

BLENDING
AMSTERDAM
REALITY

FINAL DOCUMENT

January, 2013

BLENDING

AMSTERDAM

REALITY

“explore the history of the city”



Gemeente Amsterdam
Stadsdeel Centrum



Gemeente Amsterdam
Stadsarchief



BEELD EN GELUID



MediaLAB Amsterdam



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MANAGEMENT SUMMARY

Amsterdam is a city with a rich history and a lot of exceptional, unexpected sights and a lot of this, is often unknown to and undiscovered by both natives and visitors. People from all over the world visit Amsterdam to explore its cultural and historical heritage, and often end up barely scratching the surface. Years of effort by many agencies and organizations have yielded an extensive, comprehensive database tracing back to the 17th Century and beyond. These archives document information about people, places, events, objects, trade and artifacts amongst many other topics. These little-known gems are just waiting to be (re)discovered.

The key question posed by the Gemeente Amsterdam in an attempt to remedy this scenario and connect to the target audience that inspired all the effort was: “How to combine a marker (landmark) in the public and a virtual platform with each other to use and share knowledge of digital historical information?” A multidisciplinary group of working students, professionals, teachers and other specialists in various fields, in collaboration with the Gemeente Amsterdam, Institute of Sound and Vision, City Archives, Wiseguys, Starting-point and several archives put their heads together to discover possible solutions to this end. After twenty weeks of research, brainstorming, designing, software and hardware development and testing, plenty of meetings, presentations, workshops, mistakes, failures and bounce-backs we finally arrived at a working prototype that meets all requirements, richer with all that we learnt from our conversations, failures and efforts.

This prototype aims to meet the requirements laid down by the key questions with the restrictions and desirability conditions expressed by the different stakeholders. Interesting facts we learnt about the target audience was that more than 65 percent of visitors to Amsterdam are coming because of history and culture but our own research demonstrated to us that people cannot really find information about this histo-

rical topics. This helped shape some decisions for the prototype that make it more encouraging towards exploration and discovery of the city. The assigners' requirements of the prototype being a future-proof, extendable and re-usable installation complete with a mobile platform also influenced some of the features of the prototype. What follows is a description of the installation prototype and the experience it attempts to provide.

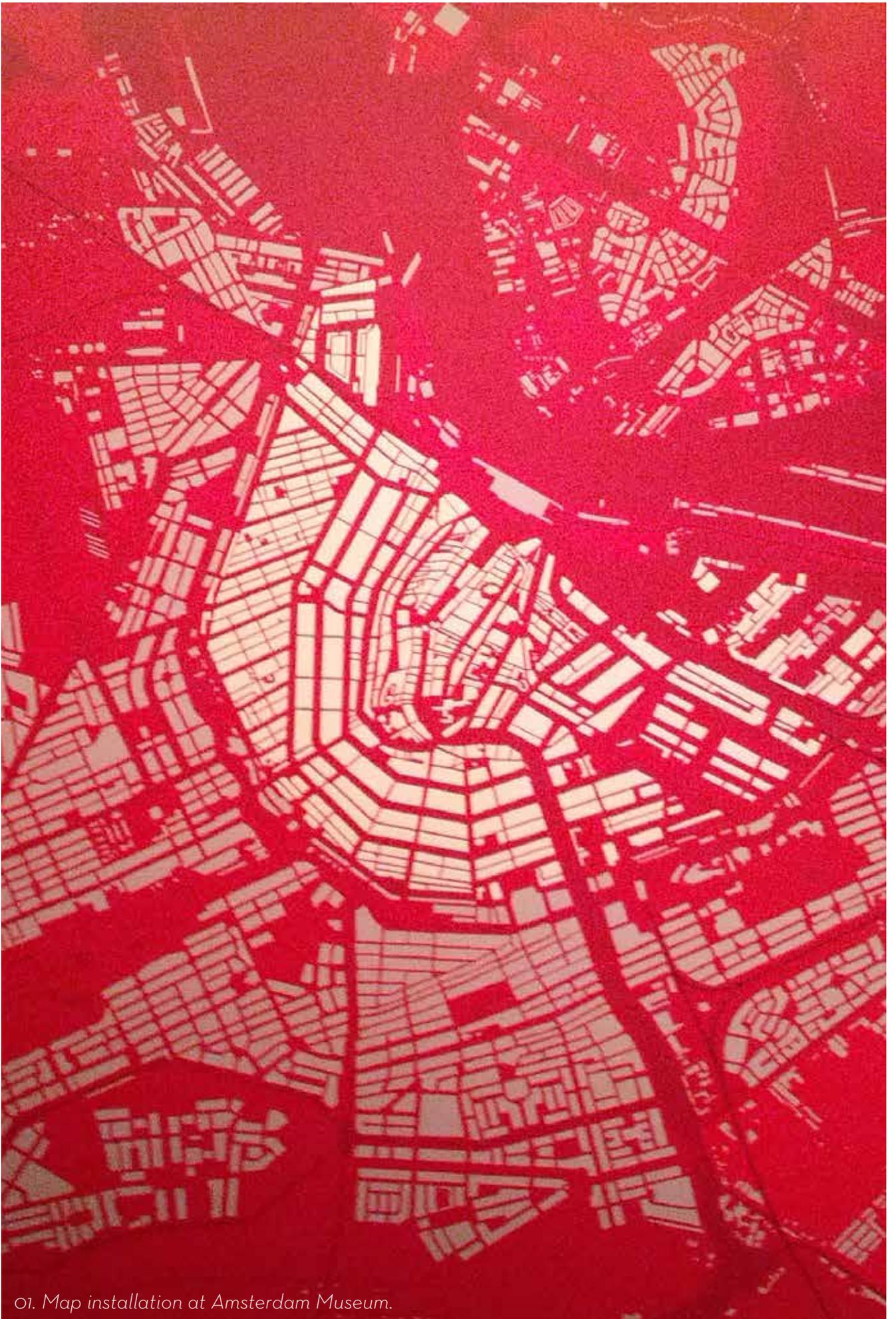
The goal of this project was to conceptualize an innovative way to present digital archives pertaining to the history of Amsterdam and develop a prototype for the same. Our solution is "Blending Amsterdam Reality" a mobile platform connected with a physical installation placed in public space. The landmark in public space has been developed as an installation in the form of a big book on the street. This installation is designed to be appealing by its form, size and choice of colors. It also provides context of an information source by virtue of its shape as a big, open book. The planned pilot location is in front of the Royal Theater Carré. The experience provided by the installation can also be accessed via a local wireless network on mobile phones. The user can interact physically by manipulating and viewing the physical installation. At the same time, a very similar interface is also provided on the mobile phone taking advantages of the natural and novel interactions provided by modern devices. Historical information is used for contents of the installation and mobile platform. This information is obtained from various archives in the Netherlands, which are also the partners in this project. This information is meshed with the current realities by overlaying it on top of the modern day map of Amsterdam to provide a logical bridge. "Blending Amsterdam Reality" is a new and innovative way to explore and discover the city.

Imagine, the next time you are walking around the city streets in Amsterdam, you might see a big book in public space. This could seem inviting, it may even tickle your curiosity. Walk towards it, touch it and use it!

The big book, which is a physical installation in

public space is full of pictures, videos and stories from the present day back to the 16th century of Amsterdam. Zoom through space at the map of Amsterdam and scroll through time using the charts of modern day Amsterdam. Find out why Amsterdam never used the former defense city wall and see how the government demolished thousands of windmills in the country. Watch how circus Carré started with the first performance 125 years ago and the wooden city theater at Leidsesquare burned down after an event with fireworks, when Napoleon arrives through the gate of Amsterdam... the opulent past comes to life. Every touch brings to you something new, something you have not seen before. Touch the present and get transported to the past. We spent weeks in museums and archives, digging up interesting gems of information, polished them and put them in. You can lay your hands on these sparkling, interesting, historical and fun facts. Do not take our word for it, touch it to believe it. Be amazed with these gems on the big book, or take them with you on your mobile device. Find fun facts you never knew, places you never visited. Make the city your own with the use of "Blending Amsterdam Reality".

Blending Amsterdam Reality Team



01. Map installation at Amsterdam Museum.

FOREWORD

With this document we are happy to present to you the final report and from the project “Blending Amsterdam Reality”. A multidisciplinary and international team of working students could not have done this project without all the facilities of the MediaLAB Amsterdam and the managers working there. The MediaLAB Amsterdam provides an inspiring place with a good mix of students, teachers, artists and professionals for creative and productive pursuits. Like Gijs Gootjes said: “This semester, coffee and noodles were the ingredients for creativity and innovation.” Beside working hard, the team also had the opportunity to have a lot of fun and inspiration from each other’s work for their own project.

Beside the MediaLAB Amsterdam, our assigner and third parties had a strong hand in shaping the project. Special thanks go out to Marco Cops from WiseGuys, who acted as a go-between the assigner and the team and helped a lot. We enjoyed the work sessions we had together, combining insights from different angles. Many thanks also to our final assigner and commissioners Kees Bes and Roeland Lagendijk from Stadsdeel centrum, Gemeente Amsterdam for the opportunity and support.

This document details the steps we made in the process of making the final prototype. This document also attempts to describe the user experience as well as the decisions made regarding concepts, contents, design of the prototype among other things. The latest version of this document can also be downloaded from the project blog. Besides all up to-date documentation, we also provide additional information, short video clips, contact details and relevant links on the blog.

We aim that this project will inspire people to think and develop more innovative projects for providing information in public space. We also hope that this prototype will continue to live on and turn into a real product in Amsterdam.



