Proseminar Medieninformatik
Wintersemester 2015/16

Christian Mai
29.10.2015
Agenda

- Goals
- Orga
- Scientific literature review
- Draft
- Topic assignment
Agenda

- Goals
  - Orga
  - Scientific literature review
  - Draft
  - Topic assignment
Goal

• LEARN TO WORK SCIENTIFICALLY

⇒ Prepare for your Bachelor Thesis

• Learn something about a new topic

• Practice your English
Agenda

• Goals

• Orga

• Scientific literature review

• Draft

• Topic assignment
Question-based Review

- Research question + paper about this question
- Start literature review (at least 3 research papers in your paper)
Deliverables

- Paper: 2 pages text in english (references on a third page)
- Interesting title (not the research question)
- Presentation in english
- Call for Paper + Presentation: 11.01.2016
Paper

- 2 Pages in english
- structure of general research papers
- LaTeX-format (see website)
- Use illustrations, diagrams, images to illustrate/ summarize
- Submission: LaTeX source + **PDF**
  - Source includes .tex, .bib, images etc., but no .aux, .log, .bbl etc.
  - ZIP-archive of submission
User Preference for Smart Glass Interaction

Florian Bemmann

Abstract—Smart glasses are wearable devices providing the user always with information, using augmented reality techniques. In contrast to other devices such as smartphones they can be used without holding the screen to use, so that it would be convenient to use smart glasses in nearly every situation. Especially for on-the-go and walking situations, where smartphones are typically used, they offer unique possibilities. Here comes the importance of this paper’s aim to explore the user preference for smart glasses. In the paper, a survey is conducted with multiple available smart glasses devices. Improving current devices is still required and ongoing, so currently impossible interaction concepts could become integrated in next versions. If they turn out to be a great user experience, I will evaluate which concepts might be preferred by users requiring (local) acceptance and performance. In the paper’s second part, I will evaluate which gesture-based concept preferences are the ones suitable to be implemented. Therefore, my paper is based on existing studies examining acceptance and performance of interaction concepts on head-worn displays, such as smart glasses and augmented reality devices.

Index Terms—Smart glasses, Head worn displays, HMD, interaction, input techniques, body interaction, mobile interfaces, Wearable, Augmented Reality

1 INTRODUCTION

After smartphones have revolutionized most people’s everyday life within the last 10 years, the fast developing market of mobile computing devices offers more and more devices like tablets and smart watches are similar to smartphones in the everyday. Smart glasses are a completely different concept. They integrate the latter’s benefit, what could offer some new use cases. To gain the last benefit, other interaction concepts are required. In this paper, I present some possible interaction concepts for smart glasses and evaluate how they are preferred among users. Promoting the best user experience, I will focus on gesture based concepts.

2 CLASSIFICATION OF INTERACTION CONCEPTS FOR SMART GLASSES

There exist several alternatives for enacting the possible interaction concepts. One is distinguishing the concepts into: free form and offers. Another is defining as using a gesture or a touch. The former is defined as not requiring any extra device other than the smart glasses to be performed and detected. Out of this group can further be selected a group of gesture based concepts, which will focus on the second part of this paper. The free form, considering all possible interaction concepts for smart glasses, I will divide concepts into the groups touch, non-touch and touchscreen [3].

• touch: tapping and gesturing on body surfaces or wearable devices, providing tactile feedback. In the following are mentioned the lower arm, face, hands, wearable devices, the smart glasses itself and at least other body parts.

• non-touch: other movements or gestures. These gestures performed with hands, also voice recognition, eye-tracking, touch detection

3 INTERACTION CONCEPTS’ PREFERENCE AMONG USERS

This section I based on a non-directional study [5], where users were shown a video of a game task and they were asked to perform a input actions of their choice to cause that effect. Based on the percentages of which actions the user had chosen and a rating and interview afterward, I determined which interaction concepts are the most preferred in each group.

5.1 Touch Inputs

The concept of a gesture is using a finger to perform a gesture on the surface chosen by 50% of the participant studies [5]. The next step was to choose back touch to the same input actions on both alternatives. Here, on-body actions are: finger, leg, handback and frontpalm. According the user had a greater preference for this input (49%) than a gesture (28%). Afterwards, I would presumably recommend hand-to-face input. I evaluated the touch of preference and low intrusiveness [5]. Touching on the smart glass itself reached a 29% portion in the study of Tung et al., even though it is one of the two primary input methods of Google Glass. As mentioned for hand-to-face input, I would only be troubling on the HMD a bit better as well. Especially its social acceptance is good (better than on face) [5] which is a set of consequences of ubiquitous, but high cost issues and meaning of face gestures in other ethnic groups [1]. On the other hand the performance on-device is lower than on face, due to its small tracking area [1]. A common wearable, the smart watch, was preferred by only 7% [5]. Interestingly 12% preferred a ring [5], a rather uncommon wearable. Another interesting concept is a digital bill, permitting a good performance. Its quick and easy handling, but not as by the users. The social acceptance on the body, depending on the interaction method. For short interaction ones did not feel very acceptable, using all arms around the bill. When performing longer tasks, bill hand was the most preferred, perceived as less intrusive [5]. Although this doesn’t offer user preference comparing the bills with the other concepts, the bills is a promising one.

