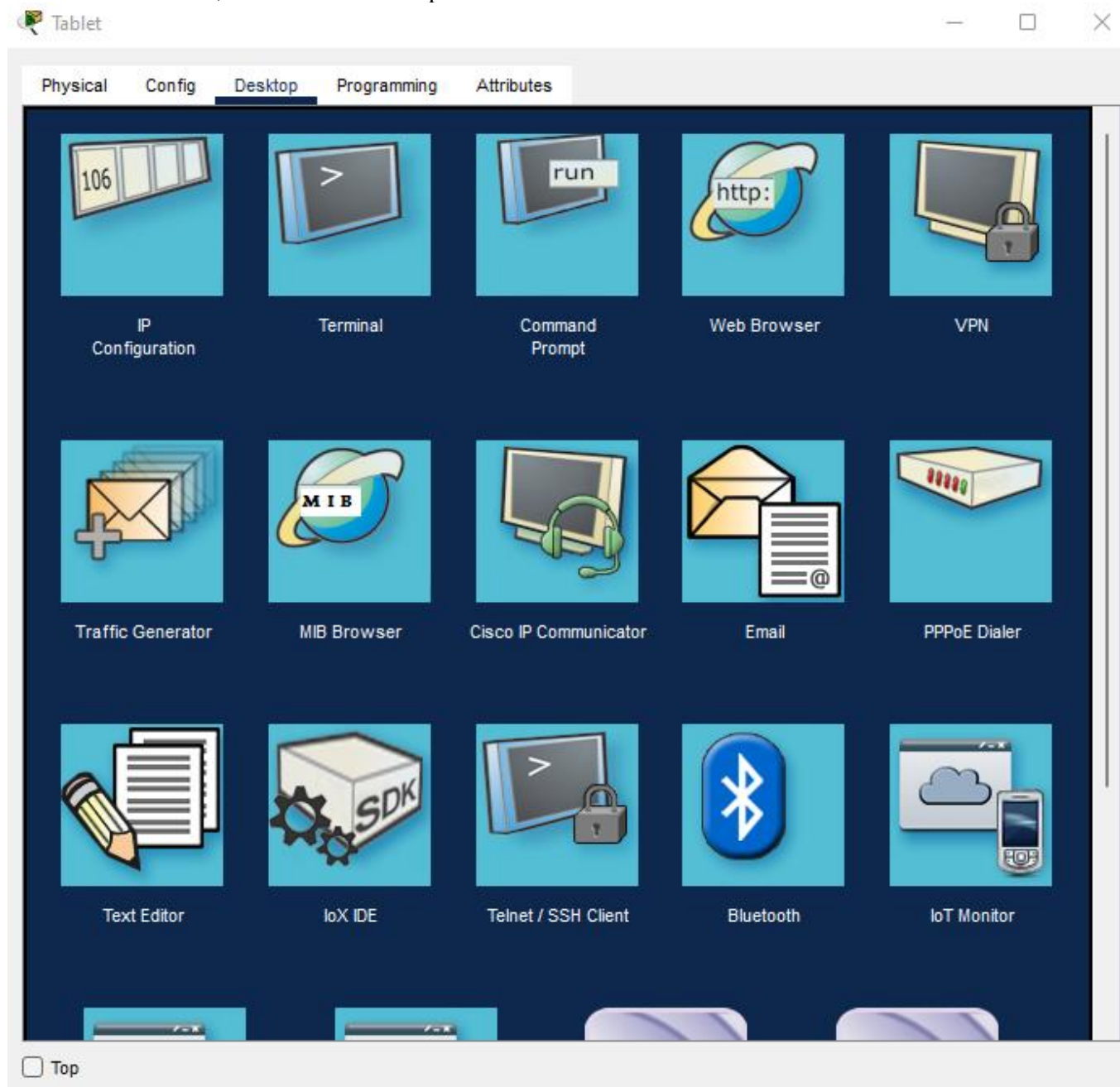
In the Web Browser window, we type the IP address of the Home Gateway 192.168.25.1 into the URL box and click Go. In the Home Gateway Login screen, type admin for both the username and the password and click Submit.
