Fog Computing (SS 2019)

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Prototyping Assignment

In the prototyping assignment, you will design and implement an application that has to cope with various fog-specific challenges. You are free to design the application according to your wishes as long as you follow the general requirements defined below.

You will have to prove in a demo session that your application works as intended and that it fulfills all requirements. Please also provide us with a documentation of your application (max. 1 page of written text and 10 pages overall) and a link to your public git repository.

Requirements

1. Your application must comprise a local component that runs on your own machine, and an instance running in the Cloud, e.g., on AWS EC2.
2. Your local component must collect and make use of environmental information (gathered by using a subset of Tinkerforge devices supplied by MCC).
3. Data has to be transmitted regularly (multiple times a minute) between the local component and the Cloud instance in both directions.
4. When disconnected, the local and Cloud component have to keep working while preserving data for later transmission.

Further Notes

- We have multiple Tinkerforge devices available (see below). However, you may only use them for testing during the lecture times under our supervision. For other times, you have to mock the devices.
- You can build your application using any programming language but are not allowed to use any Cloud services or frameworks that take care of resolving fog-specific challenges (messaging libraries such as ZeroMQ are ok).

Available Tinkerforge Devices

- 3x Master Brick 2.1
- 2x Tilt Bricklet
- 2x Dual Button Bricklet
- 1x Distance Bricklet 2.0
- 1x Accelerometer Bricklet 2.0
- 1x Temperature Bricklet
- 1x Humidity Bricklet 2.0
- 1x UV Light Bricklet
- 1x Ambient Light Bricklet 3.0