Politechnika Świętokrzyska w Kielcach
Wydział Elektroniki, Automatyki i Informatyki

Technologie IoT rozproszone sieci sensoryczne

Temat: Big Data (4.2.2.4 | 4.2.2.5 – Packet Tracer) And IoT Systems in the Real World (5.3.2.8 | 5.3.3.4 -Packet Tracer)	Grupa: **3ID15A** Konrad Nowakowski Michał Ortyl

Packet Tracer 4.2.2.4

1. First part
   In this task we were to investigate how a smart home works.
2. Answers to the questions in the manual:
   a) Two coaxial cables leave the coaxial splitter in the topology shown. Which devices does the coaxial cable connect to?
      - Smart Window
      - Cable Modem0
      - Tv

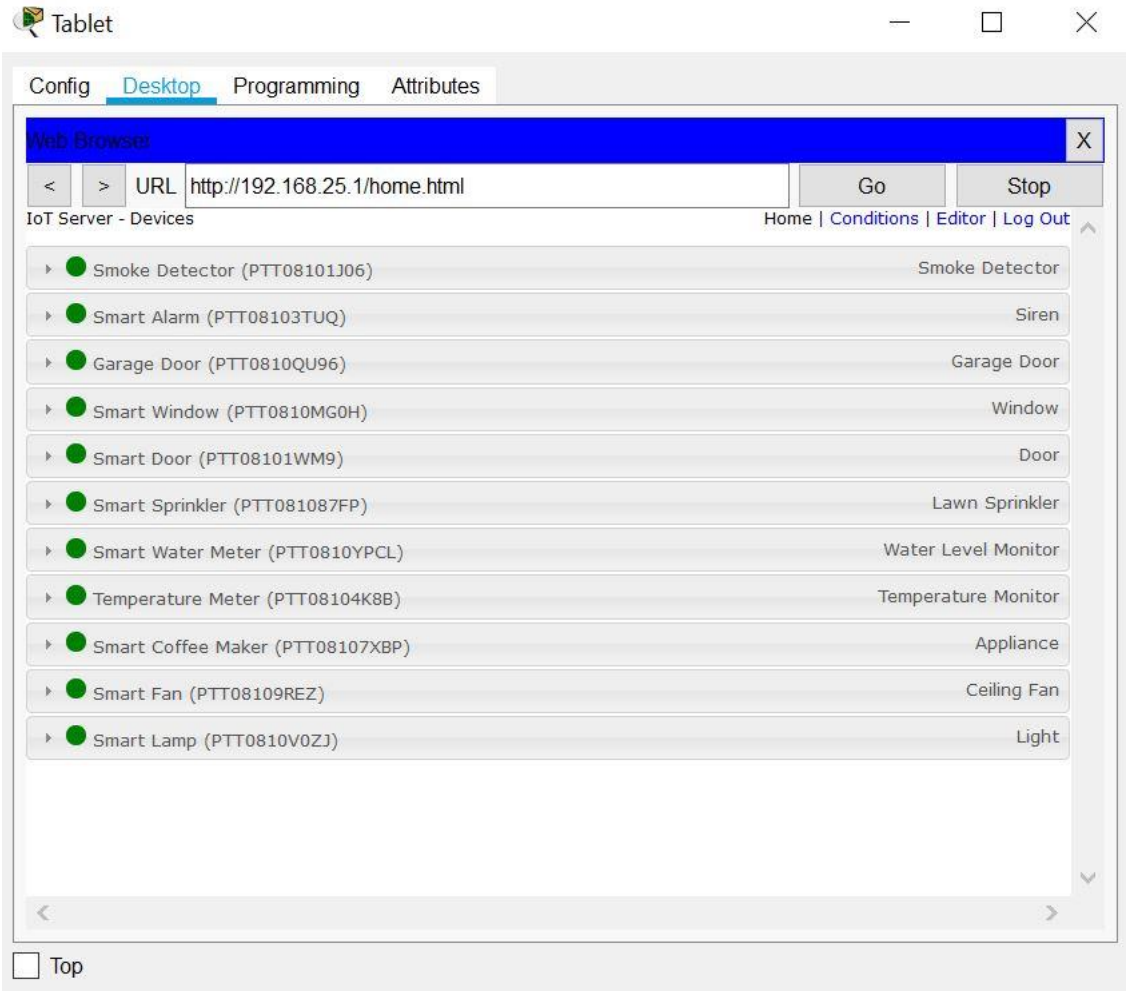
   b) The cable modem is the interface between the ISP's network and the home's network. To which devices does the cable modem connect to?
      - Home Geteway0
      - Coaxial Splitter0