02. Blending Amsterdam Reality at FABLAB.

TABLE of CONTENTS

Team

Executive Summary

Foreword

1. INTRODUCTION

Key Question

Project Description

Background Project Partners

MediaLAB Amsterdam

WiseGuys

Stadsdeel Centrum

Background Project Third Parties

Stadsarchive Amsterdam

Instituut Beeld en Geluid

Platform ONH

Royal Theater Carré

BMA

Rob van Rijn

Starting-point

2. RESEARCH PHASE

Desk Research

Methods and Tools

MoSCoW method

Brainstorming

Meetings & (Peer) Presentations

Workshops

User Interviews

Individual in-depth interviews

Unstructured interviews

Card Sorting technique

Demographic Research audience

Participant observation

Timeline on Facebook

Table Of Needs

Interactivity

Reusability

Attractiveness

Connectivity

Security

Ergonomics

Culture & History

Customer Journey and Personas

User case & Flowchart

Sketches

Inspirations

Berlin walk of fame

Urban screens

City viewers

3. TARGET AUDIENCE

New media
Local “Amsterdammers”
Natives
Tourists
Interviews and observations
Statistics
Personas

4. CONCEPT PHASE

Story gathering robot
Experience the life in the past
Space & time historic telescope

5. DESIGN PHASE

Technical Implications
Used Hardware
Internet Connection
Opportunities
Contents
Selection
Content visualization
Platforms
Best Practices
Mobile platform
Oneindig Noord-Holland
Location
Royal Theater Carré
Other possibilities

6. DEVELOPMENT FINAL PROTOTYPE

Making of Physical interface
Making of Shape of the installation
Final Exposition

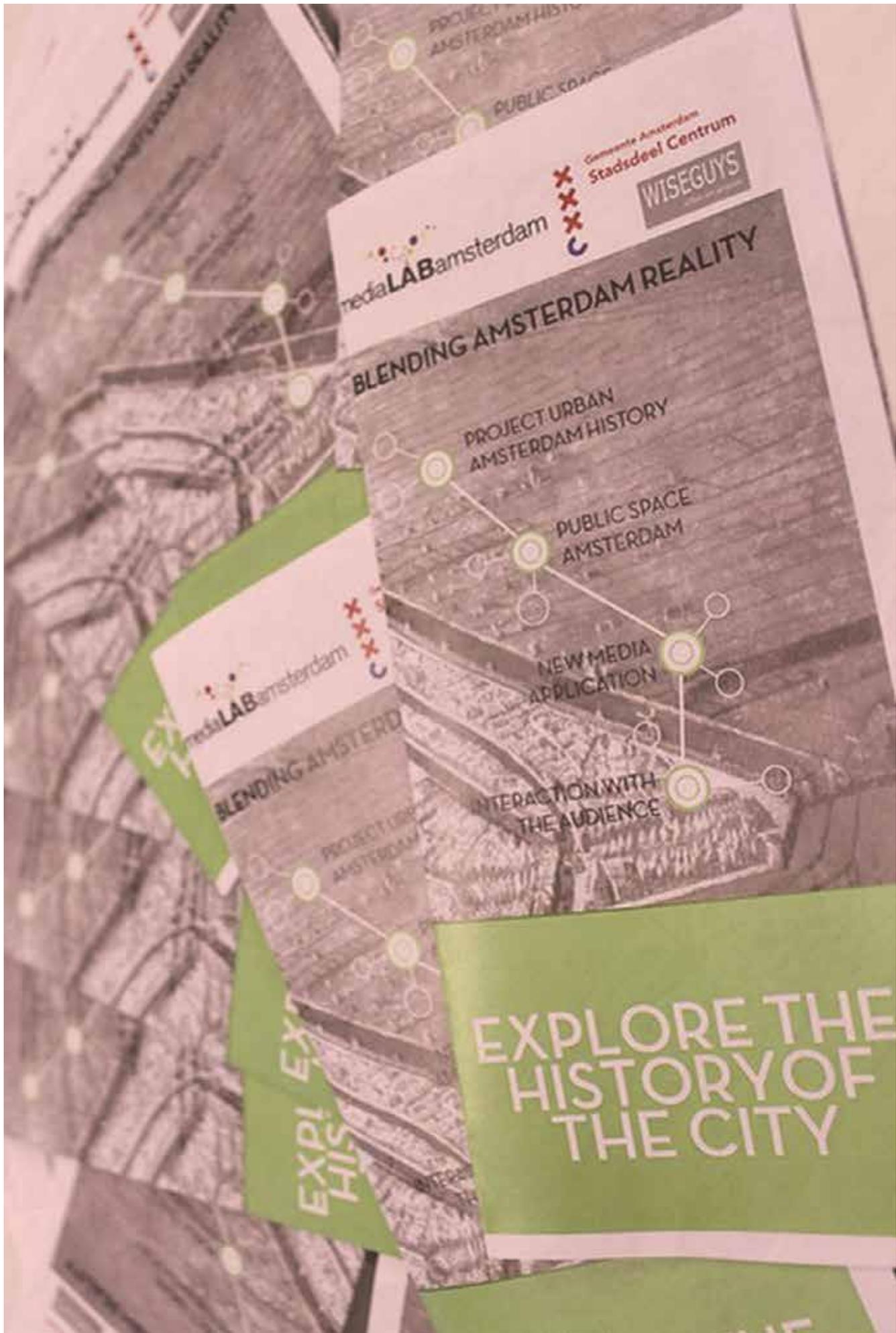
7. CONCLUSIONS & REFLECTIONS

Bibliography

Literature
Media
Picture Index

Contact List

Credits



medialab amsterdam

Gemeente Amsterdam
Stadsdeel Centrum

WISEGUYS

BLENDING AMSTERDAM REALITY

PROJECT URBAN
AMSTERDAM HISTORY

PUBLIC SPACE
AMSTERDAM

NEW MEDIA
APPLICATION

INTERACTION WITH
THE AUDIENCE

medialab amsterdam

BLENDING AMSTERDAM

PROJECT URBAN
AMSTERDAM

EXPLORING
HISTORY

EXPLORE THE HISTORY OF THE CITY

BLENDING AMSTERDAM REALITY

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01

INTRODUCTION

INTRODUCTION

People from all over the world visit Amsterdam to explore its cultural and historical heritage, and often end up barely scratching the surface.

Years of effort by many agencies and organizations have yielded an extensive, comprehensive database tracing back to the 17th Century and beyond. This content remains in museums or websites, out of the sight and often even out of reach of people. This project was visualized with an aim to unlock historical stories and visuals from Amsterdam archives using a public installation in conjunction with mobile devices. The project “Blending Amsterdam Reality” is thus defined as: *an interactive platform in public space augmented by your Smartphone to explore Amsterdam history.*

KEY QUESTION

The team and the stakeholders and partners, put their heads together to answer the following question from the Gemeente Amsterdam:

“How to combine a marker (landmark) in the public space (or better said a series of landmarks) and an interactive information carrier using the Smartphone or other new medium or / and a physical object with each other to use digital history information and current reality situation, which can be blended into an interactive medium”

PROJECT DESCRIPTION

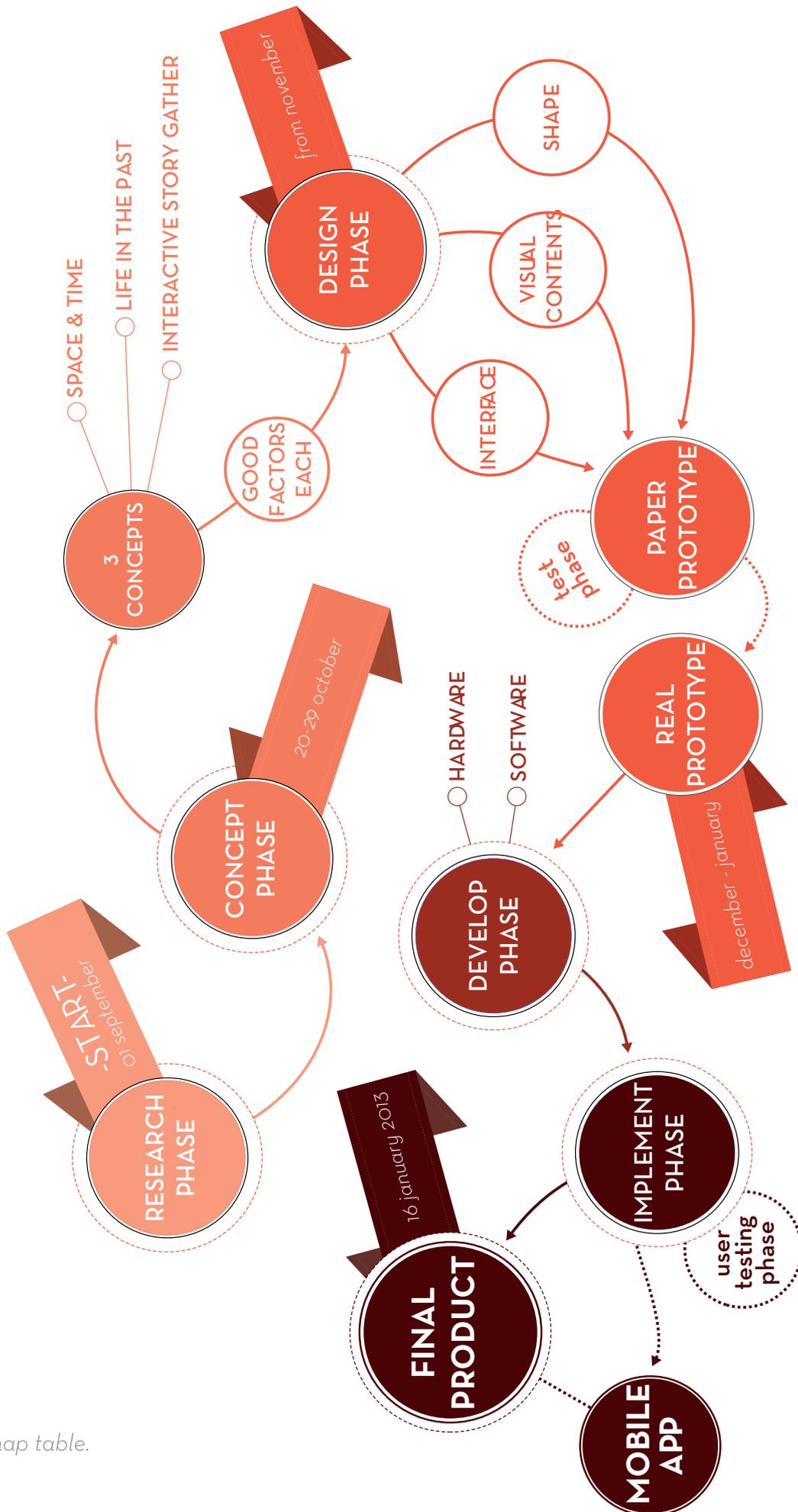
After a lot of careful consideration, we defined our project as : “Blending Amsterdam Reality is an interactive platform to explore Amsterdam through space and time. It blends mobile content with physical activation to provide the user a memorable experience of urban history using innovative storytelling techniques”. The project description will be elaborated upon in greater detail in the course of this document.



03. First assigner meeting, September 2012.



04. Brainstorming group session.



05. Mindmap table.



06. MediaLAB logo.

BACKGROUND PROJECT PARTNERS

The following organizations have been involved closely with our project and helped us through the process of making the prototype for “Blending Amsterdam Reality”. Below is a brief description of these project partners to understand the collaborations more clearly.

MediaLAB Amsterdam

MediaLAB Amsterdam (from now on referred to as MediaLAB) is located at the Studio HvA and is a part of Create-It which is a part of the University of Amsterdam Applied Sciences. MediaLAB creates innovative interactive media applications together with partners from the creative and education industries. The research projects focus on urban screens, locative media, data visualization, interactive TV, gaming, the future of publishing and e-learning. At their core, the focus of all research projects is the innovative character of the digital applications (MediaLAB, 2012). This project by MediaLAB Amsterdam is a part of the research group “Interactive Media in Public Space” and the results will be used in the project “SpaceSee” (Create-It- HvA). MediaLAB will be the spider in the web during this project. The student experts are a mix of designers, programmers, social/digital media experts, researchers, copywriters and storytellers. In twenty weeks (one semester) the team develops a working prototype for a client in collaboration with them (MediaLAB, 2012).