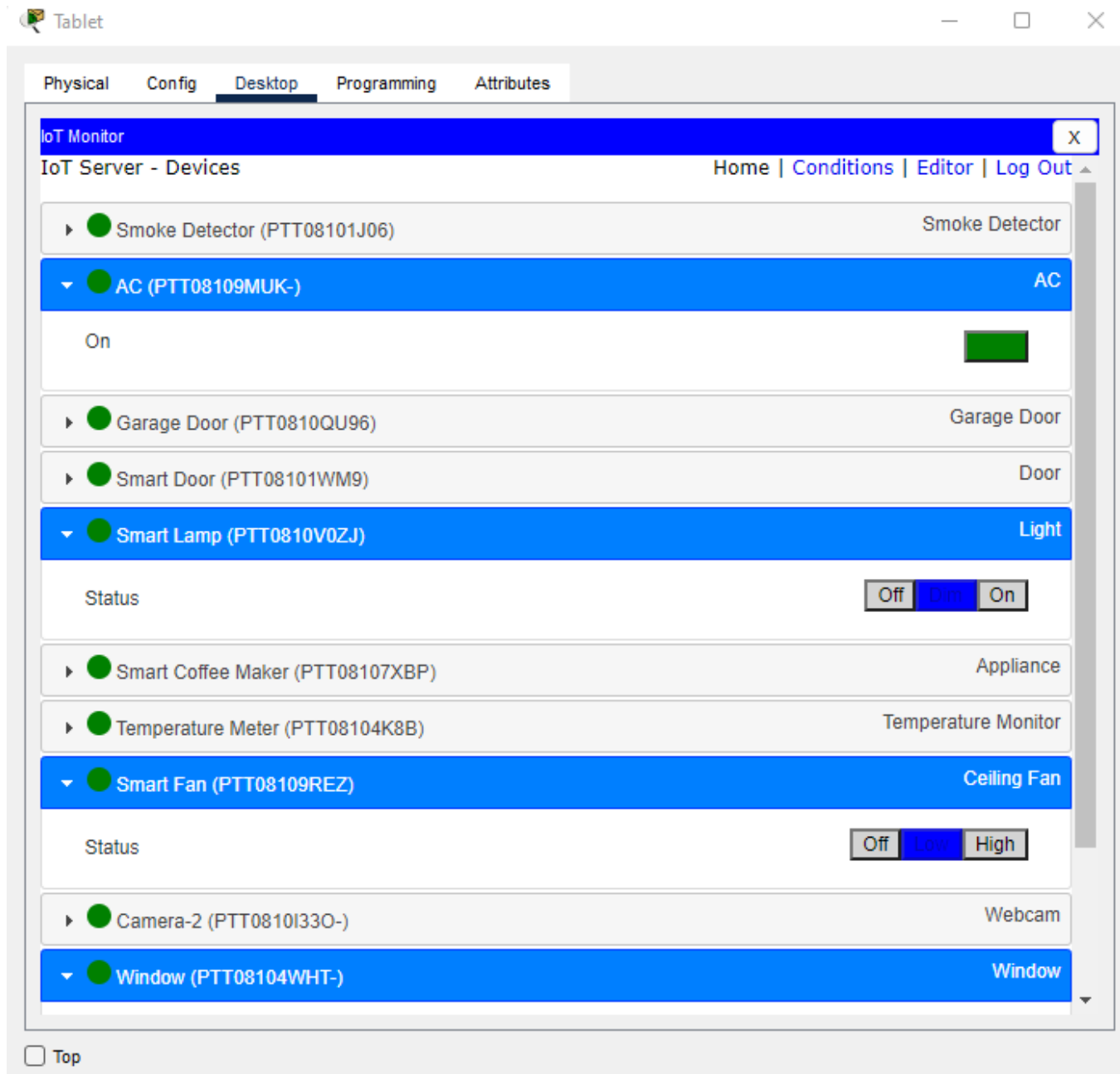
After we have connected to the Home Gateway web interface, a list of all the connected IoT devices appears.
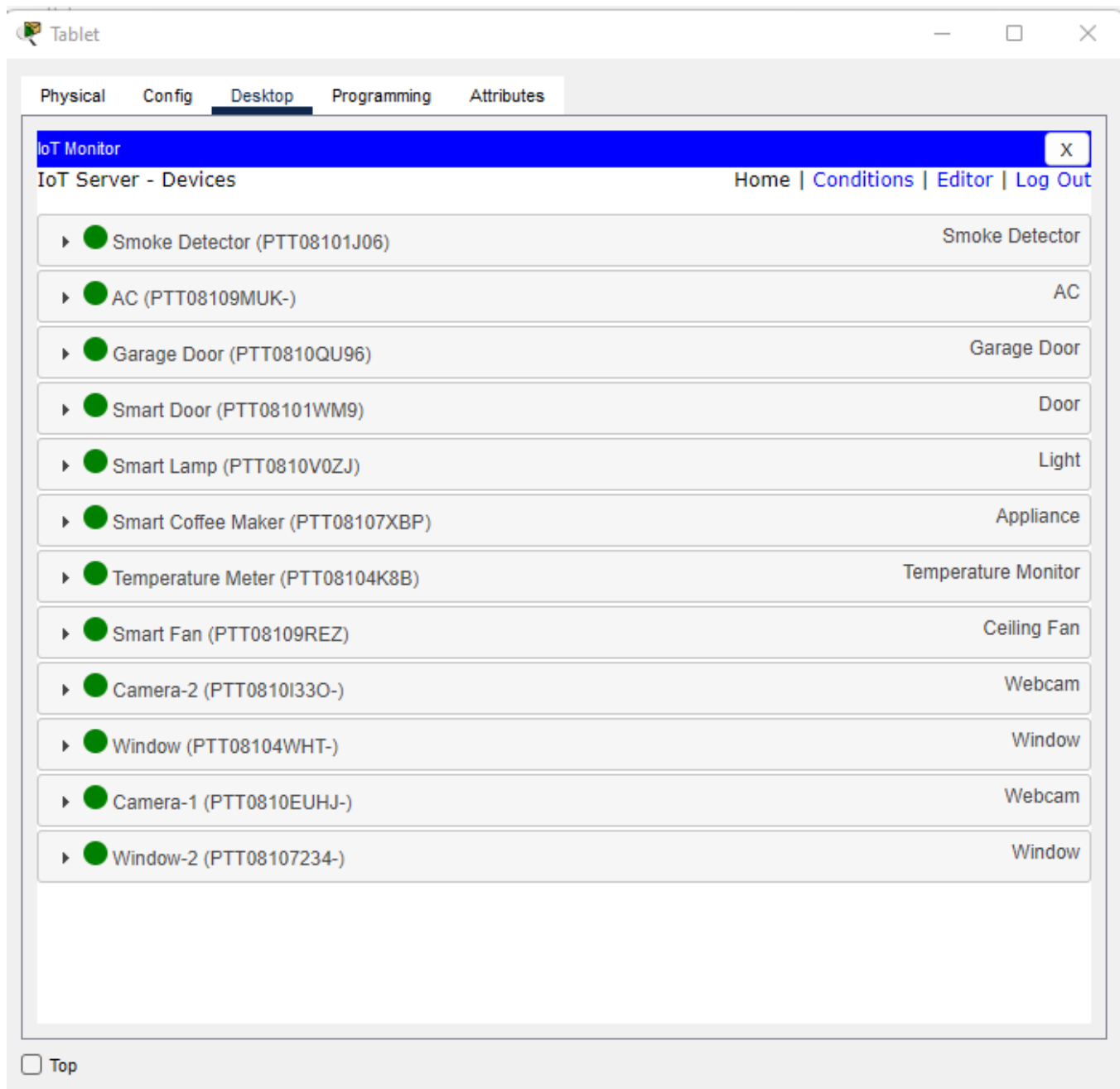
When we click a device in the list, the status and settings of that device is displayed.