   c) List all home devices connected to the Home Gateway.
      - Cable modem0
      - Smart Solar Panel

3. Second part

4. Answers to the questions for the second part

e) What is displayed?



h) Was the door locked? How do you know?

- The marker on the door has changed from green to red.

j) Click the smoke detector in the browser to expand the section. What is the smoke level reading provided by the smoke detector.

- level=0

k) Can the smoke detector be controlled?

- Yes, smoke detector can be controlled.

5.Third part

6. Answer the questions for the third part:

f) Start the car engine by holding the Alt key and clicking the classic car.

What happens to the air inside the house with the car running inside the garage?

What happens to air inside the house after the MCU opens the doors and windows, and start the fan?

- Drop in smoke level

Does the MCU close the doors and window, and stop the fan?

- MCU can do this.

g) While still monitoring the levels, stop the classic car's engine by holding the alt key and clicking classic car.

What happens to air quality inside the house after the engine is stopped?

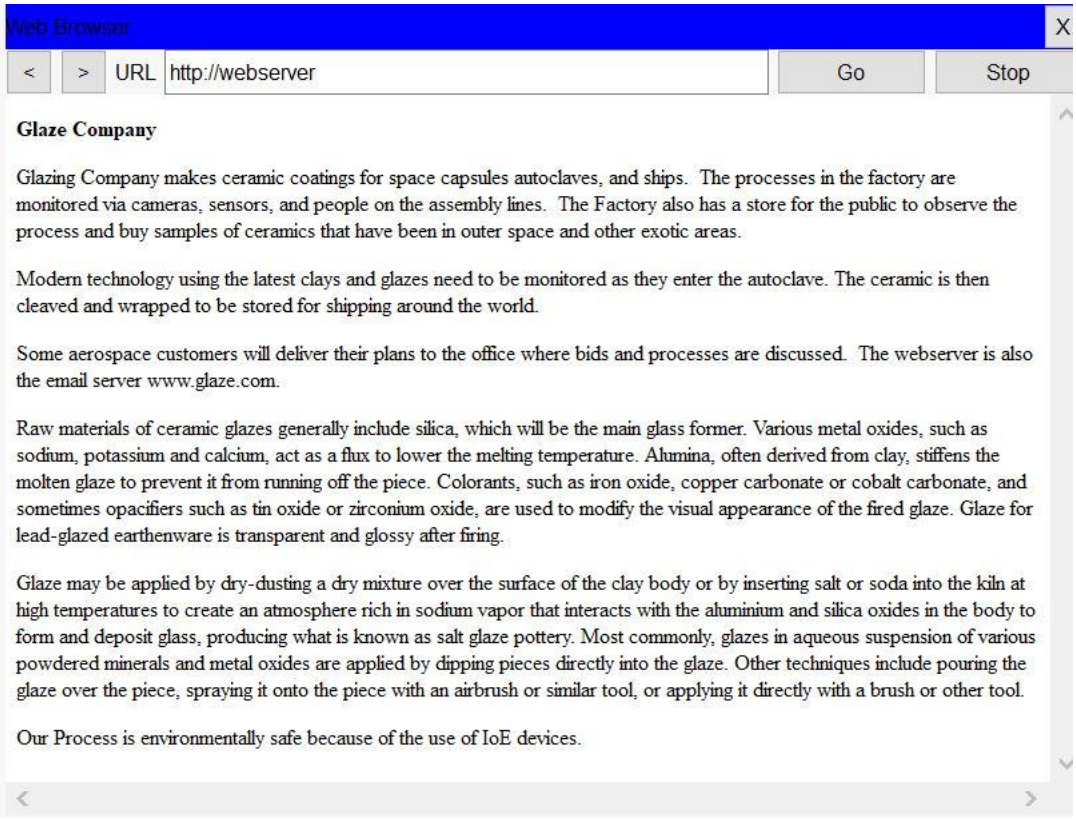
- smoke levels drop

What happens to the doors, window and fan?

