

PR09-01 Interactivity Assignment: Developing an engaging user experience as an interactive system

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Block A, Year 4**

TOPIC 3: MOTI

“A museum for visual culture belongs in a time where disciplines merge together and an explosive amount of images have become a part of our daily lives.”

Research, design and develop an interactive system that will provide an extension of the Museums context / persona in order to increase visibility and user experience within the MOTI Breda and enable users to engage with the museum from the outside in a way that augments the contents and purpose.

We have read the policy on Academic Honesty and Preventing Plagiarism and the relevant referencing guides (or have had this explained to us by our teachers) and understand the consequences of committing academic misconduct as outlined in the policy.

This assignment is our own work, We have not participated in collusion, nor have we previously submitted this or a version of it for assessment in any other Unit of Study at the University or any other institution without having obtained the approval of the teacher.

We have taken proper and reasonable care to prevent this work from being copied by another student.

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We have carefully read the assessment criteria that will be used to evaluate our work.

We certify that the statements we have attested to above have been made in good faith and are true and correct. We also certify that this is our work and that we have not plagiarized the work of others and not participated in collusion.

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1. Introduction

a. Intention of the Project

The purpose of our interactive system is to make more people - citizens of Breda and visitors from the Netherlands as well as foreign countries - aware of the MOTI and its current, permanent and future exhibitions, to raise its popularity and ultimately to increase its visitor numbers. Of course there are the traditional ways a museum can use to raise awareness for its program: putting up advertisement like posters in public spaces, which might not achieve to get the necessary attention and the desired effect, using other traditional ways of advertisement or relying on people passing by the museum by chance and spontaneously deciding to pay it a visit. Instead we decided to develop a more direct and active concept.

Even though the "Museum of the Image" can count as one of the main cultural institutions of Breda, we can't assume that every citizen has visited it. One of the reasons for this is that they have no clear idea or the wrong idea of what the MOTI has to offer. Therefore we wanted to bring the citizens of Breda and the museum with its purpose and variety closer together. Our concept introduces both purpose and content of the museum and gives a taste of what it has to offer once you go inside. On this account one of the main goals was to specifically draw attention to particular current and upcoming exhibitions.

For tourists who are visiting Breda our main goal was to actually lead them to the museum and give them an extra motivation to go inside. The MOTI is mentioned in most of the popular tourist guide books but due to its location just outside the city centre people don't necessarily pass by when they stroll through town.

Our concept is a more playful, direct and personal version of the yellow and black signposts all over the city, which lead to the museum. We wanted to design a tool which takes people by their hands and leads them to the museum, holding their attention until they stand right in front of the building. The concept includes pointing out interesting sights on the way and at the same time giving the user an idea of what to expect from the museum and its exhibition. The potential visitors are picked up in central spots all over town and brought to the MOTI in a playful, entertaining but at the same time educational way. The museum is in this case not just passively waiting for visitors but actively getting and holding the attention of the public. We tried to find a way to engage people in an interactive experience with elements that are characteristic for the museum and its exhibitions but also with the environment the visitors are surrounded by: the city of Breda and its people.

b. Our Concept

In our concept, a free app is made available for download via QR-Codes in places where a lot of people pass by every day. Since we want to reach both citizens and tourists, we picked the Central Station of Breda and the two tourist offices in town to begin with. But with the app being available for free in the App Store and the Google Play Store, there are technically no limitations and anyone can access and download it. Flyers and posters could be put up and spread all over town to further increase the effect. The goal should be to reach as many people as possible and to raise their curiosity enough to follow the directions to and into the museum. We want to create a unique experience where people have fun and at the same time create curiosity and a desire for more. The way we imagine it, the app would give a first impression of what the MOTI has to offer and present it in the most interesting and appealing way possible without telling or showing too much and in doing so possibly spoiling the experience in the actual exhibition.

The users get to know the museum by following a trail and encountering various games, which are related to the museums current and upcoming exhibitions. They can interact both with the museum, past and future visitors and with all visitors who have done or will be doing the discovery trail. It is possible to give feedback about what the users found interesting and engaging, what they would like to see more of, what they enjoyed the most, what would make them visit again but also what they didn't like. The users can therefore give tips to future visitors and review their experiences. The app will display those messages, readable for all future users. They appear as yellow speech bubbles on the map and also along the way when the augmented reality view is activated. The user can read the reviews and experiences through the augmented reality app as messages written in chalk on walls and on the ground. Feedback, positive and negative, can also be given directly to the museum. Either via a non-public guest book-feature available in the app or via a link to the museums facebook page or their email address.

c. Why this Concept?