3.2 Results and Discussions

3.2.1 Results

This is the very first setup of the home utilities and security
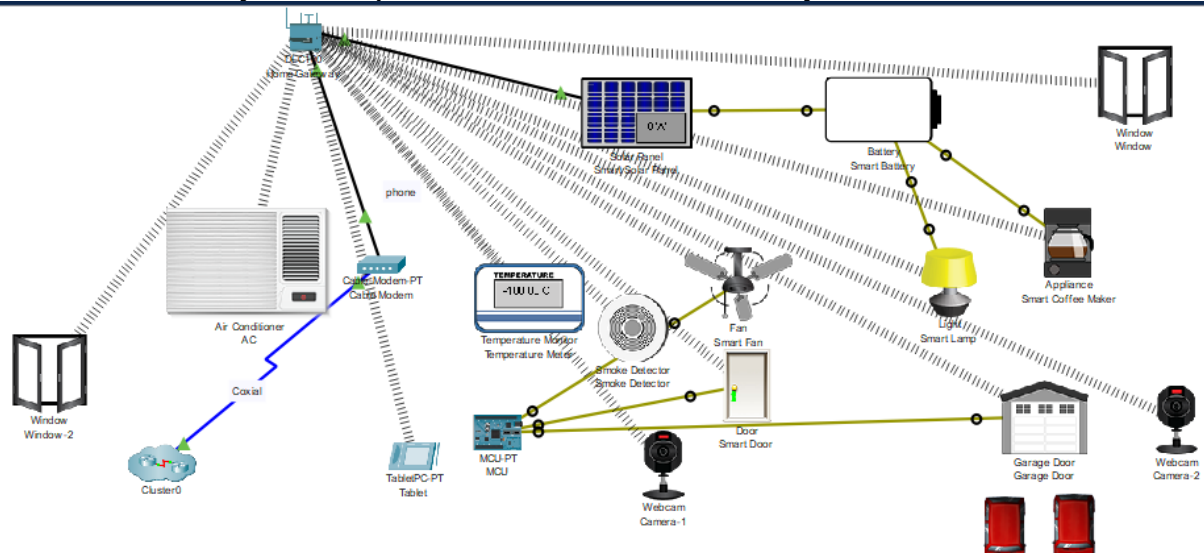
3.2.2 Analysis and Outcome

Here we have turned some of our devices on. Those are controlled via wireless devices.

