Lecture 10: Design of usability test

Human Robot Interaction

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1 Introduction to usability

Many medical devices, require usability documentation which are defined by standards.. ISO 9241 Usability is also very common in software development.

1.1 Ensuring usability

- It is important to do it itteratively. Include the user into the design of the test.
- Make mockups, prototypes and test them to get the exact level of feedback.
  - Observe the process and the users.
  - Interview/Consultation where questions are asked to the users
  - Workshops. Larger timeslots, receive feedback
  - Surveys. Big datasets or when we don't have access to the users.
  - Userboard consultation. These are users that represent the users but are also part of the project.
- Allow usability and users' needs to drive design decisions. Do they prefer big bulky but precise devices, or do they prefer smaller and more discrete devices with less functionality and precision.
- Set qualitative and quantitative goals for the process.

2 Why usability test

- Uncover Problems
- Discover Opportunities (They might like e.g. motor noise for feedback)
- Learn about the users

3 Testing techniques

1. Observe one participant and interview
2. Co-discovery, by having two particpants work together. Main benefit of this is that they think out loud by sharing their ideas with each other.
3. Active intervention. Researchers actively engage with the process and discuss with the patient.

Sometimes it might be usefull to hide the main objective of the test, by making an alias test.

4 Influencing factors

There might be more factors that affect the results of the test. It is important to be aware of these.

5 Plan a usability test

1. Involves many steps and teamwork
2.
3.
4. Selecting and organising tasks ()
5. Create task scenarios to emulate the real life usecase.
6. Measuring usability with scores and variables. How do we determine satisfaction? Classic smiley survey in Elgiganten. In addition performance metrics should also be considered. How long did it take and how many errors occured. Important to also consider the subjective measures.
7. Important to prepare test material, and have the correct documentation, this includes legal documentation.
8. Consider the test team and their respective tasks.
9. Conduct a pilot study to train it, and find out if the test is designed corrctly.
10. Recruit Test particpants by contacting
11. Record data
12. Analyse the data

Common usability questionaires include:

- QUIS
- SUMI
- CSUQ
- SUS (System Usability Scale)
- NASA TLX
- INTUI

6 Exercise of today

Consider our semester project, and plan a usability test.