Questions regarding the project

Hardware 1 course, Project planning

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Q1. What are **the criteria of assessment?**

A1: There will be both personal and team criteria. Those will be published soon when the whole hardware 2 course material is published. The deadline for the teachers to hand over the materials is March 6, 2023.

Q2. Is web application mandatory? If we make it, do we get extra points?

A2: Web application is not mandatory; however, you need your own webserver to connect the WiFi and have access to the Internet if you decide to use the Kubios Cloud service for HRV analysis. You are learning to make the webserver in the network part of the Hardware 1 course, and you can use that knowledge and skills in the project.

Q3. In Project Plan document in Version history table, shall we add all the changes line by line with individual names or as a group?

For example, as in 2.0 row or as in 2.1 row?

2.0	Plan draft personalised for group 7 Hardware project.	27.02.2023	A.A, B.B, C.C, D.D
2.1	Introduction, Project Description	27.02.2023	A.A.

A3: Write there who has been responsible for the changes. The version history should contain the overview what changes has been made to the project plan, who has made them, and when they have been made - like in version control for source code.

Q4. What do we exactly make? Do we have a choice, or all the teams make the same projects?

A4: The aim is to make the recovery and stress meter based on optical heart rate detection and HRV analysis. All teams are aiming to the same target. However, **how** you are going to design, implement and test it, is up to you. For more details, please review the project requirement specification.

Q5. What is **the size** (required number of pages) **of the plan document**?

A5: A rough estimate for the length can be made by studying the template:

- Introduction 1-2 pages
- Project description 2-4 pages
- Communication 0.5 - 1 page
- Version control 0.5 - 1 page
- Schedule 0.5 - 1 page
- Goals 0.5 - 1 page
- Total 5 - 10 pages + cover page + version history + Table of contents => 8 - 13 pages.

If your project plan is 20+ pages, I would say it is too long and you should make it clearer and more focused. 5 pages (+ cover/version/contents) is close to minimum.

Just to remind, it is better to focus to the **quality** and **how easy it is to understand and read** the contents than **quantity**.

Q6. We took some tables from Hardware 2 project requirements document. **Shall we cite it in our document**?

e.g. Table 3. Component used in the proof-of-concept product.

Component	**Description**	**More info**
Raspberry Pi Pico	Dual-core ARM processor microcontroller having 246 kB SRAM and 2 MB on-board Flash. It also includes 2.4 GHz wireless LAN and 26 multifunction GPIO pins.	Raspberry Pi Pico series – Raspberry Pi
Crowtail Pulse Sensor v2.0	Optical heart rate sensor having LED, photodiode, analog amplifier, and analog signal output. Operating voltage 3-5 V	Crowtail- Pulse Sensor 2.0 (elecrow.com)
OLED display	SSD1306 compatible 128x64 monochrome organic LED-display. Communicates with I2C or UART-protocol.	Sensors Modules SSD1306 Oled Display | Sensors Modules Using a SSD1306 OLED display — MicroPython latest documentation
Protoboard	Passive protoboard specially designed for this project to help connect the other components to the Raspberry Pi Pico.	Joseph Hotchkiss, Project Engineer, Metropolia UAS

Rotary knob	Digital rotary knob with push button.	Joseph Hotchkiss, Project Engineer, Metropolia UAS

A6: Yes, please. Good practice is to give credits to the original authors. Second thought, in technical documentation it is not necessary to repeat the same information in several locations but keep the master in one document and then refer to that in other documents.

Q7. What about other **sources?**

Example from Hardware 2 project requirements document:

"The OLED display has 128x64 pixels and can display both text and graphics as shown in Figure 9. The display is controlled by SSD1306 circuit which is embedded to the display. The SSD1306 compatible OLED display uses either a SPI or I2C interface. MicroPython documentation gives examples how to use the library [28] . A suitable SSD1306 MicroPython compatible library can be downloaded, for example, from here [29] ."

In our plan we made it like this:

"Figure 3 illustrates that the OLED display has a resolution of 128x64 pixels and is capable of displaying both text and graphics. The display is managed by the SSD1306 circuit, which is integrated into the display. The SSD1306 compatible OLED display supports either an SPI or I2C interface."

As you can see, currently there is no citing. **Shall we leave it like that or add original sources or make a source just Hardware 2 project requirements document itself?**

A7: In general, it is good practice to cite the references, if you have used them. Here you could refer the project specification document, for example.

However, the example text you showed here is clear and easy to understand, in my opinion. Any technical person who has access to all project documentation should understand what you have wrote.

Q8. In chapter 2, there is the following assignment:
“Draw a block diagram to visualize the different devices, components, and connections in the system. “

Can you give us an example of what it should look like?

A8: Please, check

- Koskinen, Kalle (2018). Development of cost-efficient embedded control system for cryocabin (theseus.fi), page 27, Figure 14, or
- Serbajevs, Aleksandrs (2016). Development of an embedded system for ventilation control (theseus.fi), page 14, Figure 11.

Q9. In communication chapter, it is said:

“Create a Microsoft Teams workspace for your group. “

Is using teams mandatory? Or can we just use One Drive and zoom?

A9: Yes. The use of Teams is mandatory in this project.