Final Project

Project definition in FIT/IOT-LAB
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for COMASIC
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Final Project

Rules

- Submit an individual report

- Due date 18th December 2020

- Send by email
  - keunwoo.lim@telecom-paris.fr

- Write a report according to the questions

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Design Challenges

- **This set of challenges will challenge your imagination of designing an IoT application, which you can test some of its functions through implementation (FIT/IOT-LAB)**

Build your IoT testbed

- **Using the sensor / actuator system of FIT/IoT-LAB, create your simple testbed of IoT**

  - HTTP / CoAP servers and clients
  - Sensing information and automation
    - Sensors: Temperature / Luminosity / Gyroscope, etc.
    - Actuators: Print screen / LEDs / Buttons (Clicks)

- **Assume a simple IoT application and define its requirements**

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Note

- **You don't have to realize every aspect of an IoT application**
  - Provide 3 automation functions of that IoT application
  - Example) collecting light information and automating a signal to turn the light on when it becomes dark
  - Example) sending alarm if accel sensor changes its value

- **However,**
  - For one function, use CoAP client on your front-end SSH
  - For at least another function, use CoAP client on a sensor node

Assessment points

■ **1) Definition and introduction of your assumed IoT application**
- Simple survey on your assumed IoT application
- Why is it important?
- What are its potentials in the future?

■ **2) Architecture of your system**
- The functions that you have implemented
- The details on servers and clients installed
- Practically, everything about the architecture

■ **3) Demo that your system is working well**
- Add experiments and screenshots

■ **4) Performance evaluation**
- In the exact same environment, compare the data generation of your IoT application when you use 1) HTTP, and 2) CoAP.
- How to make a fair comparison?

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Tips

- **If each question is too difficult,**
  - Try to make a simpler version of each case.
  - You will be rewarded with partial points.
  - In this case, be sure to write in your reports the limitations of your code / what you could not implement / and why you could not implement.

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Tips

- **If any part of the project is too difficult to understand,**
  - Please(!!) contact me at any point so I can provide you with extra help or even have rendez-vous

  - Discuss with me your automation design proposal if you have any doubts of its design, or if you think its implementation may be difficult

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Scoring details

- **Out of 10,**

    - Introduction and survey on the assumed IoT applications (/2)

    - Utilization of CoAP clients on the Front-end (/2)

    - Utilization of CoAP clients on the sensor node (/2)

    - Utilization of your own CoAP resource (alarm) (/2)

    - Comparison of CoAP and HTTP (/2)

Helps given

- **During the project, I will provide you some codes that you may need to use:**
  - Code for using multi-processing (CoAP server/client simultaneously)

  - Code for HTTP client on the sensor node

- **Use WINSCP**
  - Allows a FTP connection from your local computer to the front-end
  - Makes it easy to update and download your files
  - https://winscp.net/eng/download.php

- **So don't panic!**

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