5.2 Non-touch Inputs

In-air gestures are the by far most preferred touch input methods. 99% of the non-touch actions were chosen in the study [5]. In-air gesture concepts, I will focus on in next section. The methods are tracking, sensor detection and voice command and low power gestures [5]. Even though voice command is one of the two Google Glass primary input methods, it only reached 9% of the answers [5]. Anyway, I would regard voice command as an input method because its very intuitive. Its low score’s reason might be a low social acceptance in public contexts, where the study was conducted. Overall non-touch interactions was rated a little bit better than touch concepts [5].

5.3 Inputs using handheld devices

Handheld devices should only be a compromise solution. Their preference score was the lowest compared to the groups touch and non-touch.

Abstract

Topic, relevance, why, major findings (ca.150 words)

Introduction

What is the problem? Why should I read it?

Main Part

• Paper

• Abstract

• Introduction

• Main Part
Main Part

Design Space, deep discussion of related work. Don’t tell what is in the paper, think beyond!

Conclusion

short summary +
your opinion, which is reflected in your work section

REFERENCES
Presentation

- 15 min presentation + 5 min discussion (English)
- Slide template see website
- Presentation on your Laptop or on Christians
- Mainly pictures!
- Interest the audience! Do not make us fall asleep!
  (References: https://www.ted.com/)
- Anticipate questions and prepare answer slides (backup-slides)
Evaluation sheet

<table>
<thead>
<tr>
<th>Bewertungsbogen für Proseminararbeiten</th>
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<tbody>
<tr>
<td><strong>Thema:</strong></td>
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<td><strong>Student:</strong></td>
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<td><strong>Seminar:</strong></td>
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<td>Proseminar Sommersemester 2012</td>
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<td><strong>Betreuung:</strong></td>
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<td>Christian Mai</td>
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<tr>
<th>Aspekt</th>
<th>Gewicht</th>
<th>Note</th>
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<td>1.1 Angemessenheit des Umfangs</td>
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<td>1.2 Gliederung und Aufbau</td>
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<td>1.3 Korrekte Zahlenweise</td>
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<td>2.2 Literatur / Berücksichtigung des *</td>
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<td>2.3 Logische inhaltliche Konsistenz / *</td>
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<td>2.4 Innovation / Einbringen eigener Gedanken</td>
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<td>1.2 Bildmaterial</td>
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<td>2.2 Einhaltung der zeitlichen Vorgaben</td>
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75%

25%
http://www.feedbackme.co/

- Fast and easy assessment of your skills
- Customizable
- Statistical analysis of your improvements
- Code for this Session: **Yvrbu**
General

- Absence <= 1 Day
- Participate
- Questions?
  - Extra Session for questions?
  - Contact me by Mail, let me know your phone number (if you want to)
Agenda

- Goals
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- Topic assignment
Research in general

- Starting Point for your work: given related scientific work
  - First Orientation
  - Includes references in the “References” chapter
  - Includes first Keywords
  - Not every source can be used (e.g. Online-Articles without author, contributions in online communities)
  - Safe Online-Sources and write down the date of access!
  - References: Papers, Conferences, Journals, Books
Finding literature

- Almost all the Literatur is available online!
  - Google/Google Scholar (http://scholar.google.com)
  - ACM Digital Library (http://portal.acm.org)
  - Citeseer (http://citeseer.ist.psu.edu)
  - IEEE Xplore (http://ieeexplore.ieee.org)
  - OPAC der Universitätsbibliothek (http://opacplus.ub.uni-muenchen.de)
- For the full functionality Login at „LMU E-Medien-Login/Datenbanken“ and find the needed Library (e.g. ACM)
Finding literature
Agenda

- Goals
- Orga
- Scientific literature review

Draft

- Topic assignment
Why should I care about citations?

- Copyright/ intellectual Property
- Foundation of scientific work
- Citations links belonging work together
- Reader needs all the information you had to check if you are correct
Citations

• Quotation
  • Direct (in quotation marks)
  • Indirect

• No secondary citation

• Citation style: APA 6 (for this work)

• Wikipedia: not citeable (but good for quick research)
## Citations

### IN-TEXT REFERENCE

#### BOOKS

**One author – in-text reference placement**

*Information prominent (the author's name is within parentheses)*:
The conclusion reached in a recent study (Cochrane, 2007) was that...

**OR**

*Author prominent (the author's name is outside the parentheses)*:
Cochrane (2007) concluded that...

**Note:** There are two main ways to use in-text references. Firstly, to focus on the information from your source – ‘information prominent’. Secondly, to focus on the author – ‘author prominent’.

#### Chapter in edited book

A discussion about Australia’s place in today’s world (Richards, 1997) included reference to...

**OR**

Richards (1997) proposed that...

