

Electronics and Design Workshop

Prototypes for User Studies



Aalto University
School of Electrical
Engineering

Salu Ylirisku

8.5.2019

Common Sessions

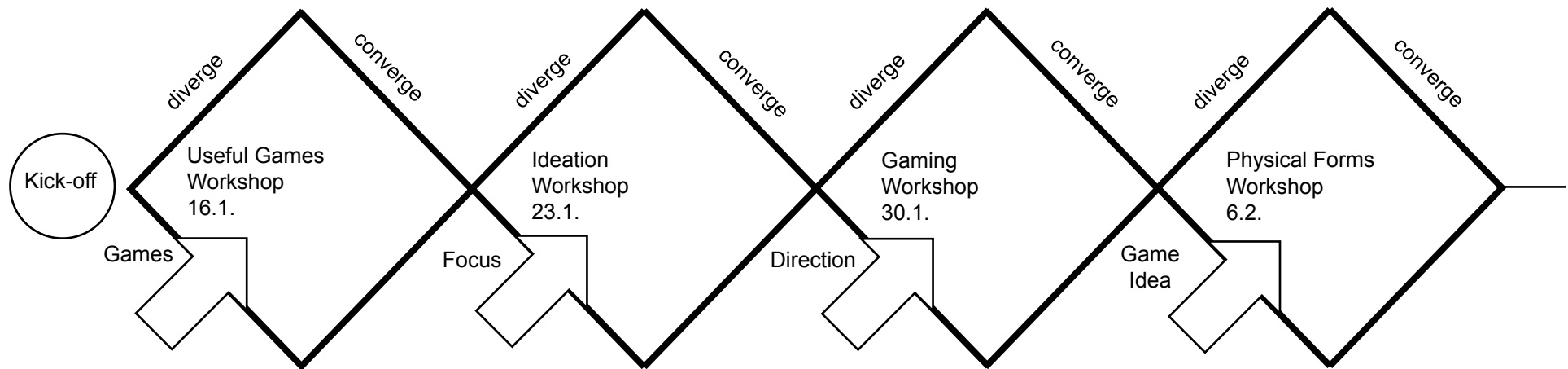
ED Workshop (Wednesdays 10-12 @TU5)

1. Kick-off
2. Useful Games Workshop
3. Ideation Workshop
4. ~~Gaming Workshop~~ Back to school WS
5. Physical Forms Gaming Workshop
6. Physical Forms Workshop
7. Feedback and Feedforward
8. Team Tutoring
9. Team Tutoring
10. Team Tutoring
11. Team Tutoring
12. Prototype Presentations
13. **User Testing workshop**

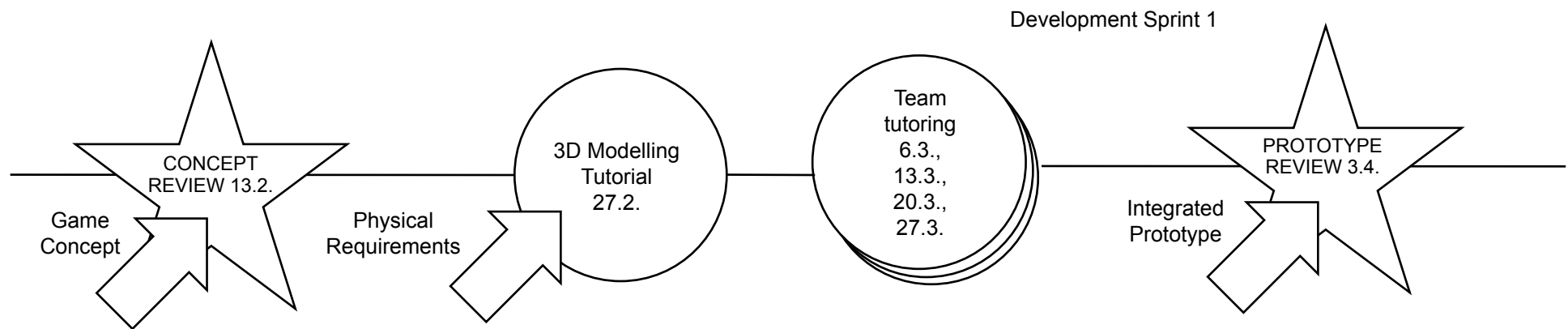
Sähköpaja (Mondays 10-12 @TU2) in FINNISH

