2025/10/30 10:00 1/2 Physical Computing HS25

# **Physical Computing HS25**

# **Overview**

Lecturers: Johannes Reck & Duy Bui

In this course, we will look at Physical Computing as a method of Interaction Design. Our definition of Physical Computing refers to the use of hardware and code to make interactive objects that can respond to events in the real world. These events may be from the environment (temperature, radiation, etc.) or user interactions (touch, speech, etc.). These devices might respond with direct physical feedback and action or by performing actions in a digital environment. Physical Computing also describes the creative problem-solving process using technological and functional prototypes.

### **Course Goals**

The students learn how to handle hardware and code to prototype their design outcomes. Students develop an understanding of the characteristics of physical interactions and demonstrate them through functional prototypes. From a technical perspective, students learn the basics of electronics, microcontroller programming (Arduino), and working with digital and analogue sensors, actuators and displays.

#### **Course Structure**

The course takes place in two blocks: Physical Computing Basics in the first week and the Main Project in the last two weeks. In the first block, students will work mostly individually through the introductory topics, while the main project is in groups of four.

Grades will be based on group presentations, class participation, exercises, final outcomes and documentation. An attendance of min. 80% is required to pass the course.

Unless otherwise indicated, the course is from 9:00 to 17:00, Monday to Friday.

#### Individual Work (weeks 1 to 2) 30%

Workbook documentation of all exercises and minor projects from weeks 1 and 2:

- Make a photo of each assignment, and sketch a schematic when appropriate.
- Write a short comment or note for each exercise.

# Group Work (weeks 2 to 3 ) 70%

- 1. Final Prototype of Object
- 2. Final Presentation

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- 3. Standard IAD Documentation (see handbook on wiki):
  - Text file including the project title, names of students and mentors, a short description(250 - 400 characters), and a project description (>1000 characters), in a file to be labelled "Texts"
  - Approx. 10 representative images of the project (to be stored in a file labelled "Images")
  - At least one short video (~2min) of the project (to be stored in a file labelled "Video").
    Mp4 full HD, see wiki for more details on format.
  - Two to three short social media teaser videos (20-30 seconds) in portrait format.
  - A PDF documentation (to be stored in a file labelled "Documentation")
  - Additional raw data, e.g., presentation, prototypes, or codes (to be stored in the respective file).

#### **Final Presentation notes**

- 5 minutes for presentation, and 5 minutes for feedback and discussion
- Show the process that brought you to this outcome
- Live demonstration of your project

## **Documentation**

Documentation includes separate submissions: the individual workbook (all individual exercises) and the group documentation.

Upload your files to

smb:fileredu.ad.zhdk.ch/DDE/BDE VIAD/01 ABGABEN/25 HS/Sem1 Physical Computing

## **Material Returns**

Grades will not be awarded until you return your complete project box, the prototypes have been disassembled, and the parts returned!

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