### JOURNAL, NEWSPAPER & NEWSLETTER ARTICLES

**Journal article with one author – separated paging (paginated by issue)**

If each issue of a journal begins on page 1, include the issue number in parenthesis immediately after the volume number in the Reference List.

In an earlier article, it was proposed (Jackson, 2007)...

**Journal article with two authors – continuous paging throughout a volume.**

If the journal volume page numbers run continuously throughout the year, regardless of issue number, do not include the issue number in your Reference List entry.

Kramer and Bloggs (2002) stipulated in their latest article...

**OR**

This article on art (Kramer & Bloggs, 2002) stipulated that...

**REFERENCE LIST**


Plagiarism

• No plagiarism, NO plagiarism, not even a little!

• Plagiarism
  • Material of third parties, without reference
  • Direct quotations, without reference
  • copied pictures, diagrams or graphics without reference

• Your work will be checked automatically

• Work with plagiarism will fail the course!

• http://www.medien.ifi.lmu.de/lehre/Plagiate-Ifl.pdf
Writing style

• Everything you write in your paper must be supported by literature!
• Think about a logical structure of your arguments
• Scientific writing is: objective, precise and neutral
• CHECK: Grammar, SPELLING
• Numbers from zero to twelve are written as text
• Spell out Abbreviations like „z.B.“, „i.d.R.“, „e.g.“
• Don‘ts:
  • Unprecise quantities („high“, „slightly“, „almost“, „a little bit“)
  • Fillers (z.B. „now“, „well“, „quasi“)
  • Pseudo-Arguments (z.B. „naturally“, „as expected to“)
Citavi

- literature administration

http://www.ub.uni-muenchen.de/schreiben/literaturverwaltung/citavi/index.html
EndNote

- literature administration

http://www.ub.uni-muenchen.de/schreiben/literaturverwaltung/endnote/index.html
LaTeX

- Text formatting
- Integration of Pictures and Diagrams in the final document
- Integration of references (with linkage to Citavi, EndNote, BibTex…)
- No WYSIWYG, instead creation of source code
- Very nice typography
- No mistakes when creating the text
- Huge number of online tutorials available
Example creation of a document

\title{Mein Titel}
\tableofcontents
\section{Überschrift}
Text des Kapitels 1 ...
\subsection{Unterüberschrift}
Text des Kapitels 1.1 ...
~\cite{Huber}

@article{Huber,  
    author = "Egon Huber",  
    title = "Implementing ...",  
    journal = "Computer",  
    year = "2001",  
    ...  
}
Process

Today: Topic assignment
Process

Today: Topic assignment

11.01.16 Call for papers

Your work
Process

- Today: Topic assignment
- 11.01.16 Call for papers
- 14.01.16
- 04.02.16

Your work

Your Presentations
Agenda

• Goals
• Orga
• Scientific literature review
• Draft

• Topic assignment
Topic assignment

1. Katrin
2. Nicholas
3. Markus
4. Daniel
5. Benedikt
6. Michael
7. Tim
8. Maksimilians
9. Alexander
10. Felix
11. Roy
12. Yoana
13. Julian
14. Karina
15. Patrick
16. Dimiter
17. Michael
18. Karlheinz
19. Julia
20. Florian
Topic List

• See „Research Questions _Proseminar 1516.pdf"
BackUp
Vorgehensweise

• Wenn noch nicht vorhanden: TeX-Implementierung und LaTeX-GUIs/-IDE installieren, z.B.:
  • Windows: MikTeX (http://www.miktex.org/) + TeXnicCenter (http://www.toolscenter.org/)
  • Mac OS: MacTex (http://tug.org/mactex/), beinhaltet TeXShop IDE (http://www.uoregon.edu/~koch/texshop/index.html) oder TexMaker (http://www.xm1math.net/texmaker/)
  • Linux: teTeX-package (www.ctan.org/) + Kile (http://kile.sourceforge.net/), vorinstalliert auf Pool-Rechnern

• Download des LaTeX-Templates
  • .tex- und .bib-Dateien mit IDE öffnen, Source anschauen und nachvollziehen
  • LaTeX => PDF einstellen, .tex-Datei zweimal kompilieren
  • Bei Bedarf weitere LaTeX-Tutorials, Foren etc. konsultieren
LaTex-Ressourcen

- LaTex-Klassen und Dokumentation (http://www.ctan.org)
- A (Not So) Short Introduction to LaTex2e (http://www.ctan.org/tex-archive/info/lshort/english/)
- LaTeX Symbols List (http://www.ctan.org/tex-archive/info/symbols/comprehensive/)
- Grafiken importieren und formatieren (http://tug.ctan.org/tex-archive/info/epslatex/english/epslatex.pdf)
- Deutschsprachige FAQs (http://www.dante.de/faq/de-tex-faq/html/de-tex-faq.html)
- BibTeX-Tool und Dateiformat zur Verwaltung von Bibliographien und deren Einbindung in LaTeX
  - Fachliteratur-Referenzen werden online bereits vielfach im BibTeX-Format angeboten (z.B. ACM, IEEE)
  - How-To: http://www.bibtex.org/Using/de/