COE 4DN4 LAB 1 REPORT

A Simple 'Internet-of-Everything' Smart-Home Server

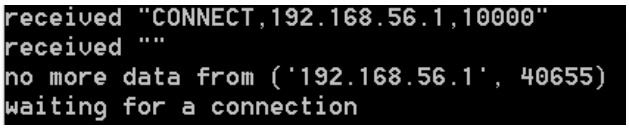
Jingnan Chen, 1073196, Wei Zhang, 0951321

Introduction

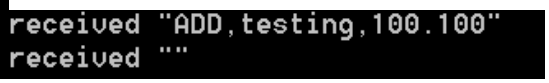
This lab is motivated by the “Internet-of-Everything”, which is a relatively new concept of devices connected to the internet to have the ability to be accessed anywhere in the world. The main objective is to design a server and client to communicate over the internet, to control devices remotely. This lab simulates the “Internet-of-Everything”, it creates a connection between the server at “Home” and a remote control client, for example, a mobile-phone. The application then allows you to read and set values to devices from a remote client, and allow us to explore the idea of “Internet-of-Everything”.

Experimental Results

1. Start and sever and establish the connection from the client side. (Both screenshots from server side.)



2. Add a new device “testing” to the list. (Left screenshot from client side; Right screenshot from server side.)

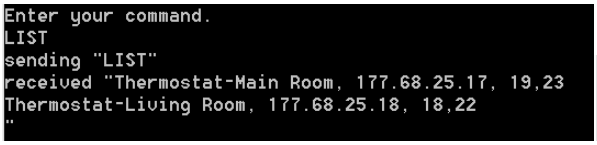


3. Write a target value, 999 for the new device. (Left screenshot from client side; Right screenshot from server side.)

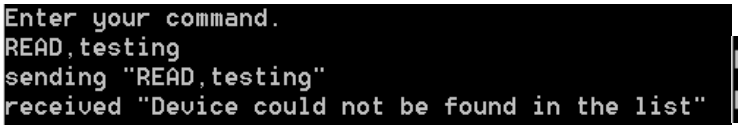
4. Read the new device’s value. (Left screenshot from client side; Right screenshot from server side.)

5. Remove the new device. (Left screenshot from client side; Right screenshot from server side.)

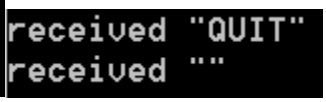
6. List all the devices in the server (self-defined function). (Left screenshot from client side; Right screenshot from server side.)



7. Read the removed new device, expecting “device not found” message. (Left screenshot from client side; Right screenshot from server side.)



8. Quit from the server (Left screenshot from client side; Right screenshot from server side.)



Issues and problems

One of the issues we encountered at first was adding duplicated devices to the list, which should not be allowed if the IP address is the same. We solved this by adding an if-statement to check from duplication before adding a new device to the list

Secondly, delimiting commands and parameter by spaces is not a practical way, due to names that contain spaces; instead we used commas to separate parameter.

Thirdly, Sometimes the server will halt when the client sends the wrong data or repeated data. This might be cause by the “end” character, so we made sure the command is ended before sending the next command.

TA’s name for demonstration

We demonstrated to **MARYAM REZAEE** on **Wednesday Jan 22, 2015**.

Conclusion

In Summary, This lab demonstrated the basic connection between a server and a client via the internet. This program allowed us to design decisional logic to respond to different commands from the client. The server is also able to accept multiple connections from clients. Additionally, this lab allowed us to explore the fundamental idea of the “internet of everything”.