- The door, window and fan will open

Packet Tracer 4.2.2.5

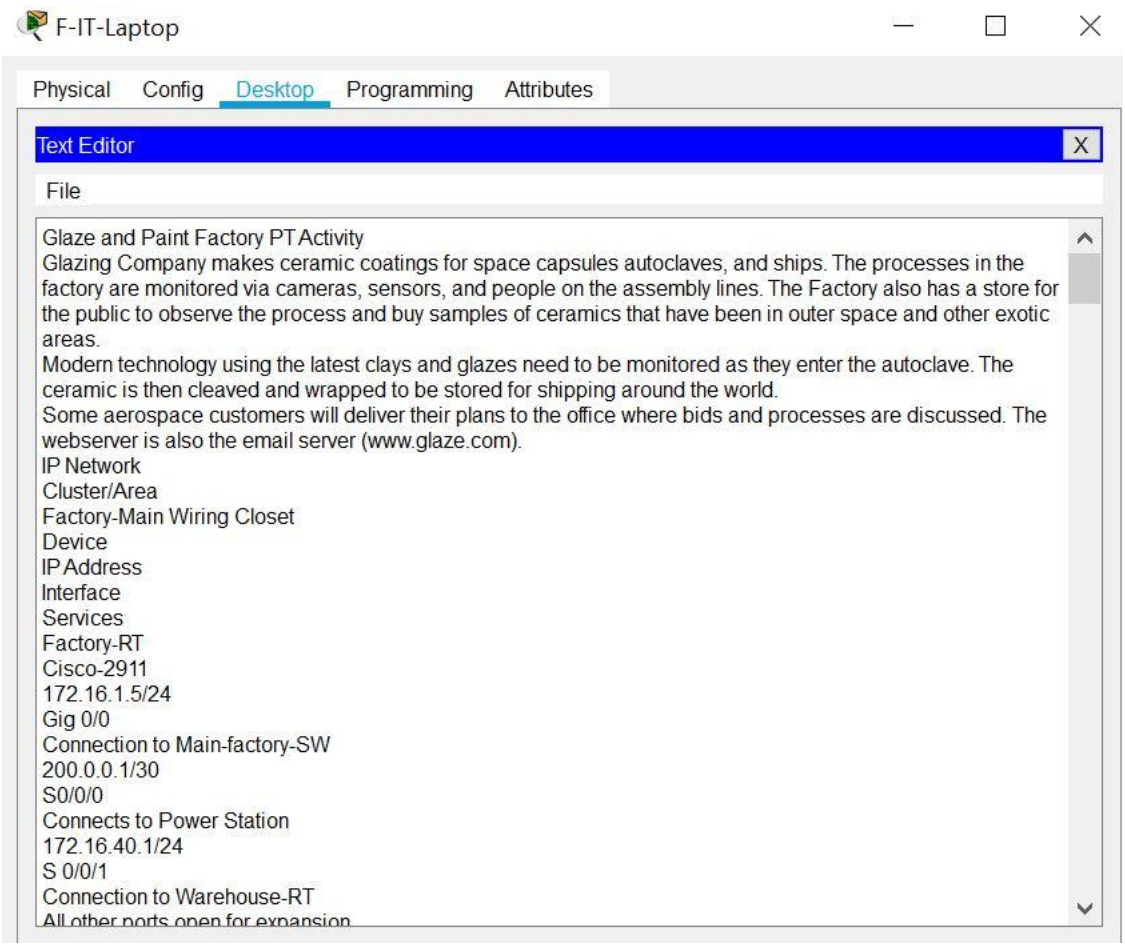
1. Results for the first point (company description information):



