

The Time Machine – inclusive nature and museum trails

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Motivations



The Time Machine App

- Android app
- Trails with quiz
- Explore mode
- Touch over map





Explore mode

- Distance filter with screen gesture
- Search in the selected interval by scan gesture






The king's house,
210 m


The University Historical
Museum, 295 m

Test, summer 2012

- 9 visually impaired adults
- 42-73 years old
- 5 men 4 women
- 2 sighted persons (one in a wheelchair)
- Documented with sensecam & audio log
- GPS + compass logged (ContextPlayer)



Test, introduction

- With accompanying person
- Introduction: try out the interaction (find a location & select & walk to it), learn the android back button
- Introduction: find far away point & examine from a distance

Actual test

- Choose and walk to at least 2 points (free choice).
- Walk to final point (pre-determined), close to the post test interview location
- Half of the participants got routing (incl open areas) and half got "as the crow files"
- Approx 1h

Post test interview

- NASA RTLX workload
- demographic questionnaire
- semi-structured interview
- word list 106 words (from <http://www.userfocus.co.uk/articles/satisfaction.html>)
- Duration: 1-1,5h

Results

- All except one completed. The failure was due to the GPS not working (before that the user had been able to use the app as intended)
- All users wanted to use the app again

NASA RTLX

- mental demand varied between 2 and 6.
- physical demand is rated low (1-3), except for the two sighted users.
- temporal demand is rated low (1-3) by all except one (the one with technical problems)
- performance is generally high (4-7), same outlier as for the temporal demand.

NASA RTLX

- some, but not an excessive amount of effort into the use of the app (3-5).
- Two participants rate the frustration higher than middle, the participant with technical problems and the participant who was using a wheelchair
- guiding with vibration was the least demanding task

Word list

- 106 words (balanced to contain both positive and negative properties and feelings)
- mark the 5 most important words
- The most prominent describing words, using a weighted figure with the important words counted twice, were: Fun, Stimulating and Usable.

Results

- Guiding easy
- More training needed but learned while using
- Difficult to hold everything



Results

- Fear of theft
- Scanning design worked but the design with finger in touch with the screen problematic
- Scanning in wheelchair
- Scanning intuitive but new to the users
- Occlusion + compass jitter
- Routing seems preferred





Results

- Crossing a square novel ” *I was able to walk across the square. It was great.*”
- POI offset/GPS inaccuracy
- Sound windows generally appreciated (one user with hearing problems wanted them removed) but you want info!



Results

- Real life sounds important – if the app is noisy you may miss sounds from bikes etc
- Beautiful sounds can make you forget to attend to vibrations ” *“No, I followed the music....here one needs to separate the sense of hearing and the sense of touch...”*

Suggested improvements

- Information about the sound windows.
- Information about present time
- distance to target (in metres
- A better “where am I?”-function
- Navigation in speech + turns ahead
- Get back to the starting point function



Conclusion

- scanning + on-screen gestures to filter points
- application appreciated but room for improvement
- guiding working well
- improvements still needed to be able to better deal with occlusion and close lying objects.

Conclusion


- both “as the crow flies” and through turn by turn routing useful
- Time Machine is a good example of how it is possible to make an inclusive tourist guide application that is fun, stimulating and usable for a wide range of users.

TimeMachine on Google Play

- Updated app in Swedish and English, but currently only Swedish trails
- Tool developed by Do-Fi & Hembygdsföreningen to make it easy to make trails
- <https://play.google.com/store/apps/details?id=se.lth.certec.timemachine>

Test trail outside IKDC

- In Swedish, but illustrates the principle:



Tidsmaskinen

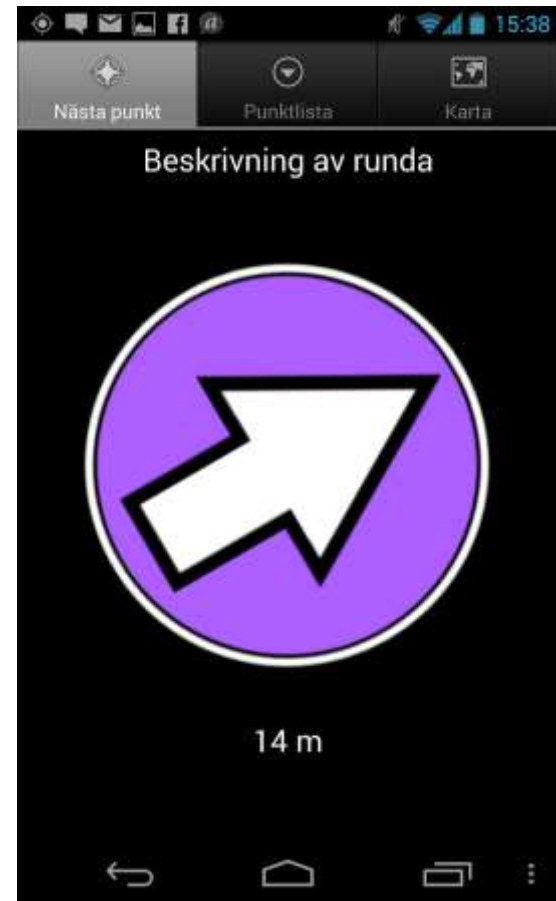
charlotte - 28 februari 2014
Resa och lokalt

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★★★★★ (1)

[g+1](#) +7 Rekommendera detta på Google

App changes



App changes



Thank you!

- Questions?
- Contact: charlotte@certec.lth.se