1. Introductions
2. Teaming up, Arduino examples
3. Basics of Arduino programming
4. Sensors
5. 3D printing and OpenSCAD
6. Arduino radios
7. Arduino buses (SPI, I2C, UART)
8. Aalto Ventures Program (AVP)
9. Aaltonaut, prototyping
10. Radio technology and Freakduino
11. Laser cutting, PCB making
12. Basics of electronics
13. User interfaces, measuring tools

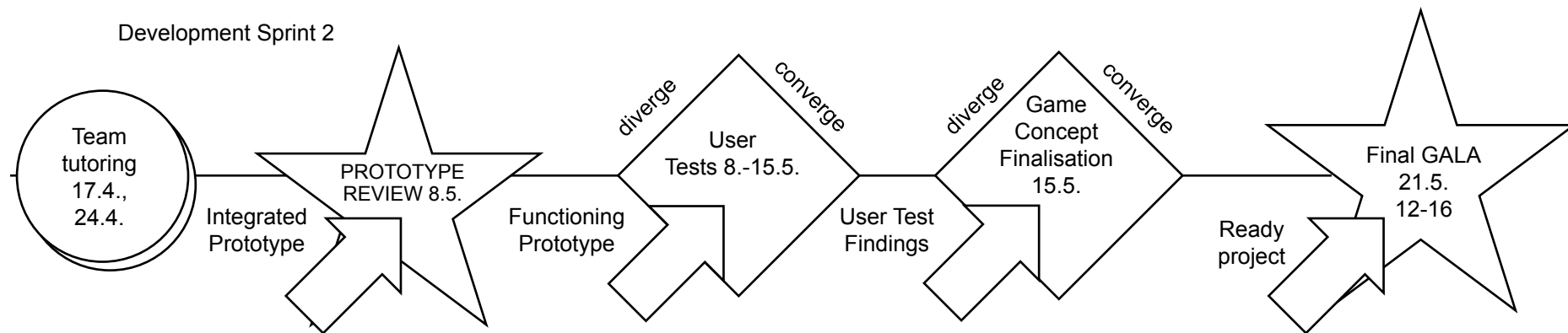
Design Project – Part #1/3



Design Project – Part #2/3



Design Process – Part #3/3



Feedback on Diaries

- **6/8 have returned**
 - -20% of grade per missed day
- **Diaries can be updated later in the final phase**
 - The final diary deadline is the most important and weighs 3/5 of the whole diary grade
 - All returning in time got 5 from the first diary delivery – but this is not enough for the next round
- **Diary grades are basically as follows:**
 - 0 (fail), 1 (sucks), 3 (there is a good chance to improve this) and 5 (the way to go!)

How to get a good grade for your diary in the next round

- **Include your own thinking about your project (+)**
 - Especially interesting are your expectations and surprises
- **Add pictures of your work (+)**
 - These concretise your story – a pic tells more than 1000 words
- **Write your diary whenever you are working on the project (+)**
 - Include concrete details on some activities
 - Show your role
- **Include references + explanation (+)**
- **Hour sheet / hour calculation included (+)**

Highlights from current diaries

“In order to build the web app, Nodejs and Express.js are used. I used the new technologies because I used to have other projects which used Python, Django and Flask. Therefore, I want to learn new thing in this project.”