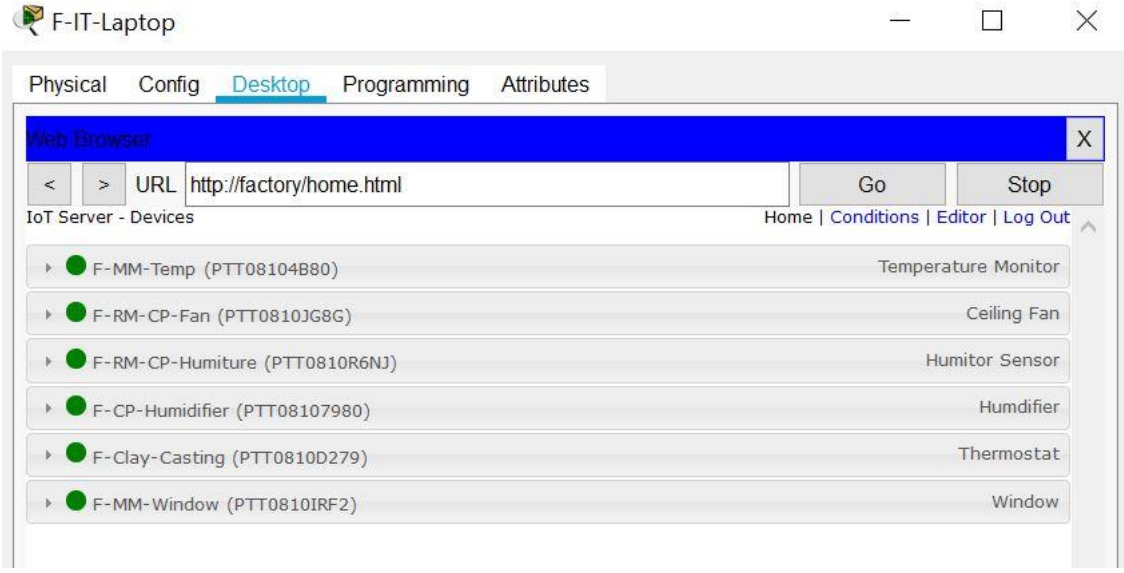
2. Second part
   a) Start the engine by holding the Alt key and clicking the classic car.
      How does the warehouse react to having the car running inside of it?

- The window has opened

3. Results for the third point



4. Results for the fourth point (example)



Packet Tracer 5.3.2.8

1. First part
2. Answers to the questions in the manual:

b) Click the back button. Which city networks are connected using the red serial cables?
- Smart Grid with ISP-Cloud
- ISP-Cloud with City Offices
- City Offices with Smart Parking
- City Offices with Smart Trafic

c) Which city networks are connected using the blue coaxial cables?
- ISP-Cloud with Cell Tower
- ISP-Cloud with City Offices
- ISP-Cloud with Smart Home

d) Click the City Offices cluster. Why are there two connections leading to it from the ISP Cloud?
-

