A Proof Of Concept of a Holistic Conferences for Everybody. Utilizing Smartphone Modules for Accessibility at physical accessible Conferences (via QR Code).

Contact
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Team

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studiumdigitale has joined the project HessenHub since the beginning of 2019. [https://www.hessenhub.de; #DigiBar;](https://www.hessenhub.de; #DigiBar;)[https://www.studiumdigitale.uni-frankfurt.de/](https://www.studiumdigitale.uni-frankfurt.de/)
Overview

• Challenge and what is there to observe?
• Practical and Technical Concepts
• Implementation
• Demo
• Conference Utilization
• Preview: Further Steps
• Participation & Contact
Challenge

• How can we organize an accessible conference for a blind person?
  • Unfortunately many conferences are still not accessible in 2023
  • Lack of autonomy and access to (visual) information for visual impaired or blind conference participants
  • Conditions for preparation and follow-up must be organized accessible
    • How is that manageable?

• Qualitative guided interviews are planned (one conceptional interview was made)

• Future research: Solutions and Simulations

• Autonomy and accessible information could be brought trough a framework
  • What if all this would be standardized accessible?

Source: https://www.qrcode-tiger.com/de/3d-qr-code
What is to observe from the beginning?

- Research and best practice
  - Guidelines and standardization
- Preparation and contacts
  - Joined by people with an impairment
  - Organisation and surveys
- Execution
  - Room, Architecture, Furniture
  - Forms of Communication, Material
- Postprocessing
  - Lessons Learned and evaluation
Practical Concept I
Practical Concept II

Basic conferences include information about (differences and similarities)

Vision: What if all this would be standardized accessible?

• Communication
  • People, digital chat and talks
  • Name tags and voluntary personal description, institution

• (Supporting) Program
  • Keynotes, workshops and groups, schedule, lectures and free activities

• Media
  • Presentation formats and electrical power sources
  • Innovative recreation spaces
  • Organization

• Orientation
  • Campus map, (indoor) navigation, building map, toilets, code on the floor, rooms, furniture
  • Free seats

• Resources
  • Food, Drinks, gimmicks, like what and when etc.?
Technical Concept

• Quick response code (QR code) contains information (usually in text form)
• A mobile device can read and transform the information through a sensors in an audio form (similar to screenreaders)
• Building an QR code scan app
• Integrate QR Codes as information balance for visual information at a conference
• Creating a new a mind set of accessible conferences
Implementation I

- Using a common smartphone with included camera
  - Approach is built for iOS devices
  - Utilizing the sensors on a smartphone
- Building an QR code scanning app
  - App scans a QR code
  - obtains the information stored in the code
  - Camera/app proposes the obtained information and provide an audio feedback

Source: https://supercode.com/use-case/qr-codes-on-posters
Implementation II

• The integrated developer environment is XCode
  • Code written in Swift
• Frameworks
  • AVFoundation
  • AVCaptureSession
  • AVSpeechSynthesizer
  • AVSpeechUtterance

Source: https://www.multimediaqr-code.com/generate-audio-qr-code/
Hello! Welcome to our event.
Thank you for taking part.
There are 10 empty seats available.

Scan QR Code

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today we have on the menu:
Turkey breast fillet Oriental style, with a side dish of your choice. Price €4.70.
Chickens leg Andalusian style with an accompaniment of your choice. Price €3.90
Finally Vegetarian: Savoy cabbage and paprika stew, with multigrain rolls and a side dish of your choice. Price €3.90

Scan QR Code
Conference Utilization

• Indoor navigation
• Determine the number of free places (empty seats) by dynamic QR code (by people)
• Provides information on the position of chairs, obstacles, and emergency exits QR codes on handouts
• App scans and understands the QR code content and provides audio descriptions to the user
• QR code can also be created for a poster and hung up next to the poster (Handout)
Preview: Further Steps

• Extending the holistic approach

• Developed framework will be extended and tested by simulation

• A framework screencast can be found in summer as a at DigiBar

• Feedback/Ideas/Use cases required from the community

• Further development

Source: https://www.beschildern.de/taktile-leitsysteme/
Thank You For Listening!

Participation & Contact

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• Deitmer, Andreas
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• Voß-Nakkour, Sarah (Goethe University Frankfurt) and more

Do you have any questions or comments?

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Any further questions?
• How would you name the app?
Research


- Netz Barrierefrei: ONLINE-VERANSTALTUNGEN BARRIEREFREI GESTALTEN: [https://www.netz-barrierefrei.de/wordpress/gesellschaft/barrierefreie-online-veranstaltungen/](https://www.netz-barrierefrei.de/wordpress/gesellschaft/barrierefreie-online-veranstaltungen/)


- Verbraucherportal BW: QR Codes: [https://www.verbraucherportal-bw.de/Lde/Startseite/Verbraucherschutz/QR_Codes](https://www.verbraucherportal-bw.de/Lde/Startseite/Verbraucherschutz/QR_Codes)

- Virtual qualitative question based Interview with Andreas Deitmer (2023): Rustemeier, L.; Sabah, S. (unpublished, on request)


- W3C (2022): [https://www.w3.org/TR/remote-meetings/](https://www.w3.org/TR/remote-meetings/), W3C Group Note 22 July 2022