This is about personal thinking

Highlights from current diaries

“Well done visualization how combined waves sum up and a how bunch of standing waves can produce signal running in time-space. I’m more convinced that this is the most useful mathematical “Swiss army tool” ever made. <https://www.youtube.com/watch?v=r18Gi8ISkfM>”

This is about references

Highlights from current diaries

“I took responsibility on building the web app and assist in testing the amplifiers and build our own amplifier which is shown in the below photo.”

This is about personal role.

Highlights from current diaries

“This week while I was quite busy drawing and re-drawing, I actually felt relieved and happy for being in this course as it allowed me to do what I like the best”

This is about personal experience.

Do not do this

“22.03.2019

We met up again at sähköpaja to work on finishing the sensors.”

This is just *reporting* – not reflecting.

Why is it problematic?

-> It adds nothing to your own learning

(in addition to being completely uninteresting)

How to turn reporting into reflection?

Connect your text to your 1) expectations, 2) experiences, or 3) references.

For example:

“Getting the sensors to work took more time than I expected.”

Going deeper:

- Why did I expect it to be faster? And why it took longer this time? Did I have similar optimism last time? Is this common to projects?

User tests – or more correctly “Tests with Users”

Testing with users – Why?

To get feedback that is

- relevant,
- valid and
- actionable

Relevant -> the right issues for the right reasons

Valid -> the problems are actual in the real world

Actionable -> you can prioritise your choices

User tests (i.e. tests with users)

Types of 'products' to test

- Paper prototypes / Mock-ups / Wizard of Oz
- Limited functionality prototypes / interactive mock-ups
- Ready-made products

Types of tests

- Situated vs. Lab tests
- A/B tests

Running a test

1. **Make a Plan**
2. **Reserve location and space**
3. **Invite users**
4. **Run the session**
5. **Document your findings**

Running a test – Make a Plan

1. Specify the tasks

- Do a list of tasks that the users will do with your product
- Easy task first!

- Try out the tasks before the test, and refine your plan

Running a test – Reserve location and space

A good test location/space

- Is appropriate for the kind of product/test you have
- Does not have distractions

Running a test – Invite Users

- **To test users is representative people that could use your product**
- **A good invitation**
 - results in a test visit
 - is easy to understand
 - how long it takes
 - is motivating
 - do not use anonymous e-mail postings to lists
 - do not use generic posters, or expect people to reserve calendar slots
 - you may announce a reward (at your own cost in this course)

Running a Test Session

- **Explain the test**
 - You are not testing the user – but a product
 - You are not publishing the test anywhere (***but see next slide*)
 - BUT - If you worked for an organisation, you should be clear that the boss / peers of workers may not identify people from your tests data
 - Have each task prepared with a clear start and end
 - You can have small text snippets to explain the tasks
- **Start with an easy task**
 - Explain first, what is the product and what is the ‘situation’
 - Go ahead and run the rest
 - All users may not run all tasks, if run too slowly (but don’t say that a user is slow!)
- **Thank the user (and give your small reward)**

If you publish results

- **You may want to use the results from user tests to**
 - convince someone that it is a real issue
 - show how you did your study
 - argue that you worked hard and also tested your product
- **If you use pictures/video, you need to**
 - anonymise the images / results
- **Remember that this is not about the users but your product!**

Documenting a Test Session

- Keep taking notes / video while the test runs

Deliverables

- **Personal Learning Diary**
 - Returned in the end of each period (III, IV, V)
- **Project Wiki**
 - Team intro, focus, presentation files, links to (re-)sources (code, schematic)
- **Presentations**
 - Concept presentation (end of period III)
 - Prototype presentation (end of period IV)
 - Final Gala presentation (end of period V) + poster
- **Functioning Interactive Prototype**

Grading is based on the following

- **Learning diary (40%) – DL 24.5.2019**
- **Active participation (20%)**
- **Project, presentations and documentation (40%)**

- **This is a 5 ECTS course, ~135h of work is expected**
 - About one day/week – if constant speed

Task for next week

- **User tests**
- **Make sure to come on time to your tutoring meeting!**