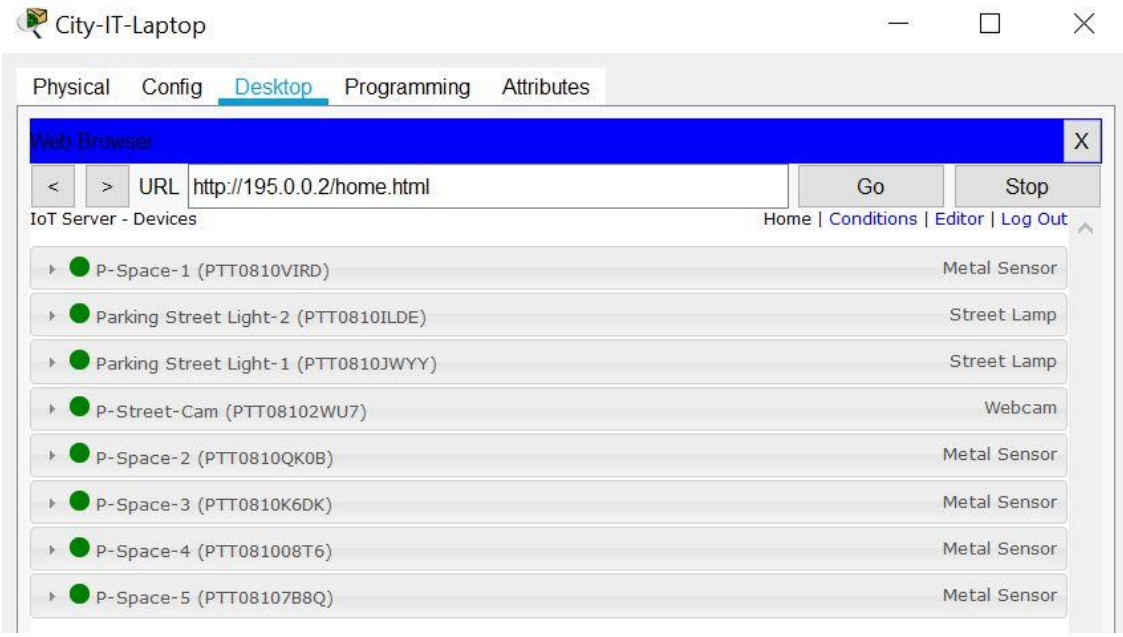
e) Click the back button. Which city networks are wirelessly connected to the Cell-Tower?
- City Offices
- Smart Parking
- Smart Home

f) Which devices in the Smart Home are connected to the Cell-Tower?
- Smart Lamp
- Smart Window
- Smartphone

g) Which devices in the Smart Parking cluster are connected to the Cell-Tower?
- Smartphone
- S-Parking RT

3. Second Part (Smart Parking)
4. Answers to the questions in the manual:

e) What is displayed?



f) The parking meters register themselves with the server and send status updates periodically. Click the P-Space-1 meter to expand it.
What is the value displayed?

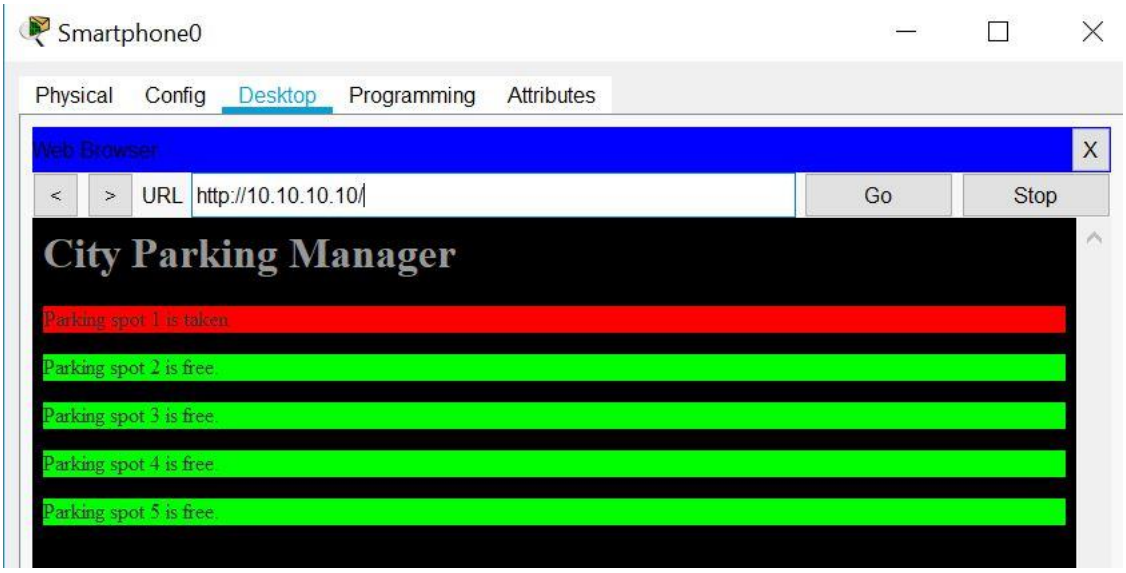
- value=0

h) Go back to the City IT Laptop window and look for P-Space-1 (expend it if necessery). What is the value displayed now?

