ABSTRACT

We saw many home automation technologies introduced over these years from ZigBee automation to Amazon Echo, Google Home and Home from Apple. It has become a craze these days. A smart home network refers to a convenient home setup where appliances and devices can be automatically controlled remotely from anywhere with an internet connection using a mobile or other **networked** device. Installing a smart home technology system provides homeowners with convenience. Rather than controlling appliances, thermostats, lighting, and other features using different devices, homeowners can control them all using one device—usually a smartphone or tablet

OBJECTIVE

- Idea to implement Smart Home Network in Cisco Packet Tracer.
- *Connecting* and *controlling* smart devices of the home either remotely or by being at home stationed at comfort place.
- Shall implement this smart network with two approaches namely :
    - ❖ Using Home Gateway Device
        - The Home Gateway device acts as a ***local connection*** to your IoT smart devices. This device was designed to provide Internet access, wireless connectivity, and local logic for smart devices. The Home Gateway device provides an IoT registration service (built-in) that is always turned on and an auto discovery service for Things in the local Ethernet and wireless network. Once connected to the home gateway, the user can control and monitor the smart devices from their smartphone, tablet, or PC.

    - ❖ Dedicated Registration Server
        - IoT devices can also be registered to a dedicated Registration Server for ***remote*** monitoring, configuration, or programming. The dedicated registration server has the benefit of being able to provide many other services to your network, such as Web, DHCP, DNS, email, and FTP. With a dedicated server, IoT devices would first be connected to a wireless network and would then be configured to register to the server.