Website | <http://medialab.hva.nl/>



07. WiseGuys logo.

WiseGuys

The artistic collective WiseGuys are three creative professionals in urban artistic projects: Marco Cops, Harold Schouten and Jerome Symons. WiseGuys are specialists in (master) plan development, conceptual realization of projects, technical research, consultancy and project management from start to end, matching artists / designers to clients and feedback between client and artists (WiseGuys, 2012). Marco Cops, the contact person in this project, was closely

involved with Blending Amsterdam Reality and he also provided his studio to work on the installation, for fabrication and painting. Marco also had close contacts with the Gemeente Amsterdam, Stadsdeel Centrum (Amsterdam Council), henceforth referred to as STD Centrum, which introduced and initiated this project.

Website | <http://wiseguys-urban-art-projects.com/>



Gemeente Amsterdam Stadsdeel Centrum

08. Stadsteel Centrum logo.

Gemeente Amsterdam Stadsdeel Centrum

The Department of Public Spaces (DRO - Ruimtelijke Ordening) of the Gemeente Amsterdam STD Centrum floated this project to create awareness about history in Amsterdam. The core function of the DRO is to ensure a coherent spatial development of cities and regions. DRO develops spatial visions and strategies for planning and designing urban area plans. The department advises the council on policy planning, public spaces and green areas. DRO works with the central city districts and partners in the region (Gemeente Amsterdam, 2012). The commissionaires are also involved in the project.

Website | <http://www.amsterdam.nl>

BACKGROUND PROJECT THIRD PARTIES

The following stakeholders have been involved in the development and realization of Blending Amsterdam Reality. We will describe a short summary background of each of this third parties partners to understand the collaboration more clearly.



Gemeente Amsterdam Stadsarchief

09. Stadsarchief logo.

Stadsarchive Amsterdam (City archive Amsterdam)

The Amsterdam City Archives preserves documents pertaining to the history of Amsterdam and provides information about the city. With archives covering a shelf-length of about 35 kilometres, the Amsterdam City Archives is the largest municipal archive in the world. Blending Amsterdam Reality has use of some of the pictures stored in the digital archive (Stadsarchief, 2012). The Stadsarchive can provide tours and help sort copyright as well as usage details.

Website | <http://www.stadsarchieven.nl>



10. Beeld en Geluid logo.



11. Oneindig Noord-Holland logo.



12. Carré logo.

Instituut Beeld en geluid (Institute Sound and Vision)

The content of the building for Sound and Vision is the Dutch audiovisual past, from the very beginning right up to the events of yesterday in television and film history. The 18-metre-deep pit in which the premises are built, houses 5 levels of collections in optimal storage conditions. Our contact with Evelien Wolda en marten Brinkerink from the department collections helped searching the archives for historical videos of Amsterdam.

Website | <http://www.beeldengeluid.nl>

Platform Oneindig Noord-Holland (ONH)

Oneindig North Holland is an ever growing platform of stories about the rich history of North Holland (including Amsterdam). Written stories, but also images, videos and sound clips can be found on this platform. Oneindig North Holland connects stories behind events in history, people, places and monuments, with collections of museums, archives and cultural institutions. Oneindig North Holland brings the rich history of North Holland to life and creates a bridge between past and present. Platform Oneindig North Holland is more than this website only. You can read stories, view images, across different regions and times.

Website | <http://www.oneindignoordholland.nl>

Koninklijk Theater Carré (Royal Theater Carré)

The Royal Theater Carré is a theater is located in the center of Amsterdam. Its original name is Circus Carré. In 1977 Carré became the official theater of Amsterdam, because the municipality bought it and when in its hundredth year of existence it became the Royal Theater Carré.

Website | <http://www.carre.nl/>

Bureau Monumenten (BMA) and UNESCO

Besides the over 8500 state and municipal monuments, Amsterdam has a number of protected urban and village views. Thus the center of Amsterdam has been a conserved area since

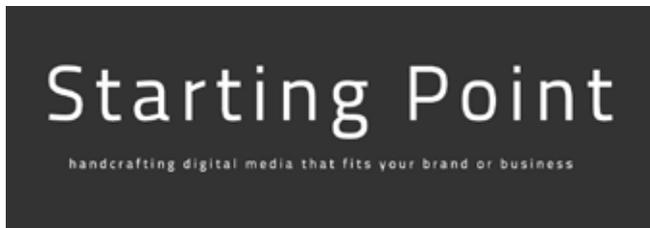


13. UNESCO logo.



Rob Van Reijn

14. Rob Van Reijn logo.



15. Starting Point logo.

1999 and a UNESCO World Heritage site since 2010. It is important to preserve these historical values so that the future generations have plenty to enjoy. The team always keeps in touch with BMA and UNESCO to communicate about the possibilities and events coming up.

Website | www.amsterdam.nl/gemeente/organisatie-diensten/bureau-monumenten/

Website | www.unesco.org/new/en/unesco/worldwide/europe-and-north-america/netherlands

Rob van Reijn

Born in Amsterdam in 1929, he worked for a long time as an artistic leader at Stichting Pantomime Theater Carrousel. After his retirement he started to work on his project about the Bolwerken (Gates) and the former citywall of Amsterdam. He wrote a book "Voetlicht en vetpotten", which was a inspiration to research more about this topic.

Website | nl.wikipedia.org/wiki/Rob_van_Reijn

Starting-Point

Starting-Point is a leading IT "project producing" company. Starter-point Integrated Services is specialized in Designing, developing and implementing software, business solutions and infrastructure. Our web development, front- and back-end, is outsourced to this company, including databases and site design to be used for displaying the contents in the installation and on the mobile platform.

Website | www.starting-point.nl/



02

RESEARCH

PHASE

RESEARCH PHASE



15. Data research session.

This project used the *Bas Leurs* workshop Methodology. This method consists of five phases (Research & analysis, Concept, Design, Develop and Implement). We have followed this methods through all its phases with suitable modifications as required to better finish the project. We started with the research phase but it took more time than was planned. In this first phase we researched and analyze the results. All information can also be find in the research document. Beside desk research and interviews we used tools, methods and sought inspiration through this phase.

DESK RESEARCH

Surveys and questionnaires were used containing a short list of questions for the target audience. Survey research is a tactic for collecting quantitative information by asking participants a set of questions in specific order. Questions are administered to a sample of individuals, representative of a larger population. Surveys and questionnaires are used to collect demographic (fact-based) or psychographic (opinion-based) data to gain insight into the opinions and desires of the target audience. They can be used to collect large amounts of information from a wide population in a relatively short amount of time. This information is then analysed using qualitative research methods.



16. Desk research.

This project actually follows the *Bas Leurs* workshop Methodology. This method consists of five phases (Research & analysis, Concept, Design, Develop and Implement). We are now half way into the design phase, very determined to continue the development of our project.

METHODS AND TOOLS

We use several tools and applied models to work on the final prototype:

Moscow Method

The MoSCoW method stands for:



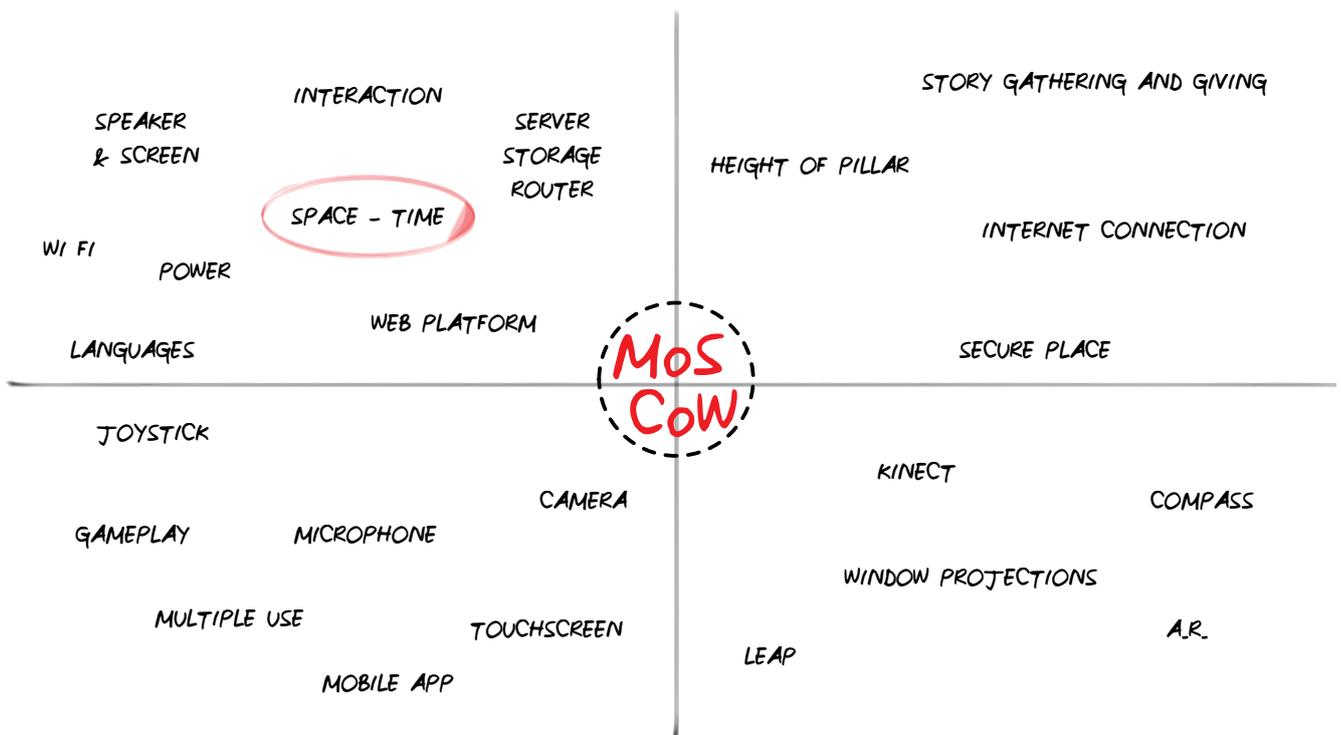
17. Bas Leurs metodology.

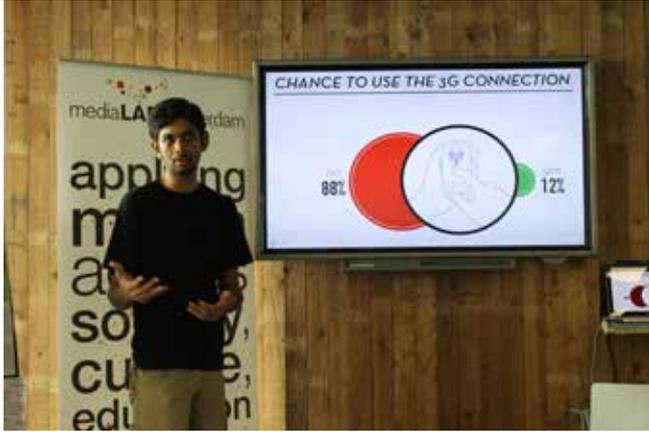
- Must have
- Should have
- Could have
- Would have.

This is a prioritization technique used in product development that helps determine the priority and necessity of mechanics and features to include in a project.