Our concept introduces the MOTI and everything it has to offer by letting people actively experience some of its main features. They can play games and share their experiences without having to enter or even be close to the museum. However, by placing the experience outside of the museum, leading to it, we make sure that the games of the app don't overshadow the actual exhibition.

The connection to the MOTI and therefore the purpose of the app - leading people to and into the museum - will be made obvious, it is completely free, no personal data will be collected and the games or the trail itself will not take longer than 30 minutes. The app will be very much self-explaining. If the users like it, they can decide to just follow the steps of the app and

end up in front of the museum. Through the app they interact not just with the museum but also with current and former users. During the discovery trail there is of course also always the possibility to meet other participants and sometimes the interaction with strangers passing by will be necessary to get a certain information or help with a challenge for example to take a picture of the participant doing a task. A lot of communication will probably also happen automatically caused by peoples curiosity. The interaction with others makes the discovery trail a very unique and unforgettable adventure.

The experience can even go further when the app is connected to social media. Allowing the users to have various options to share content and experiences with their friends and family would potentially increase the popularity of the museum. This would also attract more people to take part in the interactive experience and finally also bring more visitors to the MOTI itself, which is one of the main goals of this project.

Providing the user with a fun and memorable experience, including the museums current and future exhibitions, enhancing the interaction between the museum and its visitors as well as the possibility to extend the initial functionalities of the app are the main reasons why we chose to develop this concept.

d. Technologies

To make the experience accessible to as many people as possible, we decided to use a app which can be downloaded for free and used on any smartphone with GPS and camera. It would be very simple and self-explaining with a clear, minimalistic design and the users could choose between English and Dutch instructions, to make sure it can be used by locals and foreigners. It could be downloaded by scanning the QR-Code which would be available on flyers and posters at several spots across town, e.g. the central station, the tourist offices, the universities and the city center and direct the user to the App Store or the Google Play Store. But the app could also be found by directly searching the google play store or the app store and there would also be a link on the museums website. Once the app is loaded and installed, no internet connection is necessary anymore, to insure that not only people with mobile data available can take part. Navigation is possible via the included map, using the GPS signal of the smartphone.

Challenges and messages can be made visible over the smartphone screen, using augmented reality. They would appear to be projected over the camera view of the users' surrounding. Completed challenges are to be documented e.g. by taking a picture or shooting a short video. Results and experiences can be shared over most of the common social media channels during and after the trail.

e. Realisation

All it takes to pilot the concept, is the development of the app, which would enable anyone with a smartphone to participate in the discovery trail using augmented reality. To realise

such a complex app a team of competent app programmers and designers is needed. In addition it has to be developed for all the popular operating systems like Android, iOS and Windows, which will take a lot of time but is necessary to reach the maximum amount of people and make the app available to everyone.

Since the individual games within the app are always related to the current and upcoming exhibitions of the museum, new ones would have to be invented and developed on a regular basis. This is based on our assumption that the project would be going on for a longer period of time (as long as the museum wants the app to exist) and the app would need to be updated regularly. Although it might be a slight downside to the project that it can't be finalized for the short term it's a huge advantage to have the possibility to continuously work, improve and expand the app. In addition this means that the concept would lead to a permanent cooperation with the museum, which should be desirable.

To promote the designed experience, posters and flyers with the QR-Code could be printed and spread all over town. In order for us to pilot the project, MOTI would have to agree to a cooperation. Since the central purpose of the project is to increase the visitor numbers of the museum, it's very likely that MOTI would agree to such a cooperation.

2. Research

Our initial inspiration for the concept of the AR-Discovery Trail for the MOTI was “Hidden City” in England (<http://www.inthehiddencity.com/>)- an interactive treasure hunt across English cities using smartphones as an alternative to normal city tours for tourists or as a team-building exercise for local companies. Since our project is about the Museum of the Image, we then combined the philosophy of this concept with an idea similar to something that had been used at the Re-opening of the Rijksmuseum in Amsterdam where graffiti art and messages had been projected over old paintings, made visible via AR technology that could be downloaded on the smartphones of visitors as a way to make the museum more popular, attractive and interesting to young people.

We wanted to achieve an experience that involves the natural surrounding and sets a focus on the city of Breda in combination with the museums context and persona.

When we started doing the research for our project to find similar concepts and documentations on their success and strategies, we first focused on the use of mobile apps by museums. For them, the use of mobile apps enables them to communicate with the visitors in new ways and to give them a more personal and intense experience. The apps are usually made available for visitors and can be used inside the museum over smartphones to interact with the exhibition or receive additional information.