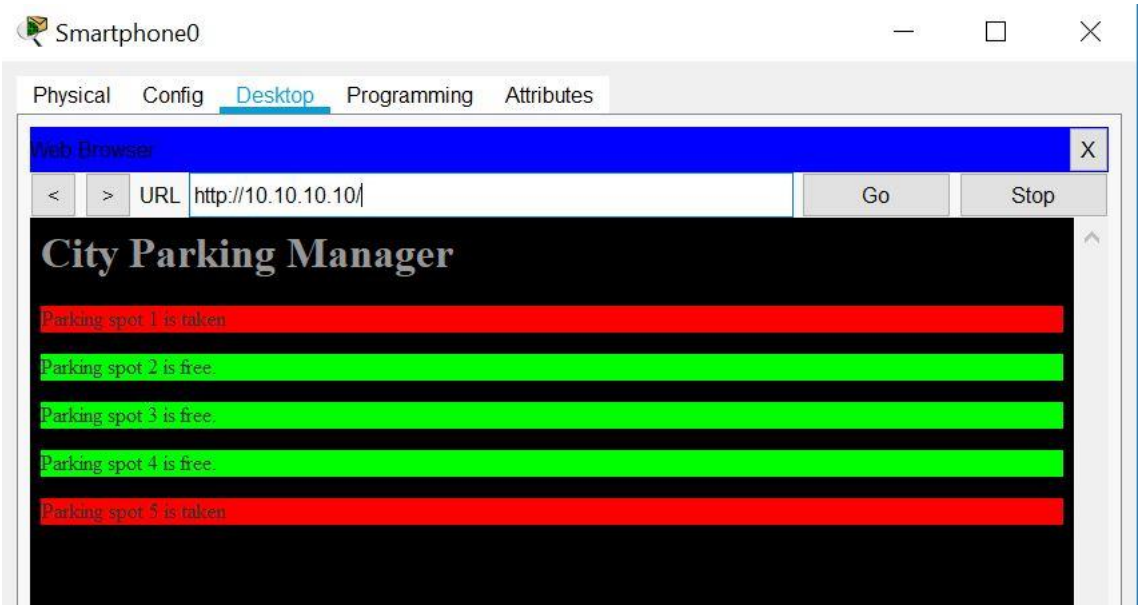
- value=20

5. Third step (interacting With the Smart Parking Cluster)
6. Answers to the questions in the manual:

d) What do you see after the page loads?



f) Go back to smarphones's window (the web browse sholud still be displaying the page loaded from the MCU parking server). What do you see after the page loaded?



7. Fourth part (Smart Traffic)
8. Answers to the questions in the manual:
    b) What happens to the traffic light on the right?
        - traffic lights have turned green

Packet Tracer 5.3.3.4

1. First part (Explore the Smart Grid)
2. Answers to the questions in the manual:
    a) Review the Smart Grid. How many routers do you see in the smart grid? What are their names?
        - Wind_RT
        - Power Main RT
        - Coal_RT
        - sum=3
    b) What is the function of routers?
        - The router is used to connect different computer networks.
    c) A wireless access point is being used in the smart grid. What is the name? What is its function?
        - Power access Point
        - Used to communicate with Solar-Cells
    d) Is there a way to tell which power source is actively producing energy?
        - Yes, it can be measured using gauges
    e) What devices is responsible for switching between the different power source?
        - I think that it is SMART POWER GRID SWITCH

f) How does the Smart Power Grid Switch decide witch power source to use?

- The counters indicate how the switch should switch.

g) What is the IP address of the Power IoT Server?

- 100.2.0.2

h) The Laptop is used by technicians to monitor the amount of power? Use the Web Browser to remotely connect to the Power IoT Server. You will need to know username and password in order to login to the Server. You can discover the username and password by examining other devices in the Smart Grid. What is the username and password and with which device did discover it?

- Hostname=Power
- Password=power
- Name of Device: Coal CO Detector