



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

Sam Sabah (M.A.) is a computer scientist and has been a member of staff at **studiumdigitale** since 2022, the center of innovations on technology enhanced learning at Goethe University Frankfurt. He researches in the field of Augmented and Virtual Reality.



Linda Rustemeier (M.A.) is an elearning expert and has been a member of staff at **studiumdigitale** since 2016, the center of innovations on technology enhanced learning at Goethe University Frankfurt.

She researches in the field of Serious Games, qualification of supplemental instructors and digital accessibility (HessenHub).



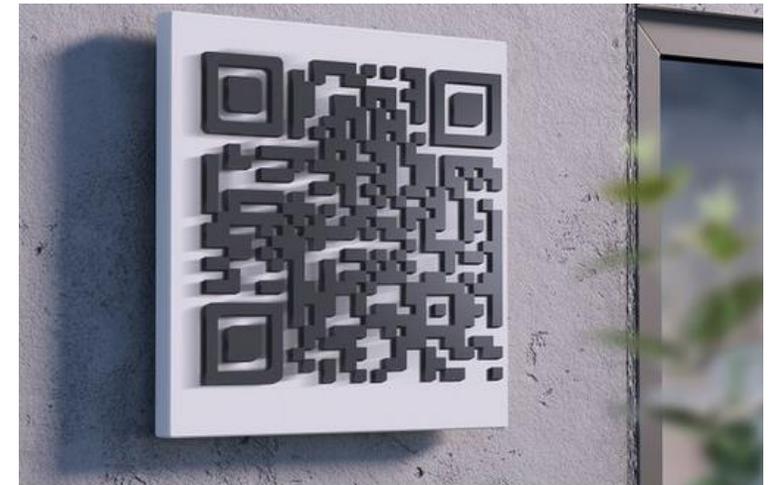
studiumdigitale has joined the project HessenHub since the beginning of 2019. <https://www.hessenhub.de>; [#DigiBar](#); <https://www.studiumdigitale.uni-frankfurt.de/>

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 conceptual interview was made)
- Future research: Solutions and Simulations
- Autonomy and accessible information could be brought through 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