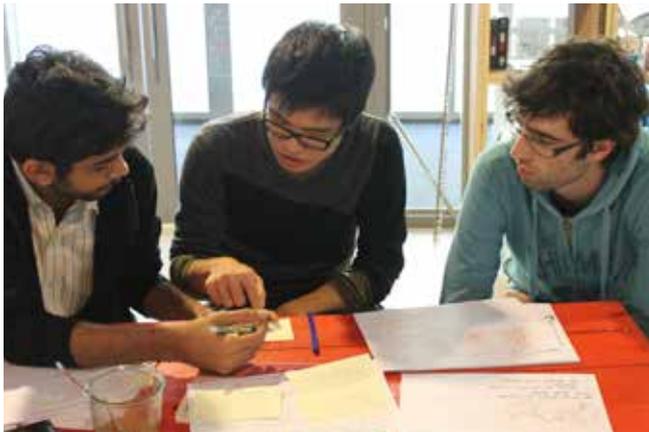
Website | www.projectsmart.co.uk/moscow-method.html

For example, in relation to this project:
Must: Space and time tool,
Should: Compass function,
Could: a microphone,
Would: Leap functionality.





19. Stakeholders presentation.



20. Concept sessions.

Brainstorming

We use brainstorm techniques to generate ideas and then combined them with mind mapping. This help us understand and record our idea about the topic better, which also assisted in leading to questions for further inquiry.

MEETINGS AND (PEER)-PRESENTATIONS.

The project kicked off with introductions in the form of short Pecha Kucha presentations. There were many meetings with the assigners from the Gemeente as well as *Marco Cops* from *Wise-Guys* as well, to gather requirements and aspirations, to discuss approaches, possibilities and alternatives and to get feedback in the various stages of the project. The assigners were very open and helpful and went a long way in making the project meaningful by sharing their experiences and advice. We also had many meeting with various stake-holders to figure out material that could be used and collaborations that could be setup so that the project benefits all. The later stages of this project saw more people joining in for specific roles like making a website for the installation and for consultations, with regular meetings for progress updates, distribution of work as well as brainstorming and co-ordination. The team also made some visits to Fablab Amsterdam for fabrication of parts of the installation.

WORKSHOPS

The project offered a chance to participate in various workshops held by lecturers from the Hogeschool van Amsterdam and other Universities to pick up skills to help us later on through the project.

Here are some of the amazing workshops we participated in :

- Creative brainstorming by *Charlie Mulholland* (teacher University of Applied Sciences - Communication and Multimedia Design). We used this a lot in the research and concept phase.

- Research Design by *Bas Leurs* (Lecturer Univer-

sity of Applied Sciences) on the theme of User Needs and Design Research.

- Paper Prototyping by *Frank Kloos* (Project Manager at Hogeschool van Amsterdam). We used this information to make a paper prototype video to inform and make clearly understandable what the user journey does.

The video can be watched at:

Website | <http://www.youtube.com/watch?v=39A-Gv5cumso>

- PICNIC festival.

“Mistakes are the portals of discovery.” – *James Joyce (1882 - 1941)* One of the goals of rapid prototyping in an early stage of the design process, is to discover mistakes. At the PICNIC festival 2012, we invited 30 people to experience this during a workshop on water, while prototyping a mobile app for tourist visiting the canals of Amsterdam.

More you can read at the blog of the MediaLAB Amsterdam:

Website | <http://medialab.hva.nl/blog/2012/10/paper-prototyping-mistakes-were-made/>

- Kersvers festival.

During two days in September, new students and teachers are introduced with the HvA and student life in Amsterdam. A festival held on September 5, where in the Amsterdam associations play a major role and where the different domains of the HvA can present themselves. This event was important to know each other and to talk to different parties. We were also the host of the MediaLAB Amsterdam and answering questions where needed.

Foto's you can find at our Flickr account:

Website | flickr.com/photos/33410206@N05/sets/72157631580351787/

- Opening Studio-HvA.

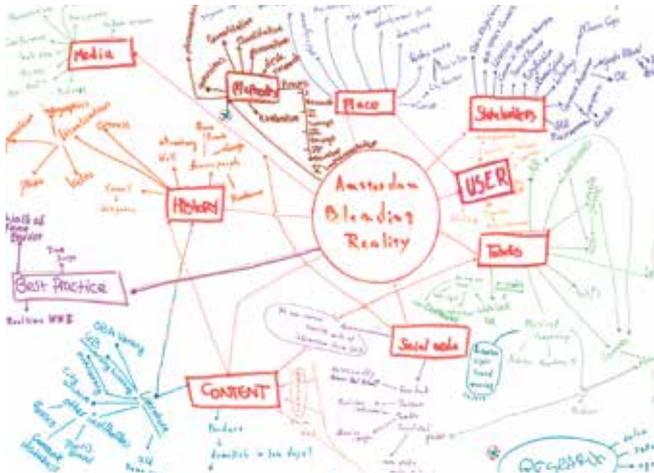
On 18 September 2012 the grand official opening of Studio HvA was there. The brand new building



21. Meeting with assigners.



22. Opening studio HvA.



23. Brainstorming mindmap.

on the Amstel Campus, located behind the Kohstammhuis. It was a good mix between HvA staff, students, entrepreneurs, employees and other colleges and people from the neighborhood who came to the studio. The most thrilled were the new users of the building: the MediaLAB students (we), Urban Management / Boat and ACE. This event was also good to know the other parties inside the MediaLAB better.

More foto's can be seen on our Flickr account:
[Website | flickr.com/photos/33410206@NO5/sets/72157631580077339](http://www.flickr.com/photos/33410206@NO5/sets/72157631580077339).

More information can also be found at:
[Website | www.facebook.com/media/set/?set=a.289427721096891.71833.245928888780108&type=3](http://www.facebook.com/media/set/?set=a.289427721096891.71833.245928888780108&type=3)

- Today'sart.

A few students of MediaLAB Amsterdam visited Today'sArt Festival 2012 on Friday the 21st of September and arrived at the entrance of the Lucent Danstheater. Director Olof van Winden opened the ceremony and explained how Today'sArt is held in an urban setting and focuses on discovering the undiscovered.

USER INTERVIEWS

Individual in-depth interviews

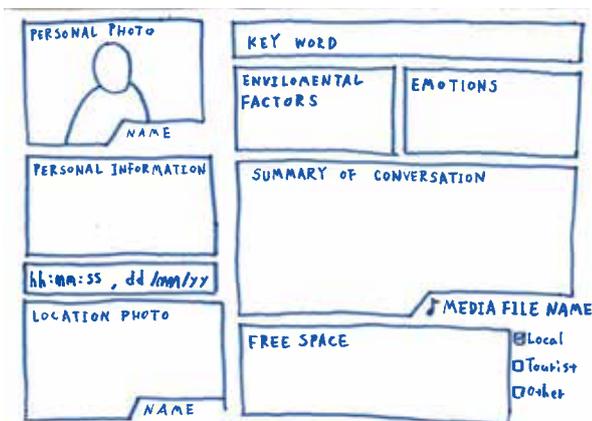
Open interviews in the form of discussions with stakeholders were conducted at various stages of the project. These interviews were ideal for learning exactly how each person feels about a topic or design, without being influenced by others. Structured and non-structured interviews

(Non)-structured interviews

We design a good combination of structured and non-structured interviews with the target audience, partners and other stakeholders. Conducting these user interviews leads to a deeper and more complete understanding of the use

Card sorting technique

The card sorting technique is a very useful



24. Interviews layout sketch.

approach to understand what natural categories people have for the domain (Brinck, 2003: p.138). After an interview and some preliminary research we used the card sorting technique to visualize and clarify the research results.

Demographic research of the audience target

Demographic research is a quantitative research method to map the behavior and characteristics of the end-user. It helps us get a clearer understanding of the end-user and to develop usable products for said end-user (Leurs, Toolkit VI, 2012).



25. Facebook defence wall page.

PARTICIPANT OBSERVATION

We observe the target audience in the field. Though identifying with the culture of the audience in depth is too time consuming to be possible, it might be interesting to observe how people use existing facilities and for example, how they see historical buildings.

TIMELINE ON FACEBOOK

We made a Facebook page as the timeline form provides a useful way of depicting historical events over time in Amsterdam. To make the historical events related to the Wall and Canals more visual we added media like photos, videos or links to other sources to events on the timeline. This page can then easily be shared with the target audience. They can easily comment, like and share different events which adds another layer of interactivity and engagement. Another added benefit of creating a historical timeline is that all content can be edited by all authorised members and information can be added and removed very easily.



26. Facebook timeline.

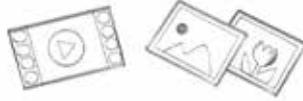
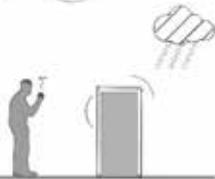
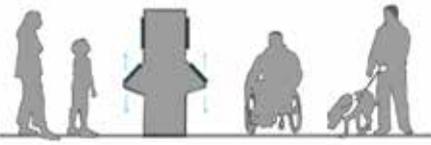
TABLE OF NEEDS

This method is useful to understand how the final shape of the object to be designed, should be related to the function to be performed. Starting then from a need we try to explore the field of interest, going on to list the requirements and performance needed, also indicating conceptual schemes and sketches, useful to fix the ideas and to clarify the function.



27. Research paper document, making of.

Needs vary from safety, factor of primary importance in any outdoor installation, and right up to ergonomics and interaction, key factors to interact with the user in the right way.

NEEDS	REQUIREMENTS	PERFORMANCES
1. INTERACTIVITY	<ul style="list-style-type: none"> - User should SEE something - User should TOUCH and MOVE something 	<p>screen </p> <p>knobs </p>
3. ATTRACTIVENESS	<ul style="list-style-type: none"> - Size should be big enough to attract people - User should not be boring 	<p></p> <ul style="list-style-type: none"> - Context of the public space in the city  - Short interactions  - More visual contents instead of text and audio 
4. CONNECTIVITY	<ul style="list-style-type: none"> - Ability to connect with users' devices - Ability to connect to social networks 	<p></p> <p></p> <p></p>
5. SECURITY	<ul style="list-style-type: none"> - Object should be waterproof - People shouldn't fall in the canal 	<p></p> <p></p>
6. ERGONOMICS	<ul style="list-style-type: none"> - Standing in front use - Screen should be visible - Interface should be accessible 	<p></p>

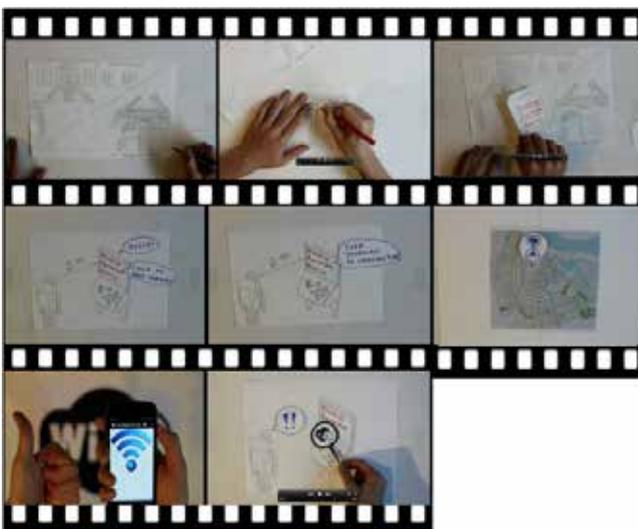
28. Table of needs.