ARCHITECTURE DIAGRAM AND SCREENSHOTS

Fig. 1.1 Smart Setup1

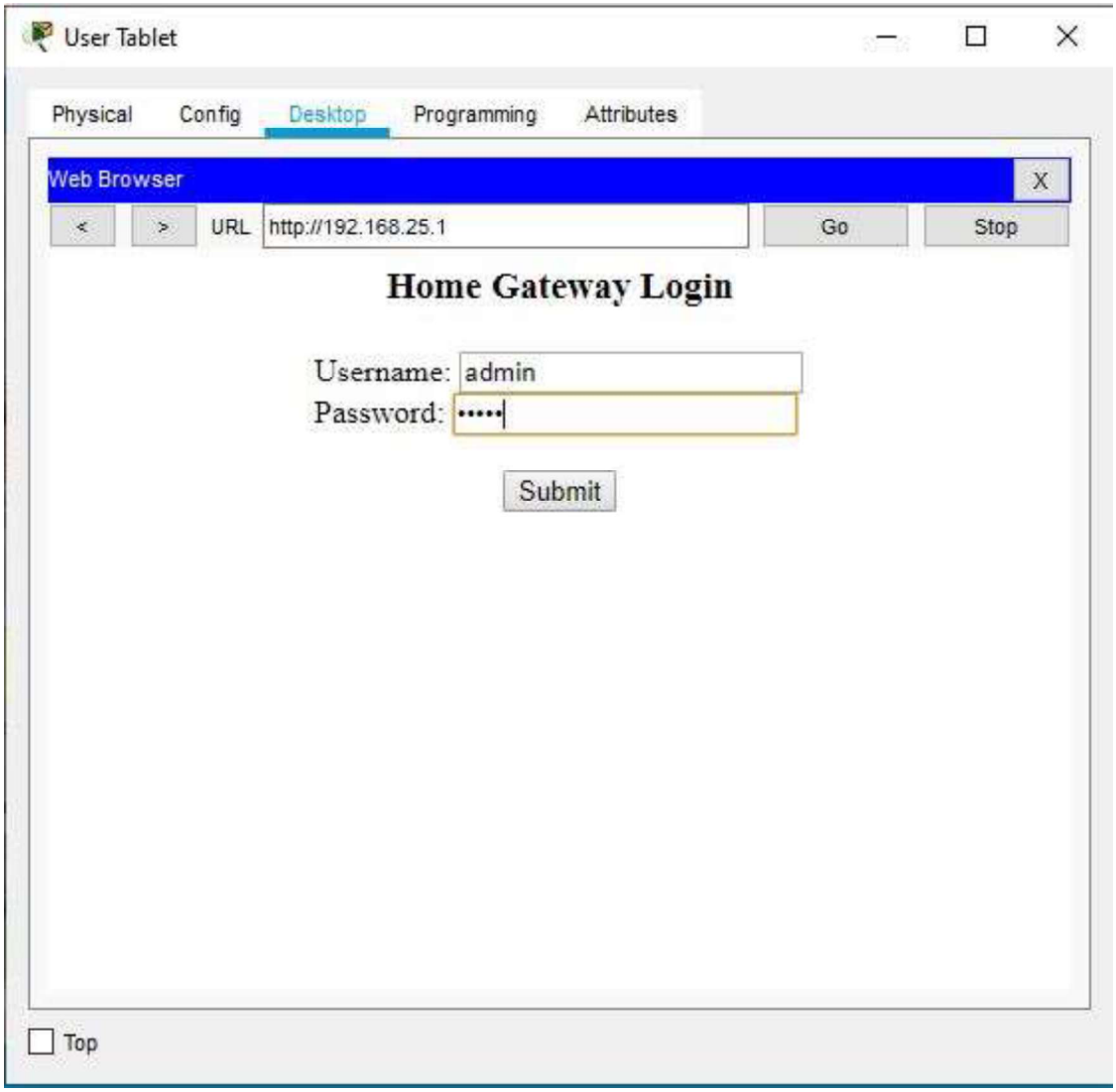

Fig. 1.2 Home Gateway Login

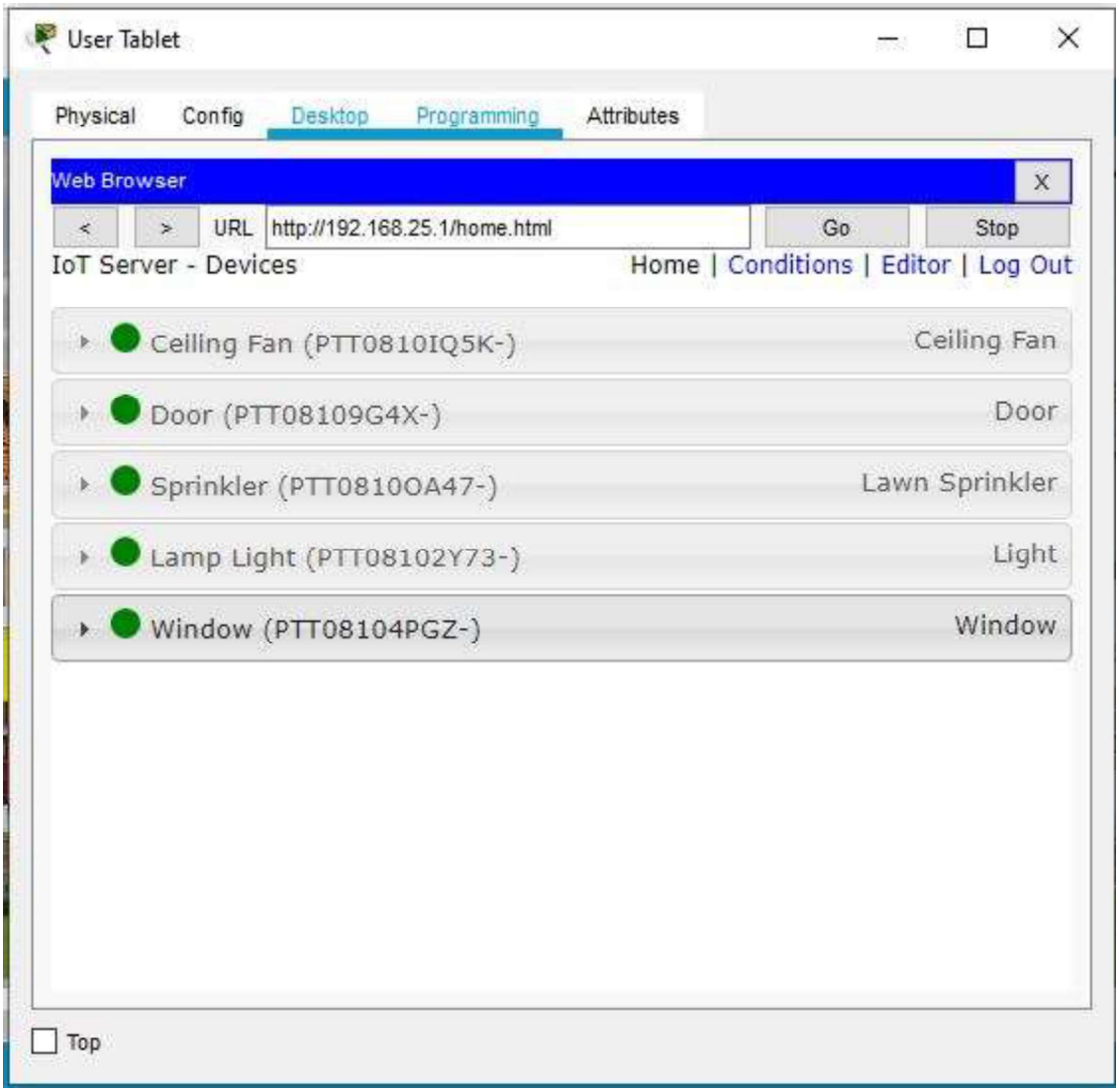

Fig. 1.3 Devices under Home Gateway

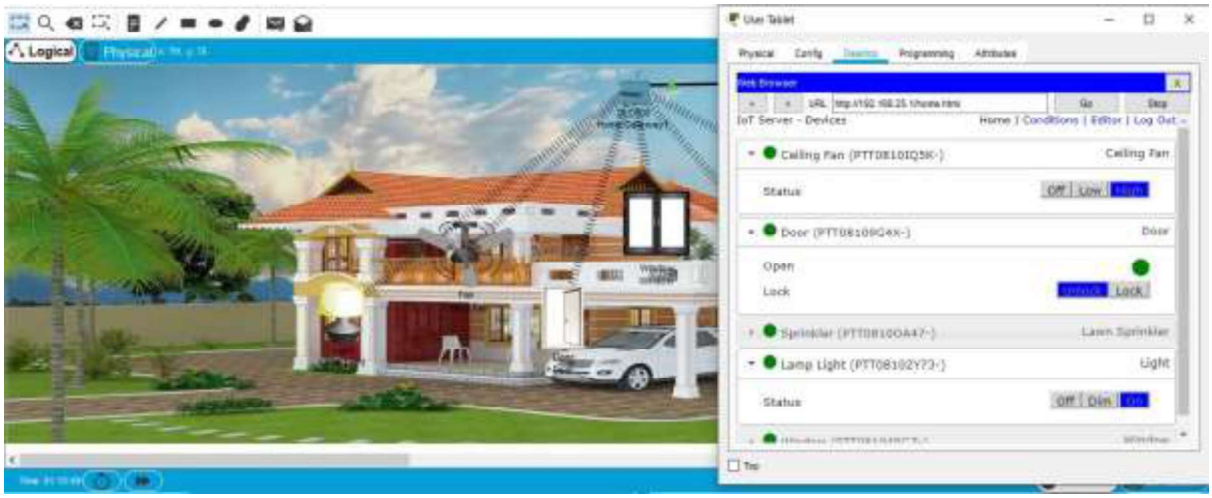

Fig. 1.4 Managing Smart Devices1

Fig. 1.5 All devices with management options

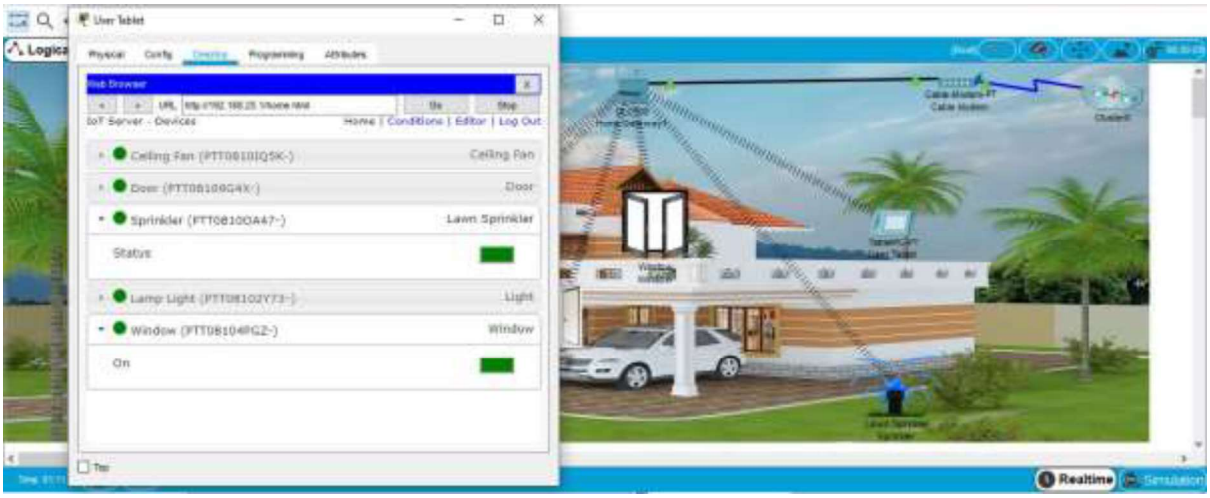

Fig. 1.6 Managing Smart Devices2