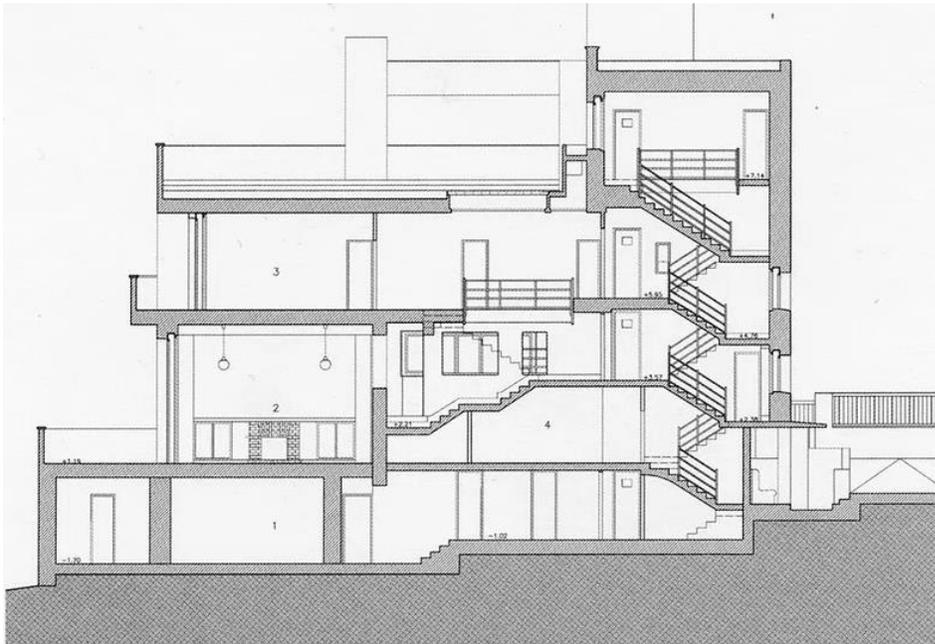


Source: <https://www.gemeinsam-einfach-machen.de>

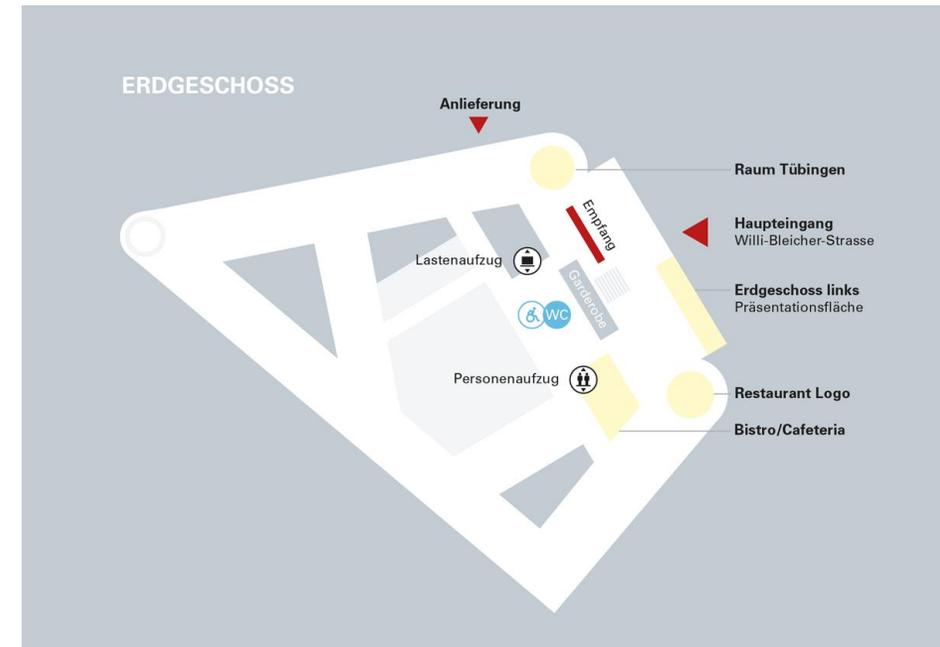


Source: <https://organisationsberatung.net/open-space-moderator-begleitung/>

Practical Concept I



Source: <https://www.constructingarchitect.com/what-is-raumplan/>



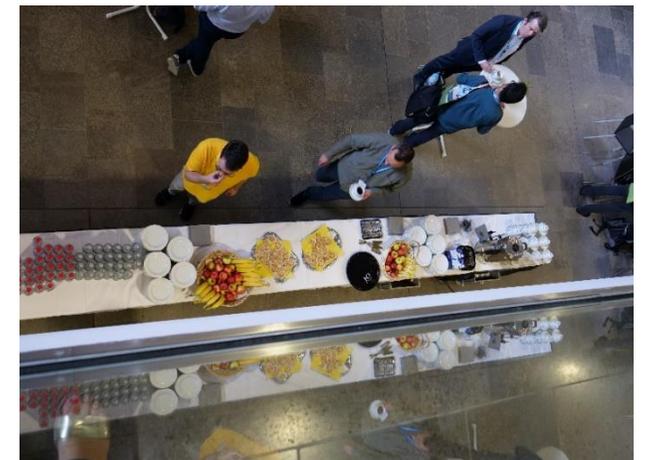
Source:
https://www.hausderwirtschaft.de/fileadmin/_haus_der_wirtschaft/Bilder/Geschossebenen/6963_Lageplan_HDW_Erdgeschoss.jpg

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

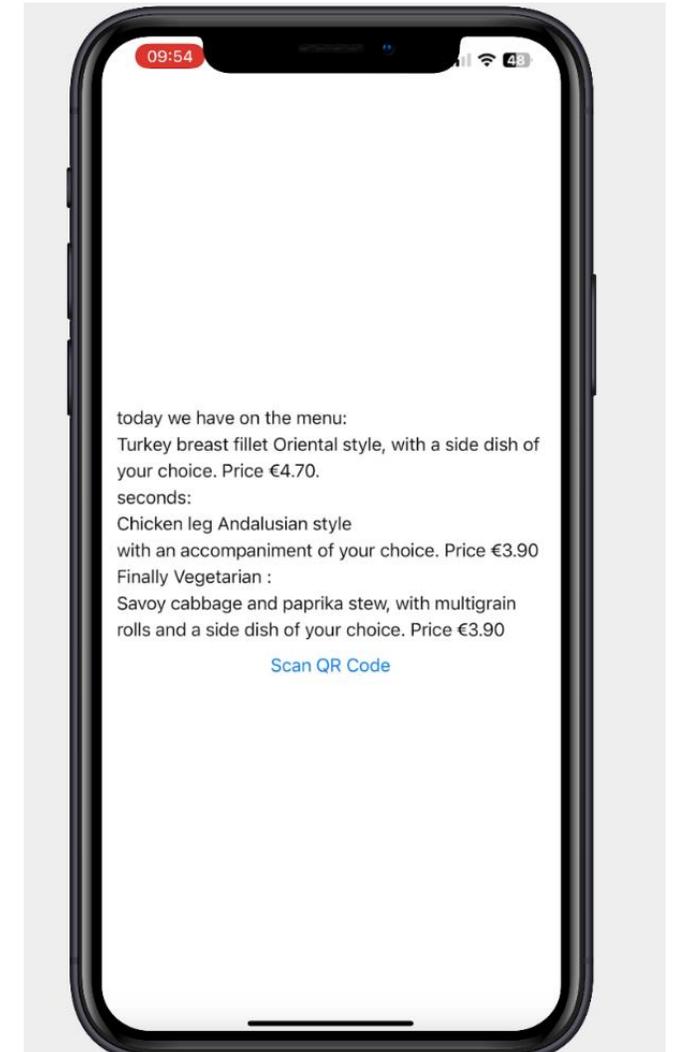
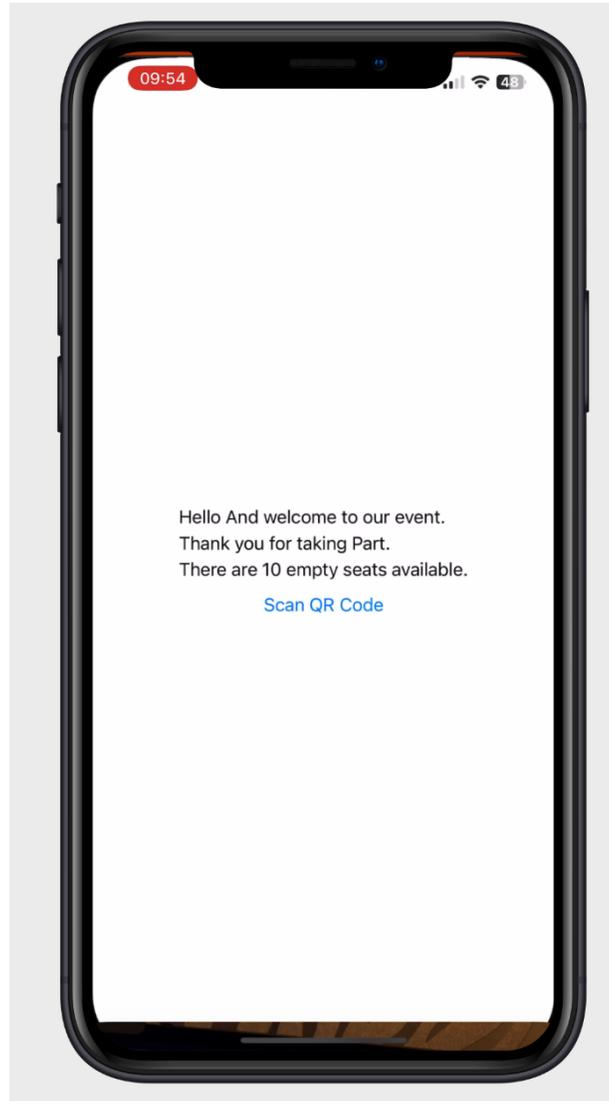