According to Maria Economou and Elpiniki Meintani from the University of Aegean, who did a research project on museum mobile phone apps, “it opens the possibility for reaching new audiences through a personal device they have chosen and are familiar with, not only during their museum visit, but also before and after the visit, wherever the user chooses to be. This ability to reach users in conditions and at an environment of their choice opens up new possibilities for the communication of cultural content for life-long learning and edutainment”.¹ At the time their research took place, they were able to identify 71 museum mobile apps with interactive and multimedia features developed for and used by major museums with arts and humanities collections all over the world, with both quantity and quality increasing rapidly.

On the use of Augmented Reality in museums the “Digital Tourism Think Tank” from 2013 comes to the conclusion that “AR provides a compelling educational environment. In fact, education is one of the areas which have benefited the most from AR since the technology provides a tangible interface which stimulates both mental and motor activities through an intuitive interaction with unfamiliar content.”

At the same time they acknowledge the potential in the entertainment aspect of AR, the responsive experience through gaming in particular. Even though the full potential of technology like AR in tourism has yet to be discovered and utilised, “location-based AR games have already proven motivating and engaging for tourists.”²

¹ Promising beginnings ? Evaluating museum mobile phone apps (Maria Economou, Elpiniki Meintani)
<http://www.idc.ul.ie/techmuseums11/paper/paper8.pdf>

² Augmented Reality in Tourism: 10 unique applications explained
published by Digital Tourism Think Tank in partnership with Yahoo!

In both kinds of applications mostly handheld devices like smartphones are used to access the augmented reality. In this case the device works as a 'magic lens', which offers an alternate perspective on the world, offering additional information or even entertaining features like virtual objects or personas.

There are several examples all over the globe, where both public tourism boards and museums begin to adopt the ideas of smartphone applications and even AR for their purposes. "For example, Stray Boots (<https://www.strayboots.com> [Oct. 18, 2013]) merges a walking tour with a treasure hunt game to immerse tourists in the destination. Visitors can play the game on their smartphones while they explore local attractions, answering multiple-choice-questions and completing simple challenges. Once the challenges have been successfully achieved, tourists earn points and badges, climb the leaderboard rankings and share their accomplishments and travel experiences with friends."³

This example, as mentioned in the paper on "Pervasive Augmented Reality Games to Experience Tourist Destinations" by Maria Teresa Linaza et al., already contains many of the elements that we imagined for our own project. The main difference here is, that in our case discovering the city is only a pleasant side effect, with the main goal being to engage the user with the museum and its persona, while the whole purpose of "Stray Boots" is to make a more fun and adventurous version of a guided city tour. This company alone offers tours in 48 different cities in North and South America, Europe and Israel. Although they not always have a comparable level of quality, similar concepts can be found in almost every big tourist destination.

While interactive city tours cease to be a novelty as well as museums using new media to create an engaging experience for their visitors, apps using augmented reality are not found as often. Their full potential has yet to be discovered, along with the technology to turn it into a high quality application for every smartphone.

An example for this is described in "Procedia Computer Science 25", where Eulalia Rodríguez Fino et al. develop a concept for "a tourist guide using the combination of three technologies for visiting two of the most important routes in a World Heritage city. The application based on augmented reality will show a video to the user including 3D animations with a route across town displaying all historic buildings."

In their conclusion they evaluate the future potential for these kinds of applications as follows: "We regard augmented reality technology as a great potential tool for spreading and enhancing the value of Cultural Heritage, as it does not replace reality but improves its contents. It has established itself as a useful resource for the recovery and knowledge of

<http://thinkdigital.travel/wp-content/uploads/2013/04/10-AR-Best-Practices-in-Tourism.pdf>

³ (p. 500, M. T. Linaza et al., Information and Communication Technologies in Tourism 2014 : Proceedings of the International Conference in Dublin, Ireland, January 21-24, 2014, Author: Tussyadiah, Iis, Xiang, Zheng Date: 2013)

heritage, because of its ability to add elements to an object's real view, offering different versions of it."⁴

While there are a lot of concepts that include in parts similar aspects as our project, the idea of a museum-exhibition-related app, which is only used outside and before entering the museum seems to be unique to this point.