Fig. 2.1 Smart Setup2

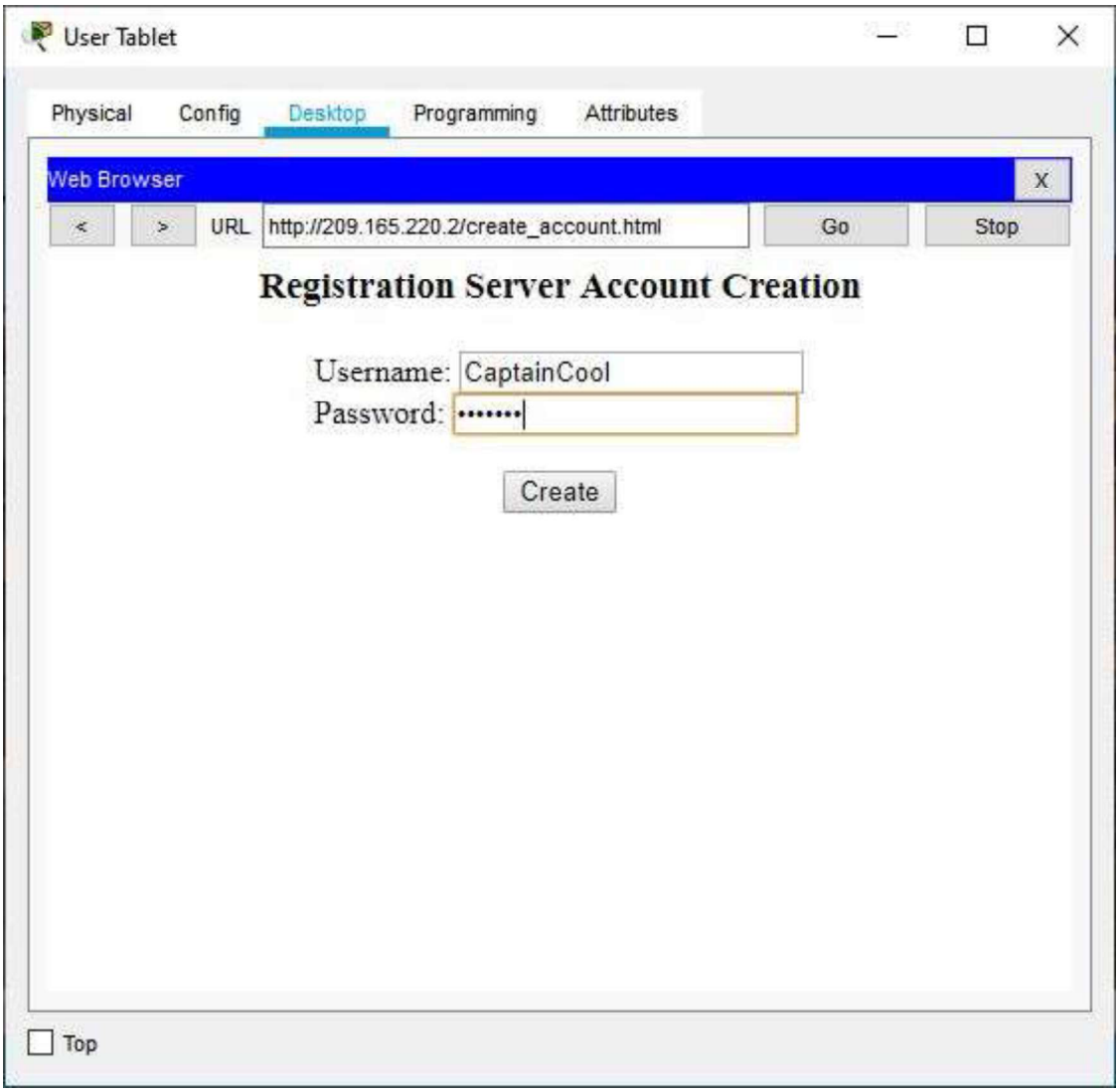

Fig. 2.2 Registration Server Account creation

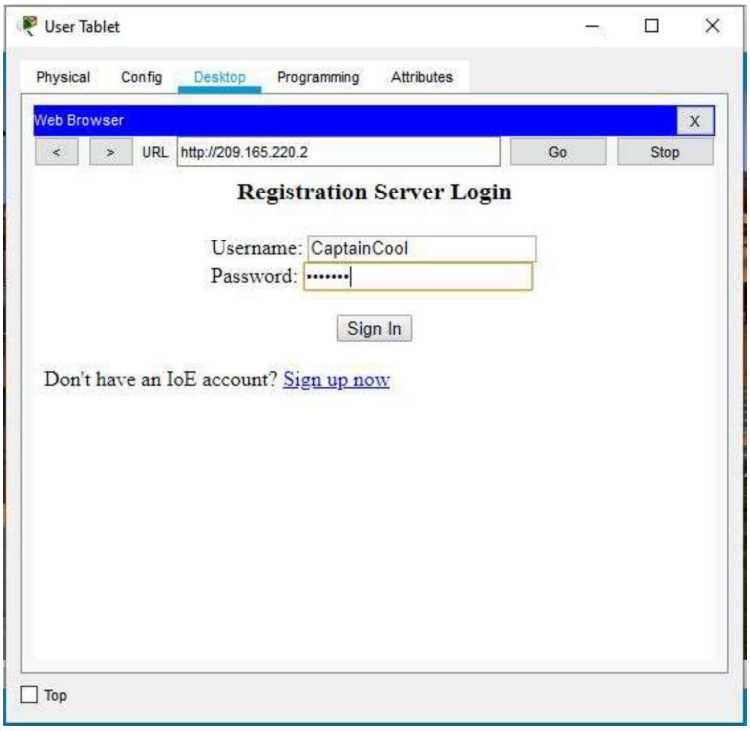

Fig. 2.3 Registration Server Account Login

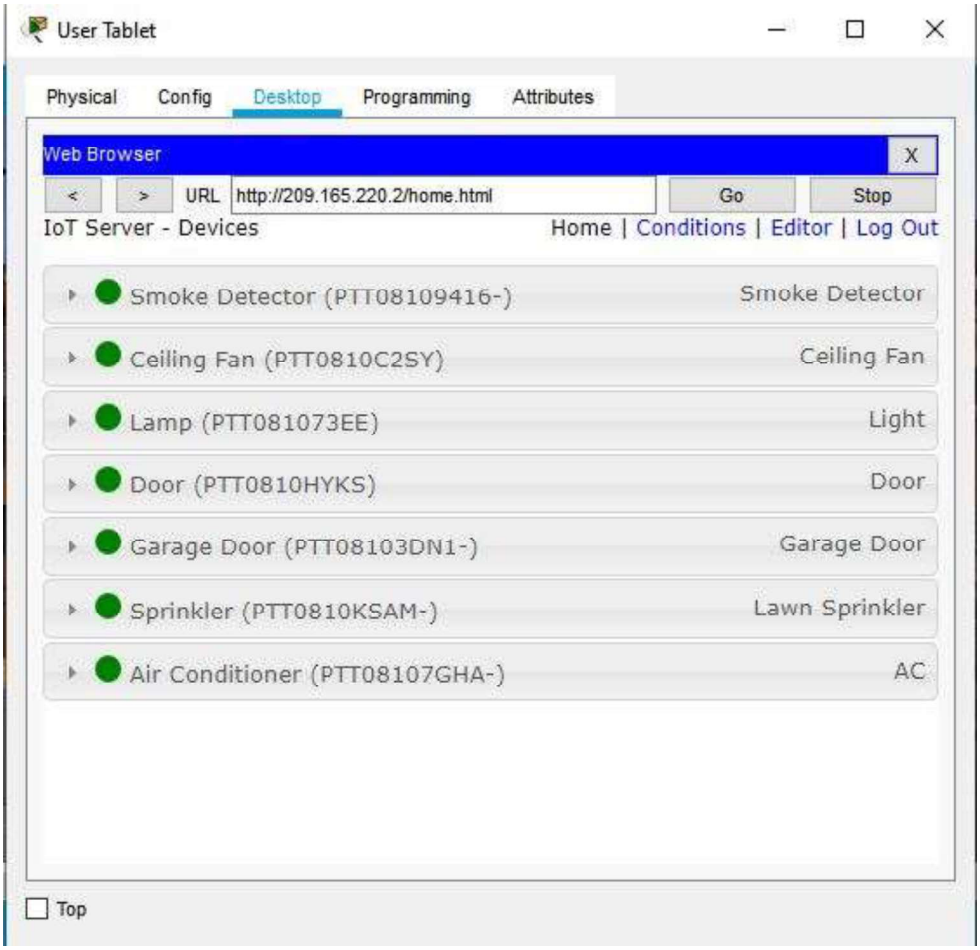

Fig. 2.4 Smart Home Devices registered to the server in user login

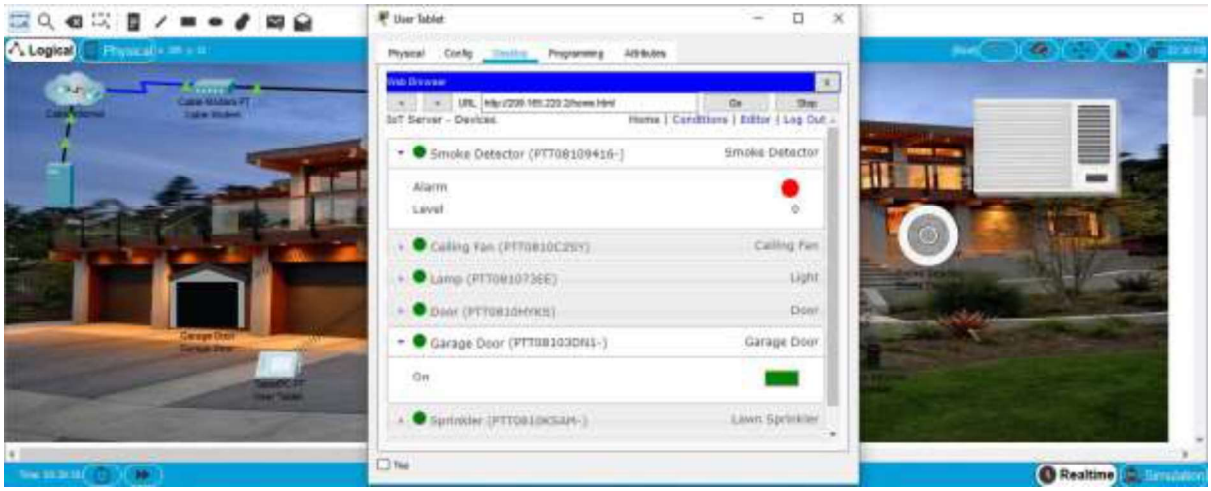

Fig. 2.5 Managing Smart Devices1