Chapter 4

Conclusion

4.1 Introduction

In this project, we implemented smart home using new released cisco packet, because this version included different IOE device used for home automation. We used 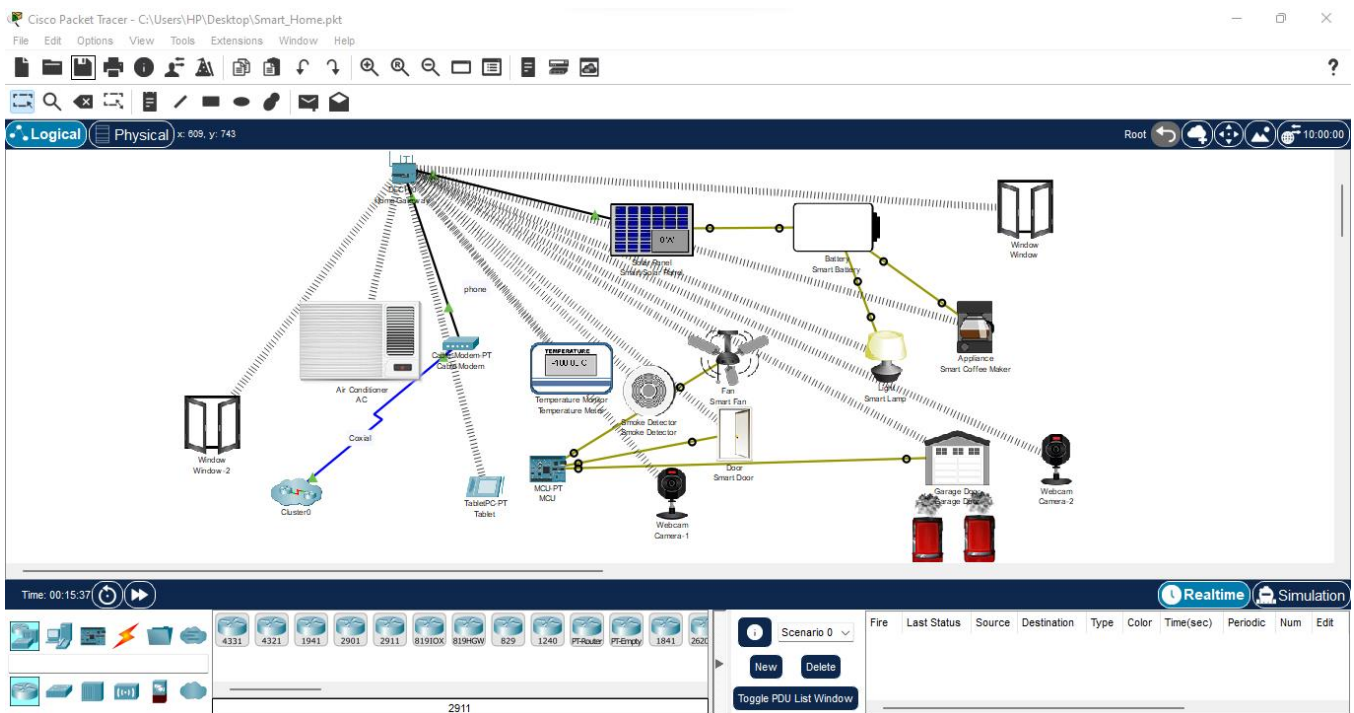home Gateway to register smart device on it to control them and Microcontroller (MCU) to interconnect different sensor and IOE device. Also, MCU provide programming environment to manage different device, different programming language available on MCU but I used JavaScript to control the device

4.1 Practical Implications

IoT based system are more practical in real world. It just needs more development and more feature. People now a days accept those technology to make them more technical and smarter.

4.2 Scope of Future Work

IoT itself is a future. Development of internet with 5G and the upcoming systems of network and the frames are based on this. To reached out to the future with featureful thing we need to grow and develop more IoT product.

References

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[8] Sun, Liangxu, et al. "Comparison between physical devices and simulator software for Cisco network technology teaching." Computer Science & Education (ICCSE), 2013 8th International Conference on. IEEE, 2013.