⁴ (Eulalia Rodríguez Fino et al. / Procedia Computer Science 25 (2013), p. 338/343)

Interactive Tourist Guide: Connecting Web 2.0, Augmented Reality and QR Codes

Eulalia Rodríguez Fino, Jorge Martín-Gutiérrez, M. Dolores Meneses Fernández, Enrique Armas Davara

http://ac.els-cdn.com/S1877050913012453/1-s2.0-S1877050913012453-main.pdf?_tid=9eb6ae14-5453-11e4-aad9-00000aabb0f02&acdnat=1413368065_099c803e08ceed7e0c4b6026232db03a

3. Target Group

Since our entire project is centered around the MOTI and the purpose of helping the museum to increase its visitor numbers, our target group is strongly depending from the target group of the museum. Important is the familiarity with smartphones and apps and of course an interest in a “museum of the image”. Our concept addresses the playful, curious people without having an age limit.

In detail, it can be split up in several groups, depending on various criteria, for example by their place of residence:

- a. citizens of Breda
- b. tourists from the Netherlands
- c. tourists from foreign countries

Here the main difference we have to make is between people who already know about and maybe even have been to the MOTI, those who live in or around Breda and have never heard of it and tourists who might have read about it in tourist guidebooks or found posters and flyers in tourist offices, central stations and other public spaces. To reach residents of the Netherlands and Breda in particular it could be a possibility to advertise in local newspapers, including the QR-Code.

The app would be available in English and Dutch to make sure that also tourists from foreign countries can use it. It would also introduce both new and permanent exhibitions to make the museum attractive to those who visited it before. To leave messages, feedback and share experiences with friends we would use nationally and internationally known social networks like facebook, twitter, instagram or pinterest.

There can also be made a difference by their age or/and family status:

- a. families with young children
- b. teenagers
- c. university students
- d. adults
- e. senior citizens, possibly with their grand-children

The app will be most attractive for digital natives: young adults and teenagers and also families. With posters and flyers in schools and universities they can be addressed directly. There is also the possibility to create a version of the discovery trail that can be used by larger groups, for example as a team building event, since the MOTI also offers workshops, guided tours and educational programs for classes from elementary schools, high schools and colleges as well as parties and children's quest. This would enlarge our target user group even further. Entire school classes could do the trail together prior to visiting the museum as well as first year university students in their introduction week. Differently themed trails could be used to address these particular target groups more specifically.

4. Walkthrough of EPOC

To illustrate how we imagined our app-guided discovery trail to the museum to work, we designed a prototype of the app and did a very literal “walk-through”, starting at the tourist office close to the central station.

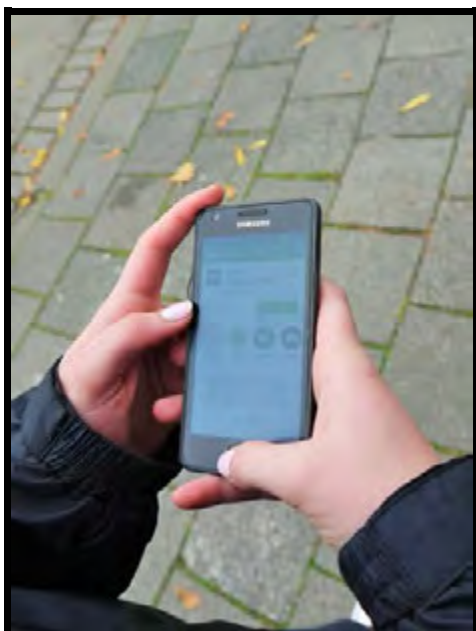
For each step we took a picture from the users point of view. For a better visibility and traceability we also included the rough drafts of what the app might look like here.



Step 1: Learning about the App



In the setting that we chose to demonstrate the use of the app, a couple of visitors, who have never been to Breda before, arrive at Breda Central Station. Their first action in discovering the city is visiting the nearby tourist information office, where they pick up a flyer of the MOTI, promoting a new, free of charge feature called “MOTI discovery trail”.



Step 2: Downloading the App



Included on the flyer is a QR-Code which leads directly to the App Store/Google Play Store.

They scan the QR-code with their smartphones and download it onto their mobile devices, using the free wifi, provided by the tourist office. As soon as this process is finished, they are ready to start the trail.



Step 3: Following the Directions



Once installed, the app uses GPS signals to determine the position of the users, picks up wherever they are at the moment and leads them to the museum, following the “discovery trail” and displaying every game, challenge, riddle or hidden message on a map.

The users start just outside the tourist information, where they have downloaded the app, and follow the directions towards the Stadspark Valkenberg.



