FACULTY OF ENGINEERING AND ARCHITECTURE

Lab 2 - Web development in Python: FastAPI

Cloud and mobile applications

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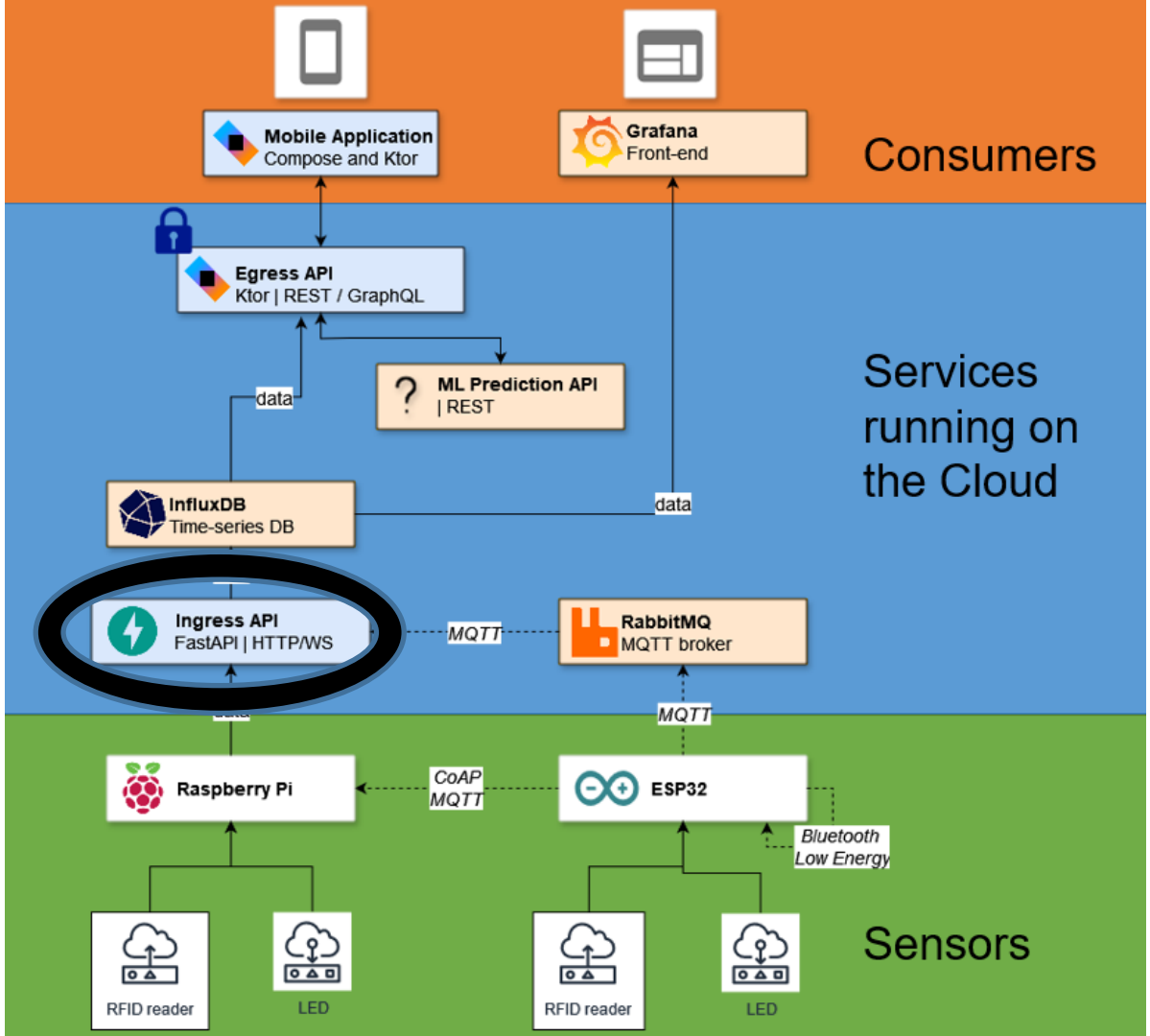