CUSTOMER JOURNEY AND PERSONA'S

Mapping the customer journey brings together services, products and experiences, and is the ideal and perhaps the only way you can see how the user interacts with the product and how the brand adds up to more than the sum of its parts. Making the journey made people see where it was going wrong, because they could see it all in front of them (*Nugent*). We used 6 customer journeys with a different profile. We used real persons to make this profiles, because we think the users view in this project is very important. We choose for the consumer journey with different users or persona's because we could think from their perspective and needs. More information about the persona's are shown in audience target. Start from there we also make a customer journey paper prototype video.

The video can be watched at:

Website | <http://www.youtube.com/watch?v=39AGv5cumso>



29. Customer journey, making of.

User case and flowchart

We elaborate on a user case to augment the storyboard. Use cases put focus on user goals with the emphasis being on a user-system interaction rather than the user's task itself. The main use case describes the 'normal' course of action that is most likely to be performed by the user.

The flowchart technique illustrates the tasks that a user has to undertake within an application from beginning to end. This will function as a basis for the prototype because it offers a very detailed view of the tasks. This tool connects different ideas well by clearly displaying relationships and links visually.

Sketches

This method sheds light on the interaction between the user and the product and helps determine if an action performed by the user was the course intended for the user to take. It is also difficult to imagine everything, and a lot of



30. Berlin walk of fame.



31. Berlin walk of fame, pillars.



32. Berlin walk of fame, augmented reality.

facts are discovered in the course of developing the product. For this reason we make a story to estimate what decisions will be made at certain points of the interaction between the user and our product. It is also a good tool to help communicate ideas to other readers, because it portrays the context quite well.

INSPIRATIONS

Beside noodles and Coffee (Gootjes, 2013), some other things, projects or people inspire us during the process making the prototype. For example Rob van Reijn about the Bolwerken in Amsterdam, the audience and co-workers within the MediaLAB, but also other projects already done in public space in the Netherlands and in other countries.

The Berlin Walk of Fame

This viewer installations is about famous artists in Berlin. You don't have to travel all the way to Hollywood to see some stars, because Berlin got its very own version of the Walk of Fame. Located in the middle of the Potsdamer Platz is Berlin's newest tourist attraction, the boulevard features German celebrities such as *Marlene Dietrich*, *Romy Schneider* or *Michael Ballhaus*. The first forty brass stars were embedded in the ground over the last few weeks, while organizers say up to 150 can be laid there. We found inspiration in this project because its innovative and the contents are similar to what Carré like to have, a walk of fame.

STRENGTHS

- Centre of Berlin, lot of tourists
- A lot of colours and easy ton recognize
- A new experience for tourists
- Take a picture of yourself with the celebrity

WEAKNESSES

- No information is given
- Temporary and not reusable
- Quality of the AR is not so good
- No possibility to send e-mail

PRICE

Free

Urban screens

Create an alternative experience for users of the Leidseplein. Using the screen as a portal to an alternative experience of the Leidseplein. By visualising local knowledge, tourists are given an alternative to the big commercial venues. Building upon different kind of existing services the screen visualises, through for example a map, real-time tips and questions.

WHY

Give tourists the opportunity to experience “the real Amsterdam”. In this way the local companies are supported through their users, and are given a medium (the screen) to reach the tourists.



33. Leidseplein urban screen.



34. Leidseplein urban screen.



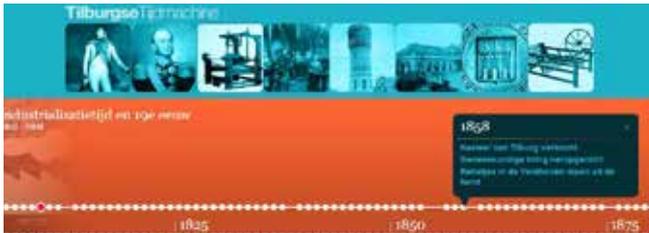
35. Leidseplein city theater.

TECHNICAL SPEC.

No special technology is required, as this service builds on top of existing projects, mashing them to be visualized on an urban screen.

City viewers

At various places in the city are placed 5 city viewers. If you look through it you can see movies and photos from the past of the city Tilburg. You can see the changes from the past till now. With a voice there that explains a few things. The viewers can go around 360 degrees. If you focus him at some point and it stops, then starts to rotate a movie. This project was similar to our first concepts and idea's about the viewer or telescope. Other similar projects are the time viewer in Westerpark. It's possible to select the building or the place you want to know more about, press the button and you will zoom in and embark on a journey through time. A combination of this two viewers we analyzed. And the TimeMachine in Rotterdam. The user looks through the telescope and travels through different times. With 'Timemachine' the user will discover the immortality of Rotterdam's soul. The user can interact with stories which at that time took place in the same environment.



36. *Tilburg city viewers website.*



37. *Tilburg city viewers website.*

STRENGTHS

- Small museums in the city.
- Shows information about most famous historical places in Tilburg.
- Hufferproof (it's hard to demolish because of the design).
- You can pay 5 euro to do a citywalk through the cityviewers.

WEAKNESSES

- Just a symbol of the city, after 1 time its boring to see all movies/pictures.
- If pointed a video, you cant stop the video before ending.
- Its not a success, because there are not a lot of tourists in Tilburg

TECHNICAL REQUIREMENTS

- The viewer doesn't need Internet, just a connection with the database.
- The viewer recognizes the 360 degrees environments and translates this to AR old video's and pictures.

Tilburg city viewers:

Website | <http://www.tijdmachinetilburg.nl/detailview.aspx?id=1391>

Time viewer Westerpark:

Website | www.westergasfabriek.nl/en/westergasfabriek-en/uplabs

Time machine Rotterdam:

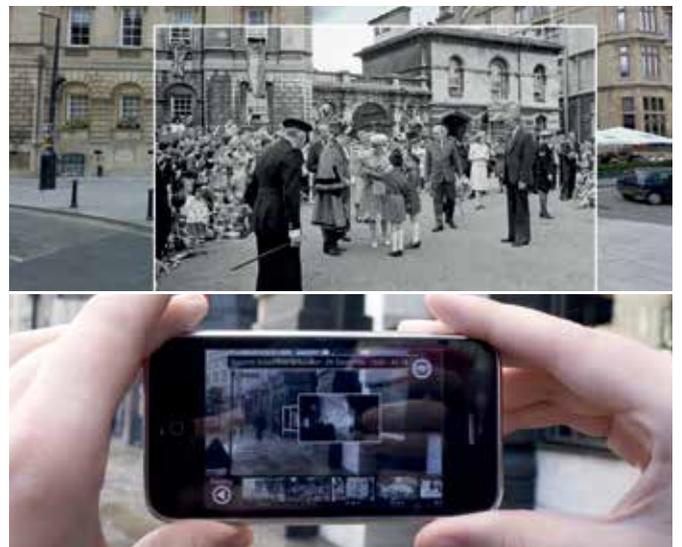
Website | <http://vimeo.com/9133044>



38. Tripadvisor app screenshots.



39. Layar app screenshots.



40. Historypin app screenshots.



03

TARGET

AUDIENCE

TARGET AUDIENCE



41. Target groups.

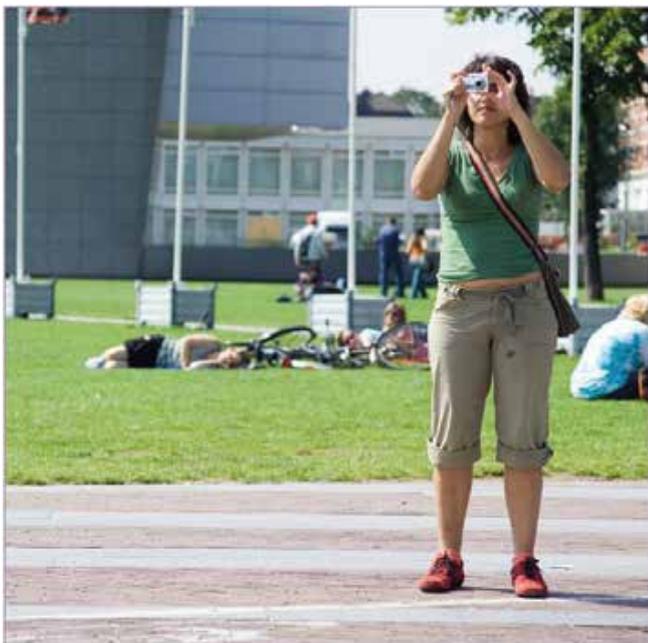
Different audiences have different motivations and demographics; they respond differently to different approaches and means of persuasion. Different audiences are reached by different tactics and different media. Different aspects of a project will be relevant and interesting to different audiences – local communities as opposed to tourists, for instance. Our goal was to research the audience and have a clear view of what the target audiences are and what they have, need and want related to this project. Our interviews show that high priority should be given to the following groups of audiences while designing the solution:

- Locals
- Tourists

We use personas to make a description of the two most important audience targets. Personas are user models that are presented as example individual humans. They are not actual people, but are synthesized directly from observations of real people. Personas are archetypical users with specific goals and needs based on real market and design research (*Leurs, Toolkit V1, 2012, Goodwin, Goal-directed methods for great design, 2002*).

NEW MEDIA

Desk research shows that rapid technological advancement means that the relationship between machines and humans is constantly evolving. Technology is becoming a key drivers of the future, making a lot of things possible and connecting the world in hundreds of different ways. One of the local interviewees expressed surprise that travel guides and books (eg. *Lonely Planet* etc) were still in use to explore Amsterdam. This user from the interview was very open to using a mobile application, the problem being that there was no reliable public Wi Fi service in the city. “But in 3 years technology will change everything to explore the city”, said the local.



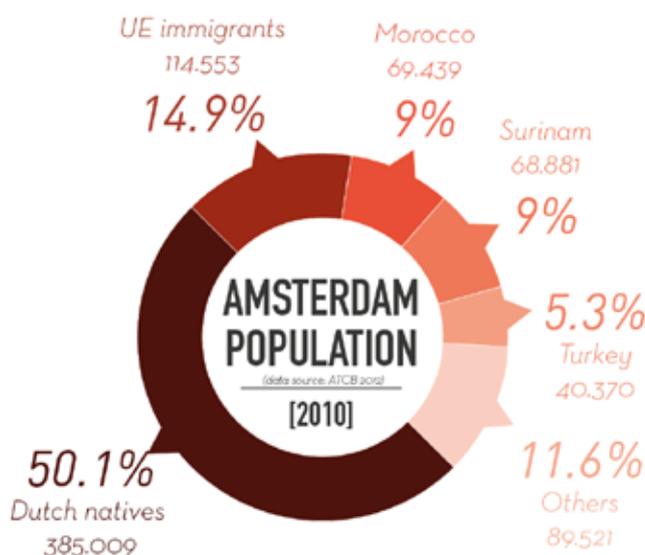
42. Typical tourist.