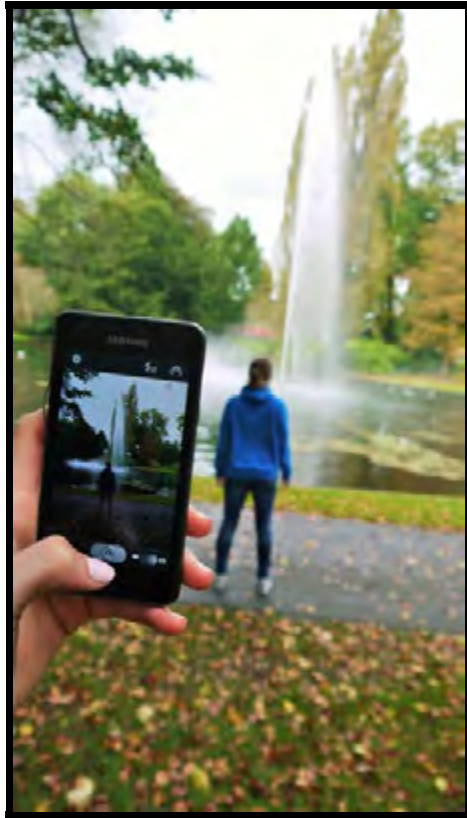
Step 4: Find the Tasks



When a spot with a game is reached, augmented reality is used to embed it into the natural surrounding. This way the user is not only lead to the museum but also gets a chance to discover the city.

As they reach the entrance of the park they find the first challenge, as shown on the map and via AR on their smartphone.

Moving the mobile device over the right spot makes the instructions for the challenge visible.



Step 5: Rise to the Challenge



In our example the challenge is to reproduce the famous painting “der Wanderer” by Caspar David Friedrich, inspired by the correspondent current exhibition in the MOTI as part of “BredaPhoto”.

To perform the task, the picture should resemble the arrangement in the painting. If this is the case, the users can move on along the trail towards the next challenge.



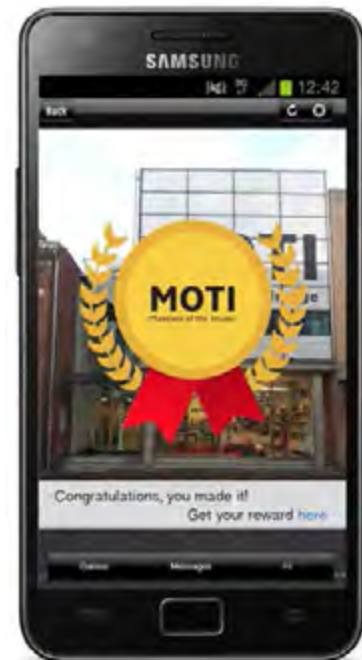
Step 6: Discover Hidden Messages



At any point while using the app, along the trail or in the museum, users have the option to leave a message to future visitors. They can choose to leave them as virtual graffiti on walls or as chalk-written letters on the ground, where they can be discovered via augmented reality. Their positions can be marked on the map.



Step 7: Reach the Final Destination and Receive the Reward



No matter where in Breda the users start the discovery trail, the final destination is always the MOTI. If a sufficient amount of challenges have been mastered and a certain amount of points has been achieved, the reward could be a small discount for every member of the group who can show the last screen of the app at the entrance to the museum.

5. Conclusion

Our concept would require the design, development and maintenance of the app, to make sure that it's always updated. The biggest challenge would be the technical side: programming an app with working and usable augmented reality in a satisfying quality. If this can be managed, all that is left to do is inventing games that are challenging and fun and promoting the app by putting up posters and distributing flyers.

The final goal is to make everyone follow the trail all the way to the museum and take the last step: paying the entrance fee and visiting the exhibitions in the museum.

In an age where more and more people around the world spend an increasing amount of time focusing on communicating over their smartphone we tried to find a contemporary way to reach them and to make them interact with their surrounding in an unusual way, maybe even make them look at their surrounding from a different perspective than they did before and finally to take the last step: put away their smartphones, enter the exhibition and observe, think and experience everything around them in a more intense way than they would have before. We want people to open up towards new ideas, use their senses and their creativity and work together with other people to complete the challenges that they're facing.

For the museum we are offering an opportunity to create a unique, personal experience for their visitors that will in the best case get the MOTI a better reputation, higher popularity and the satisfaction of hearing and reading about people who got inspired, amazed and fascinated while using the app.

This project could end up not creating more than a couple of random acts of beauty and kindness, but the way we see it, it could just as well turn into a marketing campaign, attracting media attention, going viral on social media channels and reaching a large amount of people just by personal recommendations of people who have visited the MOTI and shared their opinion. Either way, it should definitely be worth the investment.