Implementation II

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



Demo



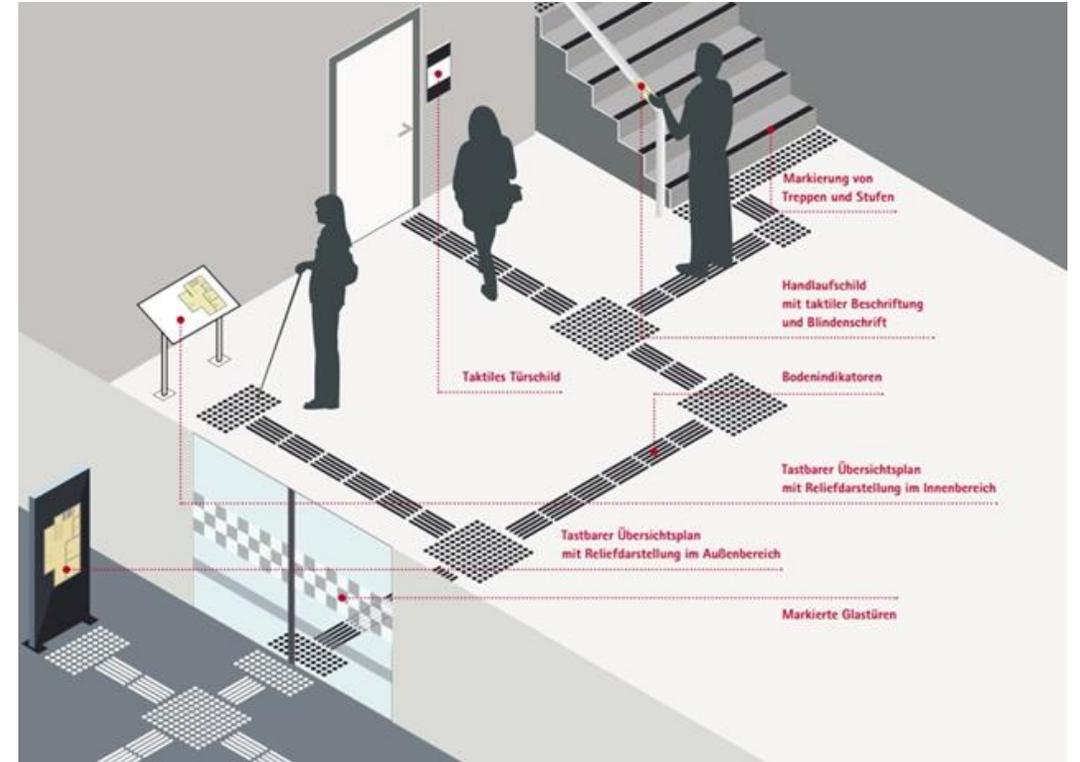
Conference Utilization

- 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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- Grimminger, Sanja (Goethe
University Frankfurt)
- 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

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