He hoped that he wouldn't at least have to rely on books while on trips. People already live life through the screen with which they 'inquire, discuss, argue, shop, critique, fantasize, inform, search and seek' (Tapscott, 2009 p.40), a noticeable shift from passivity to interaction. Linearity of the screens has now been replaced by adding multiple dimensions with audio and video, where interaction is important. In the not-too-distant future, haptic technologies can provide a real 3D holographic experience as if talking to a real person. Augmented Reality is a promising upcoming technology that allows devices to add dimensions to distribution channels. AR finds use today in applications like making reservations and looking up information. This medium has many benefits like convenience with user-friendly interfaces, up-to-date information and affordability to the end user. The use of devices sees a strong trend in moving from computers to mobile devices, and this can be used very favorably for tourism. Because of lack of expertise and budget we didn't use AR functions. It seems it's a nice concept and idea for the future, but not for now. Even we like to be innovate and a trendsetter in the idea of the product, but we don't have to be the early adopters.

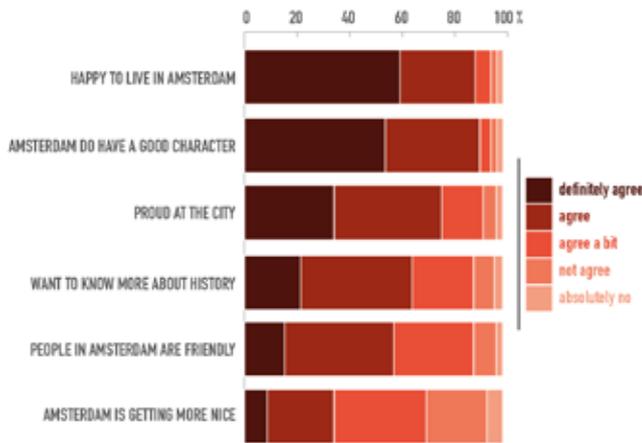
LOCALS "AMSTERDAMMERS"

Our interviews shows that locals prefer knowing about intimate details about the history of the city, like the who, what, why and when of historical buildings, and what changed over time. The 'Amsterdammer' is a local citizen of Amsterdam. Only 4 out of 10 citizens of Amsterdam are actually born in the city and towards the city center it is even less: 3 out of 10.

Amsterdam is home to 175 nationalities and each population group brings with it its own culture. This is reflected in the restaurants, shops and buildings. The population of Amsterdam has shown slow but steady growth for many years. On the 1st of January 2009 the city had 756,347 citizens which are just as many citizens as in 1975. The number is expected to grow to 8,27,000 in 2030. There are a lot of hidden dynamics behind the calm but steady growth.



43. Amsterdam population (2010).



44. Perception of the city by locals.

STATE OF THE MIND



local



outsiders

45. Categories.

Demographical and geographical research

Nearly 7 out of 10 people who were born in Amsterdam, now live outside the city, in Diemen and Landsmeer and also a bit farther in Purmerend, Almere and Lelystad. Most people (60%) are not affiliated to any religious community.

Amsterdam has a multicultural image with a lot of nationalities and almost 50% of the citizens are non-Dutch natives. Most people commute by bicycle or public transport. Amsterdam is one of the most bicycle-friendly large cities in the world and is a centre of bicycle culture with good facilities for cyclists such as bike paths and bike racks, and several guarded bike storage garages (*Fietsenstalling*) which can be used for a nominal fee. In 2006, there were about 465,000 bicycles in Amsterdam. Theft is widespread - in 2005, about 54,000 bicycles were stolen in Amsterdam. Bicycles are used by all socio-economic groups because of their convenience, Amsterdam's small size, the 400 km of bike paths, the flat terrain, and the arguable inconvenience of driving an automobile (O+S, 2011).

Some numbers

Three quarters of the residents are proud of Amsterdam and almost 65 percent are happy to live in Amsterdam and think Amsterdam had a very good and positive character. Four out of ten Amsterdammers go at least once a month to the cinema, a quarter of them visit a museum monthly and one third never go to the museum or the theater.

We can divide the locals in the city into two groups: People who RUN (in a hurry or on the way to somewhere) and people who are having FUN (free from work and are doing something relaxing in the city) (SpaceSee, 2011).

Run connects to necessary activities such as commuting, buying, selling. All people from the interviews we conducted were on their way to someplace. The time they had for an interview was minimal and they showed little interest for taking the interview. Fun connects to optional or social activities, those which can be measured



46. Maslow pyramid for needs of locals.

with a subjective lens. Basically a tourist or visitor will have different needs than a worker or somebody who is heading somewhere in a public space. People organize themselves within space depending on the activities they need to do, and the available means to do them. People use public space in different ways, according to their needs and activities. In the book *“Life between Buildings”*, Jan Gehl (1996) argues that through design it is possible to influence how many people use public spaces, and how long do individual activities last and which activity types can develop. He classifies in a greatly simplified way outdoor activities in public spaces into two categories:

Necessary activities: (RUN) Include those that are more or less compulsory - going to school or to work, shopping, waiting for a bus or a person, distributing mail, etc. Activities in which those involved are to a greater or lesser degree required to participate.

Optional activities: (FUN) Those pursuits that are participated in if there is a wish to do so and if time and place make it possible. These happen under favorable exterior conditions.

Blending Amsterdam focus on optional activities, people who have free time and want to know more about Amsterdam, which can be categorized under FUN.

ROLES OF PEOPLE IN PUBLIC SPACE



run



fun

47. Typical outdoor activities.

NATIVES

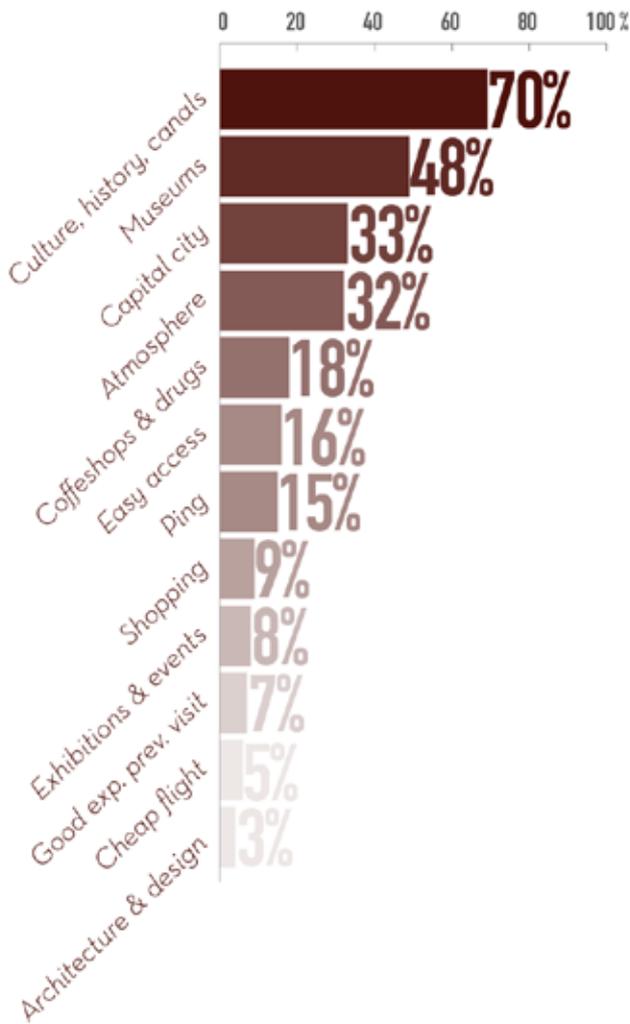
Visitors from the Netherlands are the best sources of income for the museum and foreigners spend more money for food, accommodation and transport (ATCB, 2012). Since we wish our target audience to explore history through new media, it is important that they have a Smartphone or access to another medium which can connect to the internet or can download apps.

TOURISTS

Our interviews show that tourists currently want to know basic information related to history of the city, for example: what building they were looking at and taking photos with famous people from Amsterdam in the virtual city theater.



48. Tourist nationalities (2010).



49. Why people visits Amsterdam (ATCB, 2012)

Demographical and geographical research

A tourist is someone who travels from their environment to another, for less than one year. They travel either to another country or place, for purposes of leisure, recreation, or business. All the tourists who visit the Netherlands also visit Amsterdam, and most of the tourists are from Europe, and the second biggest group is from the United States. The summer months June, July and August are most favored by tourists with the Museums and Old city being the main tourist attraction in Amsterdam. Half of the visitors came to Amsterdam to visit a particular museum, and 85% of them did indeed visit that museum. Amsterdam has tourists from a range of nationalities, which provides the city a stable base. Emerging markets and the U.S. give a positive impulse to the expenditures (ATCB, 2012). However, the overall growth remains below the market growth registered in other European metropolises like Berlin, Copenhagen, Vienna, Lisbon, Paris, Prague and Barcelona.

Some numbers

Amsterdam registers 47 million visitors a year, 70% of which are actually tourists, both Dutch and international. Tourism provides 50,590 jobs in Amsterdam, and visitors give Amsterdam an average rating of 8.1 (out of 10) with visitors from UK and USA being the most satisfied. The Dutch themselves and Belgians and French are the most critical. Visitors are most satisfied with the atmosphere and public transport with dissatisfaction about parking spaces and high costs of almost everything (ATCB, 2012). Visitors from the Netherlands are the best sources of income for the museum and foreigners spend more money for food, accommodation and transport (ATCB, 2012). Since we wish our target audience to explore history through new media, it is important that they have a Smartphone or access to another medium which can connect to the internet or can download apps.

INTERVIEWS AND OBSERVATIONS

The international tourists interviewed are always in groups or pairs, whereas the Dutch people are sometimes alone, often for business or work. We conducted 53 interviews and 3 observations. We used the card sorting technique and not only listened to what people answered, but tried to get suggestive statements and also see their emotions, especially when they are talking about experiences.

The most relevant observation is that only a small number of Dutch people interviewed can use an Internet connection with their mobile phone.

Statistics

Only a small number of the Dutch people interviewed can use an Internet connection with their mobile phone.

Persona's

We use persona's to make a description of the two most important audience targets. We developed four personas. We describe four different users that help guide us to make decisions in the next phase. The persona's we make tell stories about users, so that we can understand the target audience better and what the user needs and wants. Personas are 'archetypal' users that act as 'stand-ins' for real users and help guide decisions about site aims, functionality and design. By designing a site to meet the needs of specific personas, the needs of wider groups of users with similar goals is met. We design the persona after our interviews and observations, so they partly reflect 'real' users. With the user personas we also introduce a customer journey.