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Goals

1. Set up virtual environments in PyCharm
2. Learn the basics of implementing the FastAPI library
3. Implement a registration system using FastAPI
4. Deploy a FastAPI application remotely on the RPi to control an actuator

@Home: Preparation

- Python libraries
  - Virtual environment to manage Python packages

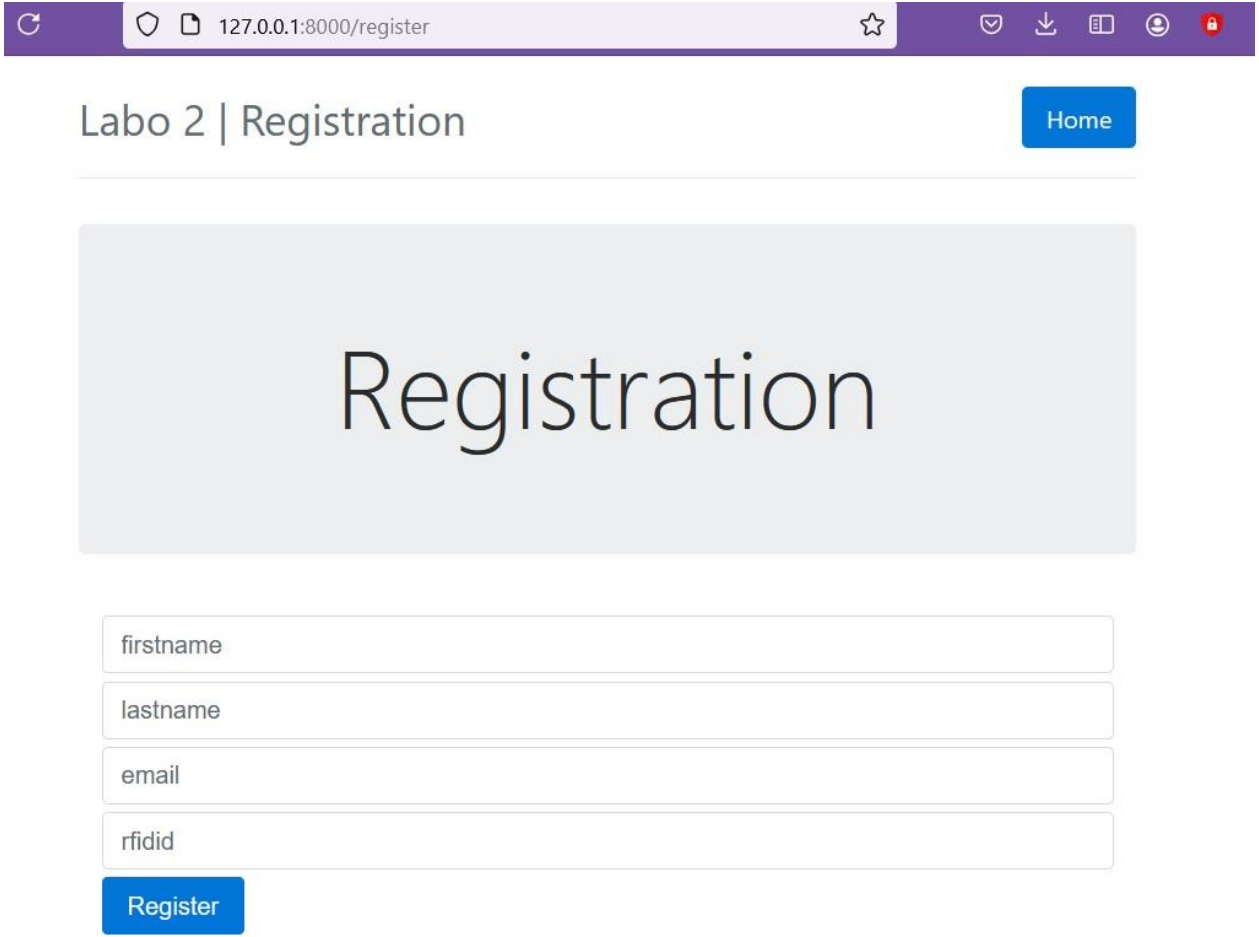
- Upgrade RPi

In Lab: First FastAPI application

- Application structure
- Templates
- Extensions beyond the basic app

In Lab: Task 1: Registration

- Make changes to: register.html, routes.py



