

# SCAD P08 – Cloud Application with Physical Event Triggers

This is a four-weeks lab, i.e. SW 11, submission before the end of the year 2021.

## 1. Logistics

Every student has received one hardware beacon, and every team has received an additional beacon. All beacons can be used to facilitate the physical world attachment. After the end of the lab, beacons need to be returned to the lecturer, i.e. bring them to the exam (in case of presence exams) or bring them back to Winterthur in the first week of the upcoming semester (TD office, or lecture slots).

You can use your notebook, the mobile OS's features, as well as the cross-phone OS Proximity platform to link up with other devices and with beacons.

Links to Proximity framework to make use of the beacons from mobile phones including developer links:

<https://proximity.eu/>  
<https://testflight.apple.com/join/dzADor2R>  
<https://play.google.com/apps/testing/eu.proximity.and>  
<https://github.com/proximity-eu>  
[https://pub.dev/packages/proximity\\_flutter](https://pub.dev/packages/proximity_flutter)

## 2. Goal

Put the practical knowledge gained over the semester to work by designing, building and demonstrating a complex application “in the cloud” that attaches to the physical world.

The application should be

- **Event-driven:** Events such as being within a certain range of a beacon or other device, but also complemented by time events or other events, should trigger processing within the application.
- **Attached to the physical world.** This refers to indoors or outdoors scenarios in which the application is suitable to use. The application functionality can be more leaning towards fun or more towards practical usefulness.
- **Cloud-native.** Apart from making use of managed cloud services including FaaS/CaaS/BaaS (self-operated possible with justification), being internally service-oriented and easily deployable to the cloud, the application should exploit the cloud characteristics by being elastically scalable in the presence of request spikes and resilient in the case of faults.

- **Quality-assured.** Apart from the cloud-native runtime characteristics, this refers to software quality, especially on the artefact level.

Make sure to document briefly how you addressed each of the subgoals above.

### 3. Deliverables

Deliver the following results by the end of the lab:

- Code in your team's Git repository, with a README/documentation to explain the functionality of your app, an architecture diagram, anything required to get it running (dependencies, service configuration), and how you addressed the subgoals (see 2.)
- Teaser flyer (one page PDF) to “pitch” your app with few words and some convincing images. Place it into the Git repository as well.
- Pitch video (1-2 minutes) that shows a typical use case scenario but also dives a bit into the technology.
  - English language
  - Careful with showing people or using inappropriately copyrighted materials
  - i.e. video should be re-usable outside of the SCAD context

Due to potentially large size, it is suggested to store only a shared link to SWITCHdrive in the documentation. Make sure the shared link works until January 2022.

As usual in SCAD, it is up to you to decide about programming language(s) and cloud provider(s).

You will receive feedback per team including grading information about the lab itself and the entire semester until the end of first week of January 2022.