NOT SO INTERESTED

from: HUNGARY
nr: 3 PEOPLE

- before arrive, get info from web
- after arrive, get info from guide book
- they has iPhone 4, but prefer book
- watch canals and buildings
- boat tour
- red light

11.14 , 24/09/12



weather: CLOUDY
temperature: 15°C

LOCAL
 TOURIST
 OTHER



TAKING PICTURES IS IMPORTANT
FOR THEM

from: SINGAPORE
nr: 3 M, 1 F

- they have smartphone (ANDROID)
- before arrive, download PDF guide
- they don't have internet connection
- interested in history

10.45 , 24/09/12



weather: CLOUDY
temperature: 15°C

LOCAL
 TOURIST
 OTHER



ANNEMIEK

WALKING THROUGH THE CITY,
HISTORICAL EVENTS

from: HOLLAND
married, 3 childs

09.00 , 02/10/12



ADAM EAST

weather: SUNNY
temperature: 4°C

LOCAL
 TOURIST
 OTHER

- she knows about amsterdam history
- she knows about the 16th century city wall
- she doesn't know at least 3 famous amsterdammers
- would like to have pic and videos about history on mobile
- no amsterdam apps installed



MARIO

HE NEVER SAW INSTALLATIONS OR
HISTORICAL EVENTS
IN THE STREETS OF AMSTERDAM

from: HOLLAND
Male, student HvA

19.11 , 27/09/12



mediaLAB

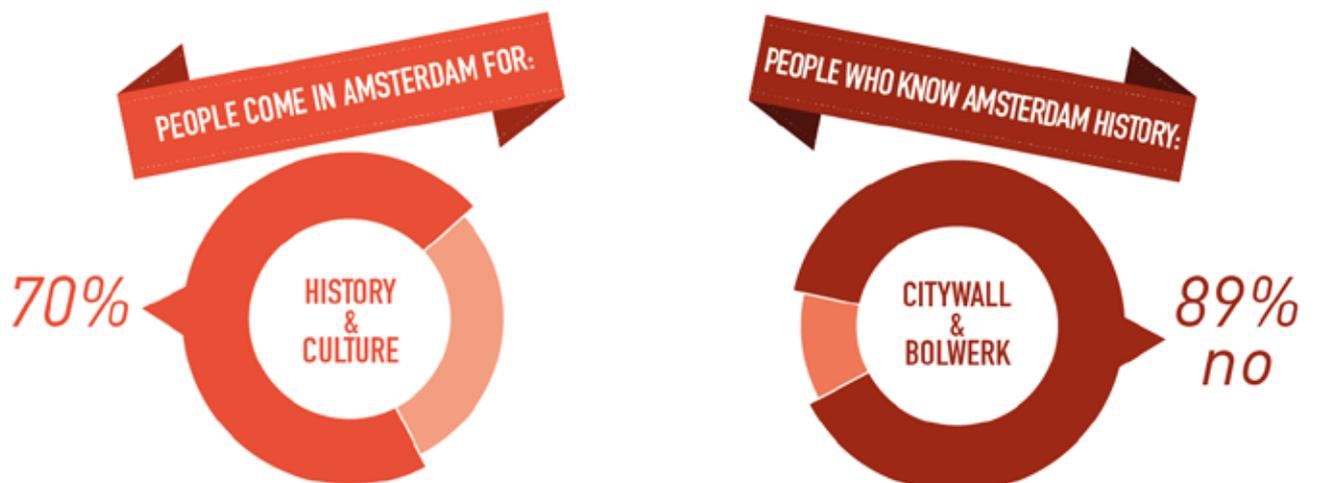
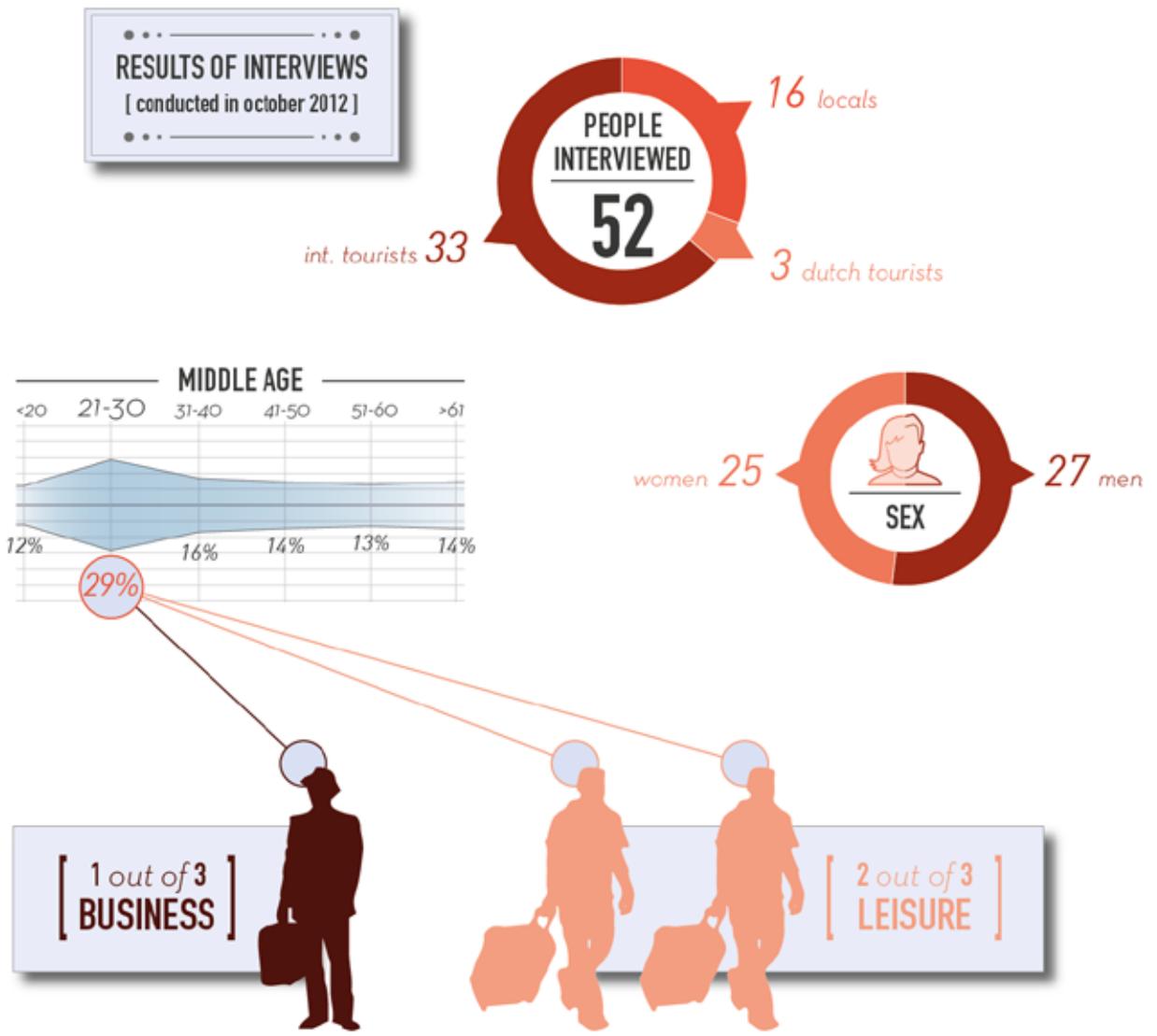
weather: SUNNY
temperature: 6°C

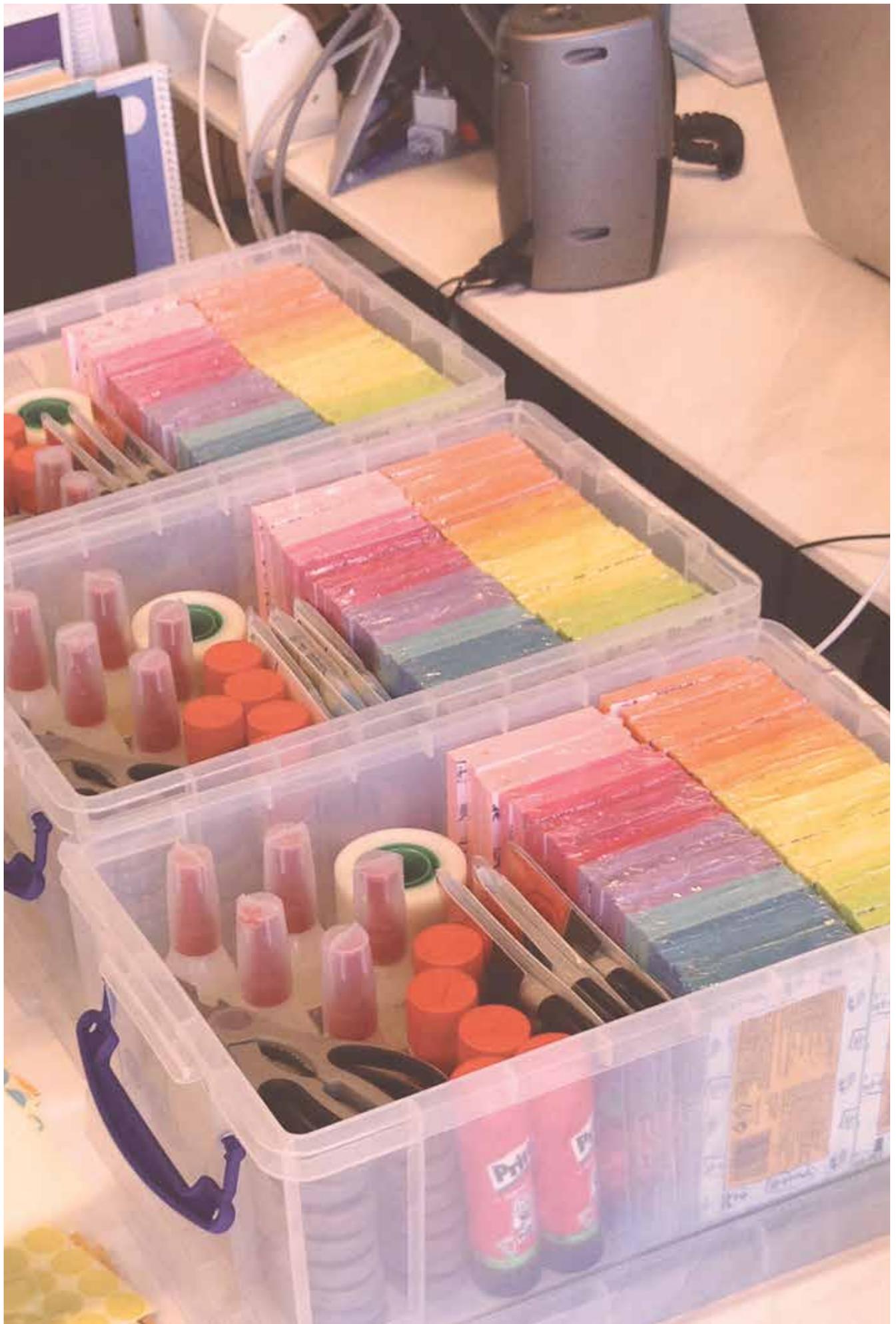
LOCAL
 TOURIST
 OTHER

- he knows about canal trade history
- he just knows the name about the 16th century city wall
- he has 3G internet connection
- not interested in history and apps related
- no amsterdam apps installed



54. Albert Cuyp market, october 2012.





04

CONCEPT

PHASE

CONCEPT PHASE

ANALOGIC

&

DIGITAL



something physical



something virtual

56. Analogic and digital.

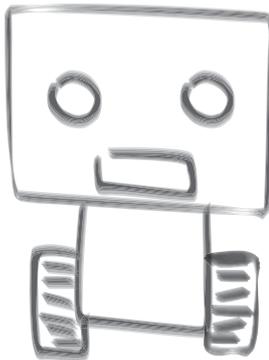
In the concept phase we thought about all kind of ideas and concepts. We went to other locations for inspiration, we talked with several people and we came up with more than hundred ideas. After shifting and use some to tools and methods, we made a final decision for three concepts and present this to the assigners. We hoped there was 1 concept picked and we could make this one. But the assigners made another decision which we didn't expect: "combine all good factors of the three concepts and make it one".