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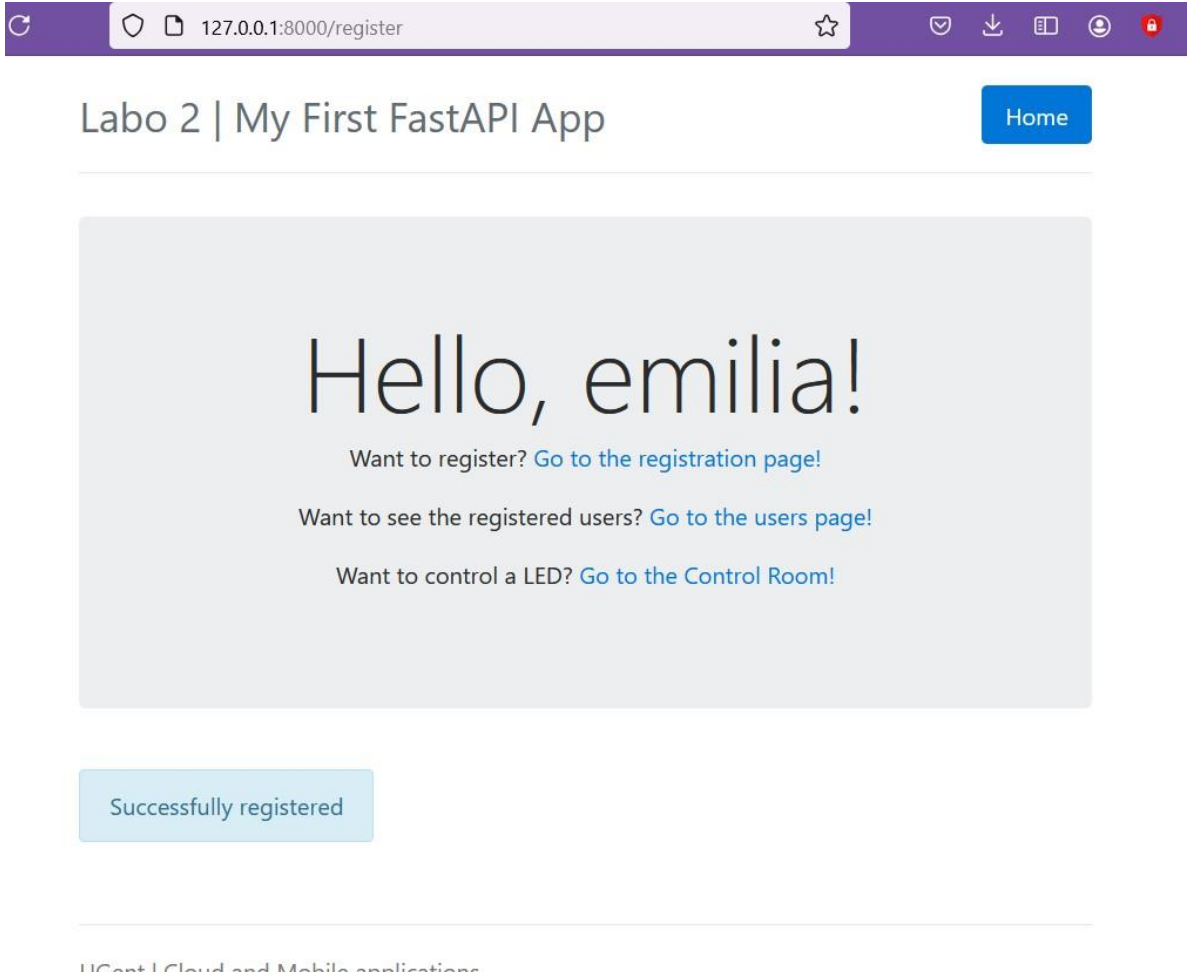
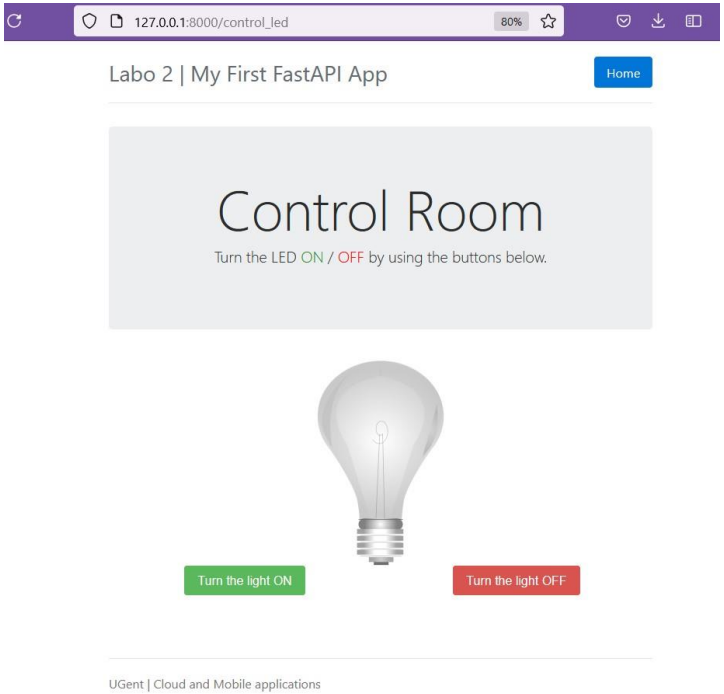
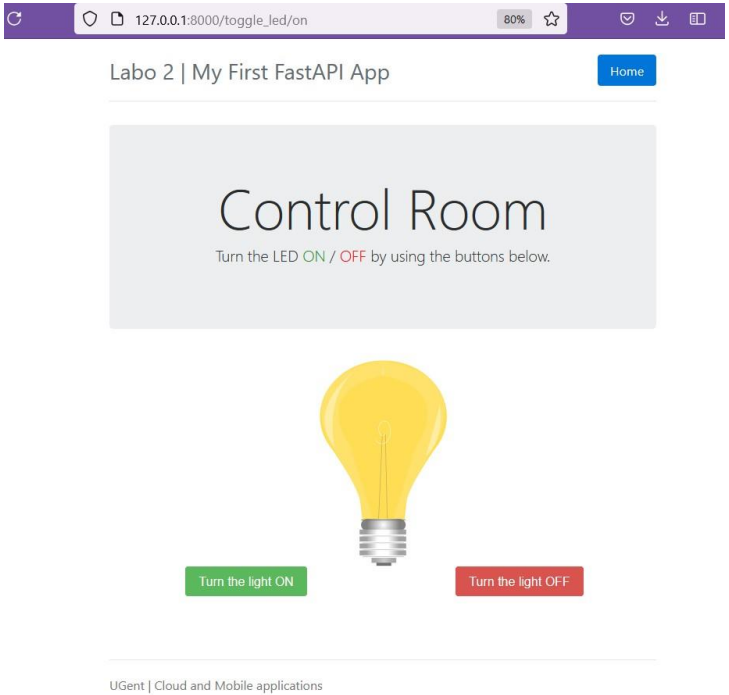
In Lab: Task 1: After Registration



In Lab: Task 2: IoTRPi exercise





- http://<your RPi IP here>:8000/control_led
- Make changes in: MyRPi class, routes.py and control_led.html
- User has to be logged in to control LED!
- Has to run on the RPi, so use SSH interpreter!

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Optional Task 3: Visualize the RFID users on a new route

- Do not start with this task unless you have done all previous tasks!

- Extension of task 1
  - Visualize “User” table on a new route
  - Create an additional HTML page
- Additional extension
  - Add button that writes users list to a file when clicked

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Material to submit

- Preparation part at home: due **next Thursday (20 Feb) at 10:00**
  - Checklist on Ufora
- Lab report of the solved tasks in pdf: **due Thursday 27 Feb @10:00**
  - Explanation of code
  - **Screenshots and/or pictures** if necessary
  - Questions
- Source code (with additional comments if needed)
- Potential video of tasks completed
- Archive and name: “Lab2_FamilyName_FirstName.zip”
- Turn in to Ufora

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