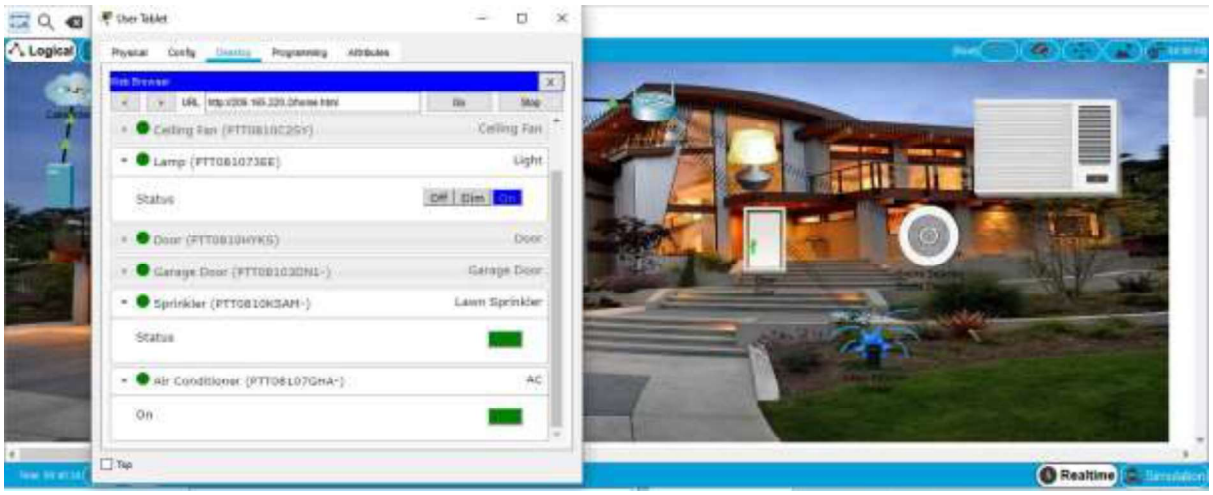

Fig. 2.6 Managing Smart Devices2

COMPONENTS OF PROJECT

1. Platform : CISCO PACKET TRACER

- A powerful **network simulation tool** built by **Cisco** to get real world experience.
- Helps to practice building simple and complex networks across a variety of devices and extend beyond routers and switches.
- Create solutions that are interconnected for smart cities, homes, and enterprises.
- One can use it alongside instructional courses, professional training, work planning or just to have some fun.

2. Smart IoT devices List

- ✓ Home Gateway
- ✓ Registration Server
- ✓ Ceiling Fan
- ✓ Lamp
- ✓ Door
- ✓ Garage Door
- ✓ Water Sprinkler
- ✓ Smoke Detector
- ✓ Cables
- ✓ Modem
- ✓ Router
- ✓ User End device : Tablet/PC/Mobile Phone
- ✓ Air Conditioner

ADVANTAGES AND APPLICATONS

ADVANTAGES:

- Simulation based visualization.
- Monitor and manage all smart devices of home either remotely or being at home.
- Access any device of the home using end devices like PC/Mobile Phone/Tablet.
- Reduction in manual interruption to turn the devices ON/OFF/Manage.
- Provides with a better comfort level.
- Helps in proper utilization of resources and minimize resource wastage.

APPLICATIONS:

- In smart home appliances.
- To build Smart Home Network.
- Not only at home but can also be deployed in organizational offices, schools and colleges, factories, and at many more places.

REFERENCES

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5. https://www.youtube.com/watch?v=JaZt6GD4A5k
6. https://www.youtube.com/watch?v=NU-sQxp_XZo