

“ZEIT.RAUM” – Collaboration Around a Tangible City Model

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Abstract. Tangible objects and sensors are ubiquitous in our environment, the majority is also connected to the internet and provides information to the user. One of the few areas where tangible objects are rare to see is the museum. Our research tries to combine various directions to improve the experience in such places: creating a tangible object to tackle the vanishing visitors of the museum. In a heterogeneous group of actors, we collaboratively developed a socio-technical infrastructure, consisting physical, virtual and social elements to increase visitors and attractiveness inside the museum, but also building a living community interested in participating and writing local history.

[The project named “ZEIT.RAUM” can be translated with “TIME.SPACE”]

Introduction

Provincial museums fight against declining visitor numbers and intend to open up to new and younger target groups through the use of digital technologies. In their activity’s museums build up cooperation more likely than any other public institution (Rodger et al. 2005, Marty 2008). In the presented project, a consortium was formed of three scientific and public representatives, the local fab lab, as well as donors, acquired and represented by the museum's regional support association. All of the stakeholders pursued their own goals and strategies and wanted to be highly involved in the conceptual and development process. The primary goal of the project was to activate citizen’s identity-forming, interest and

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participation in the local history. The basic history-concept called *points of remembrance* (Nora 1989) – these can be concrete places, personalities, mythical figures or symbol – should be considered in all development-steps. The effort of the project was to set up a fitting socio-technical infrastructure that promoted the achievement of the goals (Pipek et al. 2009).

Motivation and Realization

We defined four basic aspects, based on initial and ongoing meetings and workshops during the entire project. These aspects are the fundamental requirements, which the project should fulfil with the creation of the artifact:

1. a tangible and cost-effective representation of the city
2. a collaborative platform for writing history from a citizen's perspective
3. community building to activate participation of targeted groups
4. to enhance numbers of visitors in the museum

In order to meet the established requirements, we decided to combine the first three requirements within one city model in the museum as a kind of anchor. It was important that project-participants can flexibly expand and exchange parts of the model. Interactivity was requested, as well as the resulting tangible interface/city model should be imaged from above with a media projector to highlight the city's points of interest, while further historical information should be displayed on additional screens. In the following we want to sketch out the defined use case:

The user or museum visitor stands directly in front of the interactive city model. He sees a table in which a landscape model is embedded. The model is illuminated from above with a projector. Buildings protrude from the surface and can be *activated* by touching. Two TV-Screens installed beside the model display a QR-Code and brief historical information. Four tablets in the corners of the model allow access to the collaborative platform/city wiki. The information in the wiki is more detailed than the information on the TV-screens. In addition, museum visitors have the opportunity to access the QR-Code with their own mobile devices. By this, the visitor is enabled to take part in the discussion about locations, people, events, ideas and traditions related to the local history. These can gain meaning in the debate. By choice the model can be designed by the community, because also the three-dimensional terrain and building 3d-data can be accessed and edited via a public versioning platform.

The model itself shows a section of the city center, realized as 3D-printed tiles, including terrain with buildings on it and embedded electronics below to realize interaction.

The collaborative platform was sought in workshops and meetings with didactics and museum staff. As a result, the DokuWiki platform was chosen and hosted to the internet. In an iterative process with seniors, pupils and didactics, slight adjustments to the user interface as well as user tests (Thinking Aloud, Constructive Interaction) were carried out.



Figure 1. user accessing informations

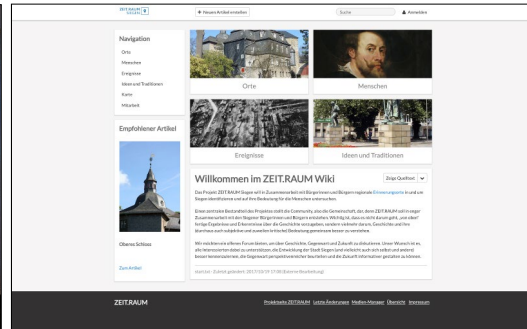


Figure 2. collaborative platform/city wiki

To create a community on the topic of city history, users are offered to enter their own knowledge of the city into a collaborative platform or to correct/ expand existing content. Through the common interaction on the artifact, the users should be encouraged to participate in an active way. Especially the location of the artifact or city model plays an important role in the community building effect. It stands in the middle of a prominent and high frequented museum room. In this way, (grand-)parents can interactively tell their children, but also teachers their pupils, or city guides to visitors about the history of the city. Furthermore, this activity supports the community building effect by encouraging the mentioned target groups to share their knowledge and enter it into the wiki.

To achieve the primary goal, the activation and empowerment of diverse citizens to use the collaborative platform for discussing, negotiating and continuously rewriting the local history from the citizens' perspective. Didactics of history conducted teacher training courses, worked together with local associations to explain the chosen bottom-up history concept, as well as the way of working with the collaborative platform.

Reflections on development and appropriation

The interface was developed in a university Fab Lab. Therefore, the artifact was not produced in a closed laboratory, all progress could be observed, tested and commented by the diverse Fab Lab community. Some of the community members gave hints to improve the 3D-printing process, also the final projection mapping

and the use of capacitive sensors is a result of the discussion and engagement in the community.

In the prototyping process, but latest after presenting the installation to the public, it has been indicated, that most attention is given to the tangible interface. The users switch content by interacting with the model, so their focus is on touching and viewing it. Sometimes attention escapes and users miss looking at the TV-screens for further information. Regarding the tablets, which were mounted on goosenecks, one group of pupils misused them like a steering wheel to play races and caused a defect by doing this. Children like to touch the model, adults have to be advised, that they are allowed to touch and use it as an interface. Observations of the museum staff and usage statistics show that the tablets besides the city model and city wiki are not in use as intended.

This encourages our future plans to improve the information value on the model-projection itself. Also, more capacities will be spent to build up the community to push the use of the collaborative platform and the physical extension of the model. The whole installation in the museum is in further development and can be understood as a public prototype.

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