**INFOB3IT 2022/23**

**Assignment 1**

**Group #:**

**Student name:**

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**\_\_\_\_\_\_Fabian Rutten\_\_\_\_\_\_\_**

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**Type: Group work**

**Deadline:**

**Submit: Blackboard**

**Evaluation: Graded**

**Description**

You need to write an 8-to-10-page paper which describes the functional and technical features and details of your smart interactive automatic toilet freshener, including the process of building it and a reflection on its success (or lack thereof). This description allows you to elaborate on the topics covered in your video. Use it to add detail to these topics and/or cover subtopics which could not be covered in the video, time-wise. But please make sure that the description can be read stand-alone: if one only has the description, it should be clear what you’ve built, how you’ve built it, why you’ve built it that way and whether you think building it was a good idea.

**Be sure to include a state diagram of your system** (no specific format required). Please do add pictures to illustrate certain points. For teams of three this is also the place to shine and reflect on your experience with two installations of your system. Report on your user needs gathering exercise (write who your participants were, how you recruited them and how you gathered data). Include your context of use and requirements specifications. Similarly, report on your heuristic evaluation.

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.

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| Context of Use Description |
| User Needs Gathering Explain how you conducted your Context of Use research by eliciting from your first Assignment (0). Describe how you carried out the study and what research questions were asked in the interview/questionnaire. This section describes your research goal and the study setup. |
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| Target group Explain which groups of users you identify for the prototype. These groups can be the main target groups as well as secondary ones who will interact with the device. Describe what is the context their share and what are their primary activities (e.g., students sharing toilets from the University building). |
| Main target group: Our main target group is primarily  Secondary users: visitors of said home |
| User characteristics Specify your users’ characteristics such as age, height, and gender. You can specify their behavior/habit if relevant to the study. |
| User characteristics: |
| Goals and Tasks Explain what are the goals of your prototype development and study. Clearly list what are the features expected from the device and in which scenario context they are needed. |
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| Environment of the System Write about the 1) technical, 2) physical, and 3) social constraints of developing the toilet freshener considering the context of use, users, and target groups. You can write a paragraph for each of these three aspects of your product development. You can support your description with figures and schematics of the environment of the system. |
| Technical: For our technical constraints, we assume a maximum time required to open and close the door. We do this in order to be able to distinguish between the use cases of a number one and two, and cleaning.  Physical: Our first physical constraint is that we assume that all users of the toilet close the door and turn off the lights after their use. This has as primary reason that it is easier to reason about the program logic and distinguish between the different use cases (not in use, number 1, number 2 and cleaning). Furthermore, given that gas- and electricity prices are at a high point, we assume that our users are energy-friendly and turn off the light whenever they leave the toilet again.  Our second physical constraint is about the size of the room. We will conduct the experiment in small bathrooms, measuring between two and six square meters. Furthermore, for our design we also have the constraint that the bathroom is only lit by non-natural lighting that only comes from the room itself.  Another physical constraint is that the door remains open whenever the toilet is cleaned.  Social:  Not per se a constraint, but something we still want to address nonetheless: we do not limit the number of users in these bathrooms, as this might influence the comparison with the regular experience. |
| Requirement Analysis List 1) client requirements (functional needs of the users e.g., not spraying when cleaners are working), 2) usability requirements and objectives (e.g., system designed to be intuitive, reliable. Possible ways to gather more usability needs from users), 3) requirements derived from user needs and context of use (summary of the system features evaluated by the study participants). |
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| Functional and Technical Features Describe how the system addresses the above-mentioned requirements and what other features it provides. You can make use of tables to describe the system states and how they are mapped by the prototype sensors/actuators (e.g., LED color/pattern). |
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| Building process Explain what choice you made to determine the use of the components available to you and the logic that you followed (e.g., Early on, we made the choice to use the light sensor as an indicator for when the user would enter or leave the toilet since it is an instant visual clue.) You can explain how you designed the menu system aided by screenshots and photos. |
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| Heuristic Evaluation Explain how you carried out the heuristic evaluation and the results you collected from it. You can use a table to list the heuristics and the results of the severity ranking for each according to the experts. Following, summarize the results and discuss potential improvements and ways to address issues. |
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| Reflection on success This section is dedicated to your reflection on the prototype development process and study design. |
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| Appendix: Diagrams and additional material such as dataset and questionnaires. |
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