INFOB3IT 2022/2023

**Assignment 2**

Group #:

Student names:

Fabian Rutten

Thijs Olijerhoek

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Deadline: 13th April 5 pm**

**Submit: Blackboard**

NOTE: This is a template that can be used to deliver your work. However, you can use other formats if you prefer, as long as you remember to write your group number and student names and adhere to the description.

|  |
| --- |
| Introduction Use this section to introduce your project. What makes it special? What are its key features?  (Up to two paragraphs) |
| In this project, we will construct a system to automatically water a plant. It is rare to find a house that does not have any houseplants or greenery inside the house. However, keeping the plants hydrated and in a pristine condition is a difficult task (unless you only have cacti in your house). So, we will construct an apparatus that will do this difficult process for you. This gets rid of the constant and pressing stress of the question whether or not you watered the plants already. The device will recognize when the plant has a slight case of dehydration, and it will resolve that problem by watering said plant.   It is special because, aside from the fully automatic system, it will also be controllable through an interface. On this interface you will have two different watering options: one which waters the plant for 5 seconds, and one that manually controls the servo which enables the user to instead of providing the plant with an adequate amount of water, drown the plant to compensate for any previous occurrences of dehydration. Furthermore, |
| System details This section should provide some details of your system, in order to help us decide to what extent you meet the objectives. It should (briefly) document the choices that you made. These should include choices regarding libraries, watering conditions, MQTT features (the topics you used, the payload structure and values, the frequency of updates, the QoS settings, retained messages, etc.) and any other choices you deem relevant. Also, if you are using QoS levels that are different from the ones you intended to use because of library limitations, that should go into this document. And don’t forget to mention any extras you implemented!  This section should also include a clear photo of your hardware setup and some screenshots of your clients (e.g., Node-RED flow, dashboard, smartphone app, OLED screens, …). Full schematics or a state diagram are not required (but feel free to include them in the appendix if you made them anyway).  This is also the place to *optionally* reflect a bit on the things that you might not have implemented but would have improved your system, as mentioned in the requirements (such as Wi-Fi configuration, security features, OTA).  (Up to 4 pages including tables and figures) |
| Wiring onder bord  Uitleggen tekening voor de sketch  watertoren |

|  |
| --- |
| Gesture Elicitation This section should report your gesture elicitation study, analysis, and results. Describe the thinking process behind your study design (e.g., recruitment process, scenarios, observation) and the methodology (e.g., classification criteria and consensus) used to analyze the results (e.g., agreement scores). The section should conclude with the gesture set used in the gesture implementation section.  (Up to 2 pages including tables and figures) |
| 1. Participants   We started by sending out a questionnaire with some general questions about the use of gestures. We found that our participants find it relatively important to  This was followed by a short interview with some of our participants regarding the gesture elicitation. We asked our participants to perform a gesture with two scenario’s, and we want to evaluate the gestures they suggested.  Results:   |  |  |  | | --- | --- | --- | | Participant no. | Pour water motion | Bring up sensordata motion | | 1 | Rotate the wrist with a circular motion while making a fist | move handpalm towards themselves by rotating the wrist | | 2 | Rotate the wrist with a circular motion while making a fist | move handpalm towards themselves by rotating the wrist | | 3 | Turning the wrist forward while making a fist (as if turning the wrist forward) | move handpalm towards themselves by rotating the wrist | | 4 | Rotate the wrist with a circular motion while making a fist |  |  1. Results    1. Questionnaire    2. Results questionnaire. |
| Gesture Implementation Describe how did you implemented the gesture set in the system including gesture recognition techniques and constraints (e.g., glove design).  (Up to 2 pages including tables and figures) |
|  |
| Usability testing Report the study setup of the usability testing providing a) methodology, b) material and apparatus, c) analysis. Report in a few sentences the main findings.  (Up to 2 pages including tables and figures) |
|  |
| Appendix You can provide additional material in this section. |
|  |