Politechnika Świętokrzyska w Kielcach **Wydział Elektrotechniki, Automatyki i Informatyki**	
Laboratorium Internet of Things	
Temat: Explore the Smart Home	Autor: **Michał Krzysiek** Grupa: **3ID15B**
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Step 1: Understanding the devices that comprise the smart home

Commonly ISPs deliver data and video over a single coaxial cable. Starting from the attic, a coaxial splitter is used to separate the video signal from the data signal.
a. Two coaxial cables leave the coaxial splitter in the topology shown. Which devices does the coaxial cable connect to?

-TV
-Cable Modem

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 Gateway

The Home Gateway acts a concentrator and router to all internal home devices. It also provides a web-based interface that allows users to monitor and control various smart home devices. Notice that the home devices can connect to the Home Gateway through either a wireless and/or wired connection.
Note: Packet Tracer uses dashed beams to represent wireless connections but it can make it hard to read when too many devices are present. To turn it on, go to **Options** > **Preferences** > **Hide** Tab > uncheck **Hide Wireless/Cellular Connection.**
c. List all home devices connected to the Home Gateway :

-Smart Solar Panel
-Smart Battery
-Smart Coffie Maker
-Smart WIndow
-Smart Fan
-Smart Alarm
-Smoke Sensor
-Smoke Detector
-Tablet
-Smartphone
-MCU
-Garage Door
-Smart Door
-Smart Sprinkler
-Smart water meter
-Smart Lamp
-Temperature Meter

Interacting With the Smart Home

The devices in the smart home can be monitored and controlled remotely through any computer in the home. Because all smart devices connect to the Home Gateway which hosts a web-based interface, tablets, smartphones, laptops or desktop computers can be used to interact with the smart devices.
a. Click the **Tablet**. (The tablet is located on the bed in the master bedroom).

b. Navigate to **Desktop** > **Web Browser**.

c. In the address bar, type in **192.168.25.1** and press Enter. This is the IP address of the Home Gateway.

d. Use **admin**/**admin** as username and password to log into the Home Gateway.

e. What is displayed?

-IOT Server –Devices:

-Smoke Detector
-Smart Alarm

-Garage Door
-Samrt Window
-Smart Door
-Smart Sprinkler
- Smart water meter
-Temperature Meter
-Smart Coffie Maker
-Smart Fan
-Smart Lamp

f. The smart door is currently unlocked (represented by a green light on its door knob) but it can be locked remotely. Click the smart door in the browser to expand the option.

g. Click **Lock** to lock the door.

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

Tak, Drzwi zostały zamknięte do czasu odblokowania ich zamka na Tablecie.

i. Click **Unlock** to unlock the door.
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?

-Nie, Detektor Dymu nie może być kontrolowany

Smart devices can also be controlled directly, representing physical interaction.
l. Within the Logical work area of Packet Tracer, hold down the ALT key and click the **Smart Coffee Maker** to turn it on or off.

Run the Classic Car

The owner keeps a classic car in the garage and needs to be run occasionally. The classic car generates carbon monoxide which raises the levels within the premises.

a. Click the **Tablet** located on the bed in the master bedroom.

b. Navigate to **Desktop** > **Web Browser**.

c. In the address bar, type in **192.168.25.1**. This is the IP address of the Home Gateway.

d. Use **admin**/**admin** as username and password to log into the Home Gateway.

e. Click on the Smoke Detector within the smart home; leave this window visible so you can monitor the smoke levels.

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?

-Detektor zacznie wskazywać obecność dymu

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

-Detektor zacznie wskazywać obecność dymu na poziomie 2.728

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

-MCU zamknie okno, wyłączy wiatrak, ale nie zamknie drzwi.

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

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

-Detektor zanotował zmiejszanie się ilośći dymu.

What happens to the doors, window and fan?

-Drzwi są Otwarte

-Wiatrak Zatrzymany

-Okno Zamknięte

Build a Connected Factory Solution

Step 2: Run the Classic Car

The owner keeps a classic car (the old car in PT) in the warehouse that needs to be run occasionally.
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?
-Po detekcji dymu system otworzył okna
b. Stop the engine.

Wnioski

Laboratorium przebiegło pomyślnie. Pozwoliło nam nauczyć się korzystania czujników oraz pokazało jak wygląda oraz jak funkcjonuje tzw. Inteligentny dom oparty na IOT.