

MASTER'S THESIS REVIEW

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Thesis Title:	Indoor navigation system main terminal
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Assignment

The primary aim of the thesis was to develop Smart Kiosk - main navigation terminal for indoor navigation system currently under development at our department. Unlike comparable systems, it primarily focuses on individuals with specific navigation and orientation needs, namely visually impaired and seniors. Assignment of the thesis comprises following points: analysis of current status of navigation system, user research of the target user audience, development of the particular terminal while following UCD methodology [1], evaluation with target users and implementation of a Smart Kiosk prototype.

Technical Manuscript

Textual part of the thesis is written in good English, it has standard structure and clearly describes development of the terminal prototype.

The first chapter contains introduction into the topic, motivation for the work as well as clear statement of thesis objectives. The analytical part of the thesis described in Chapter 2 starts with the description of the development methodology used - User Centered Design. Follows a summary of the related work, description of a field study conducted in the Motol Hospital and description of indoor navigation system (subject of this thesis is developed as its component). Furthermore, this chapter contains description of a user study based on interviews with visually impaired (N=5) and seniors (N=5).

The following chapter focuses on design. In accordance with the assignment, it focuses on basic design of interaction methods for specific target user audiences. This part contains specification of functional and non-functional requirements, scenario description and HTA. Most importantly, design of Low Fidelity and High Fidelity prototypes are described here. Following chapter describes details about realization of individual terminal prototypes.

Evaluation of individual prototypes is described in Chapter 5. Prototypes were evaluated with representatives of target user audience using usability testing. The low fidelity prototype was evaluated with 3 seniors and 3 visually impaired. The high fidelity prototype was evaluated with 6 seniors and 7 visually impaired respectively. There is clear statement of issues revealed by the experiments and specification of design changes to address these issues. Also, the impact of the evaluation is evident in design evolution - i.e. changes between Lo-Fi and Hi-Fi prototypes.

Last chapter concludes the work. It is well-structured - each thesis objective has been supplemented by a clear description of level of achievement reached in the framework of the thesis.

Implementation

Hi-Fi Prototype of Smart Kiosk has been implemented using .NET technology and deployed on a specific HW prototype. The implementation of the prototype realized specific interaction methods, including multi-modal interaction (visual + speech). The implemented prototype is sufficiently complex for usability and accessibility evaluation. However, further development is necessary for final deployment.

Questions

1. You have conducted a field study in Motol hospital. Why have you chosen this particular location?
2. How much time have you approximately spent with preparation, execution and evaluation of user testing?
3. Which consequences to the development process has application of the UCD methodology?

Conclusion

By her thesis, Mrs. Lorencova proved that she is capable of performing independent engineering work on complex assignments. In accordance with the assignment, the primary aim of the thesis was in complex user interface development. The presented work describes development of a prototype tailored to address needs of visually impaired and seniors users. Individual prototypes have been implemented in order to be used for conducting of human-centered evaluation, however they will require further development for deployment into the real environment. Author of this thesis also was co-author of scientific paper related to the topic of the thesis presented on RACS 2016 conference [2].

I assess the thesis with mark B (very good).

In Prague, June 6th 2016

Ing. Miroslav Macík

References

- [1] DIS, ISO. (2009). 9241-210: 2010. Ergonomics of human system interaction-Part 210: Human-centred design for interactive systems.
- [2] Macik, M., Lorencova, E., Mikovec, Z., & Rakusan, O. (2015, October). Software architecture for a distributed in-hospital navigation system. In Proceedings of the 2015 Conference on research in adaptive and convergent systems (pp. 369-375). ACM.