CONCEPT #1:

Story gathering robot

A robot / object to gather user experiences and tell stories about history/famous people / places and find a good flow to wrap them together. What it can do :

1. Take a video of the user
2. Take feedback from the user in the form of yes / no questions
3. Make the user do activities, like go to some place, press buttons, act for the camera etc
4. Distribute media using a Piratebox
5. Provide an online platform to share on social media



57. Concept # 1.

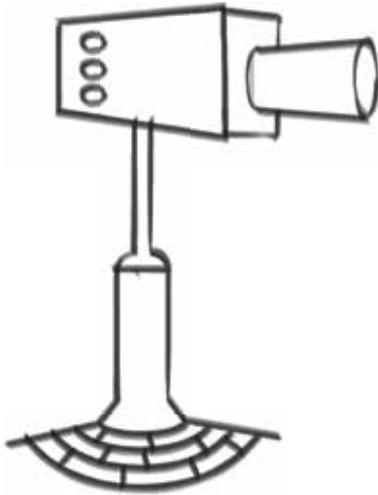
CONCEPT #2:

Experience the life in the past

This idea is a little vague as it offers a very wide range of possibilities, and a lot of ifs and buts. The basic idea is to have an app (and possibly a screen) and then let people have personalized profiles and at the same time showcase some other profiles of famous people so that they can see places in a similar light like they did many years ago. Also, some gameplay can be involved in the form of postcards or maybe comics, so as to keep the audience engaged. It could also be used to give some kind of guided non-linear tour.



58. Concept # 2.

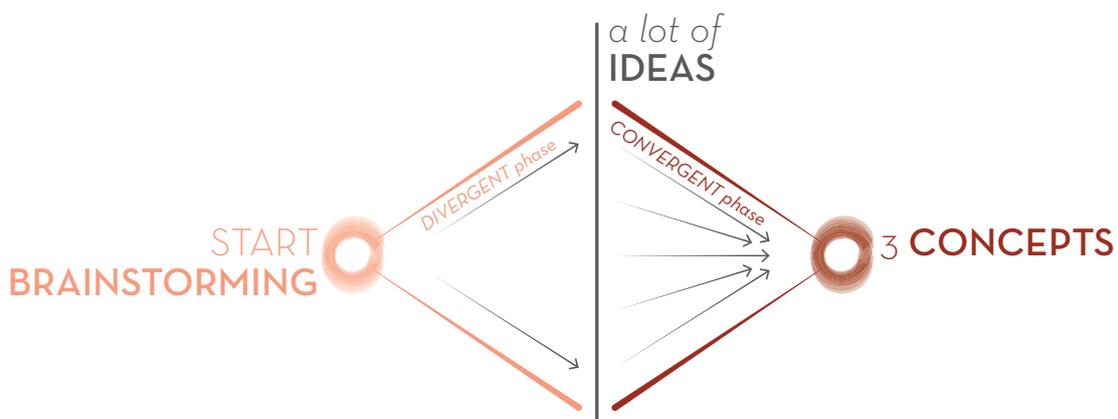


59. Concept # 3.

CONCEPT #3:

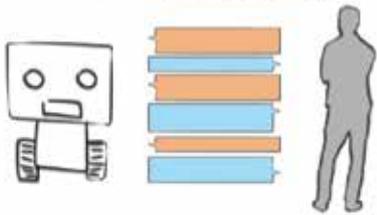
Space & time historic telescope

A telescope is an object is associated with seeing some thing at a distance. This concept explores that it could be used to see far into both space AND time? This concept has a physical object in the form of a telescope, which can be pointed at different locations, like a compass, all the locations which are in the line of sight where the telescope is pointing can be displayed. Controls can be provided in the form of knobs to look nearer or farther along the same line and to look at a different point in time, like a few years before or after. It can also allow you to browse through multiple pictures of a particular point in space and time. This telescope would have a PirateBox (local Wi-Fi) so that people around can see the content too, without the telescope, allowing it to reach more people. The mobile solution can have two modes: one where the phone is used to explore independently, and one where the phone is connected to see what the telescope is displaying. This connection enables discovery using what others are seeing. The user could also download what is on the telescope or share it on Facebook or Twitter.

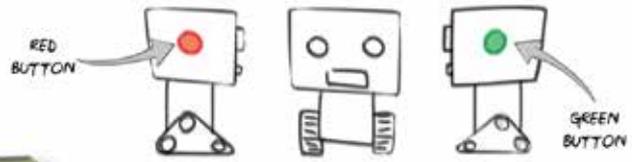


60. Creative process flux.

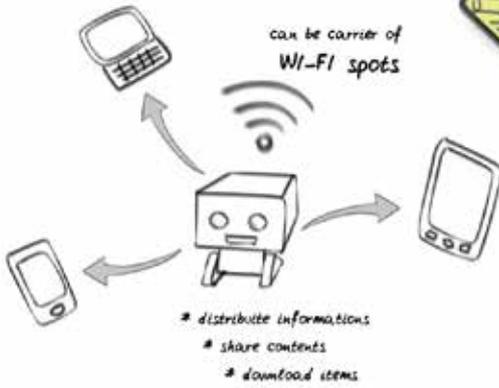
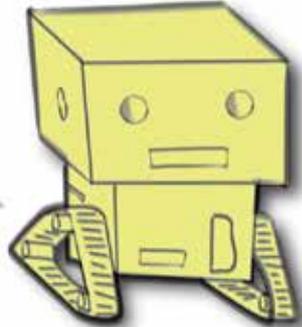
collect and give info in the
CONVERSATION with people



"hello, I'm a **BOXIE**.
I need your help,
if you can help me push green button on right side"

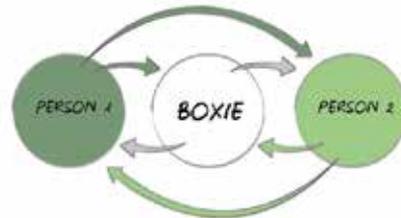


- * RED/GREEN button for YES/NO questions
- * voice video recorder
- * free answer



can be carrier of
WI-FI spots

- * distribute informations
- * share contents
- * download items



INTERFACE for keep in contact different people

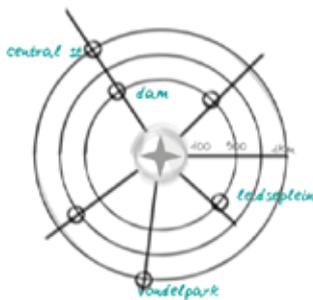


**SPACE & TIME
HISTORIC TELESCOPE**

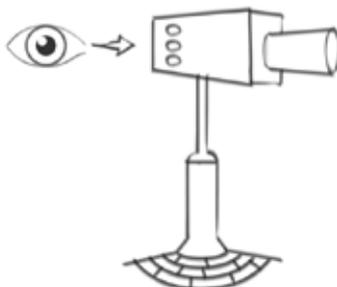
ABOVE



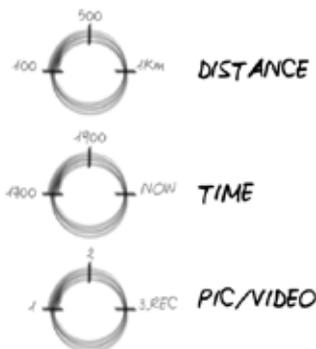
diagram of
distance and position



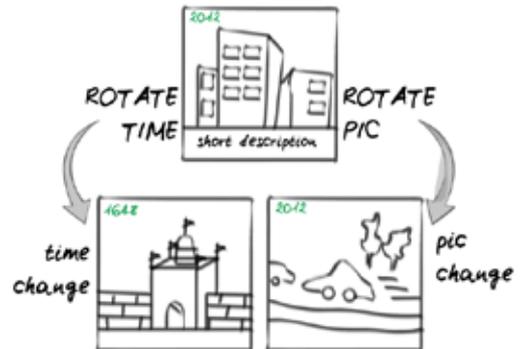
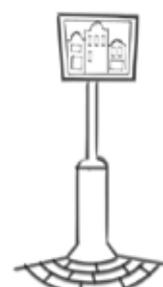
SIDE

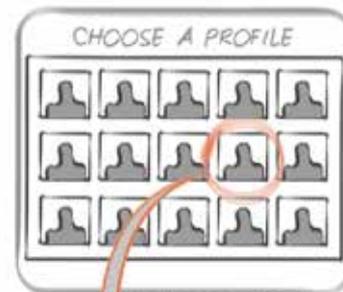
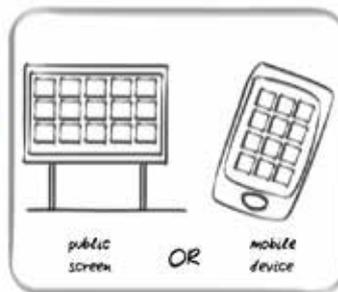
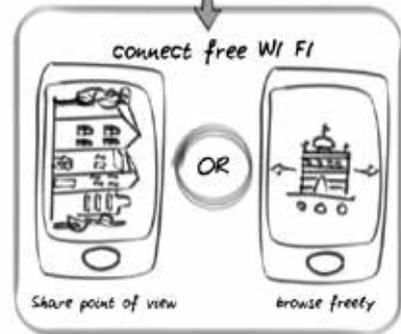
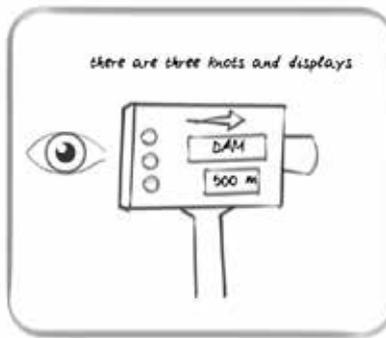
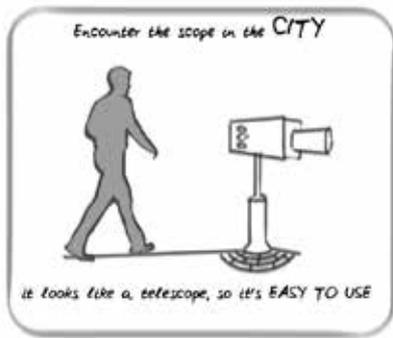


Three knob on the side:



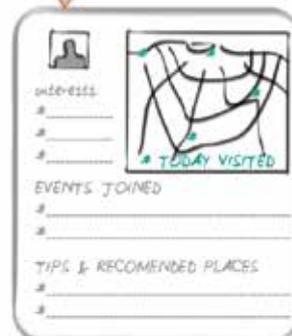
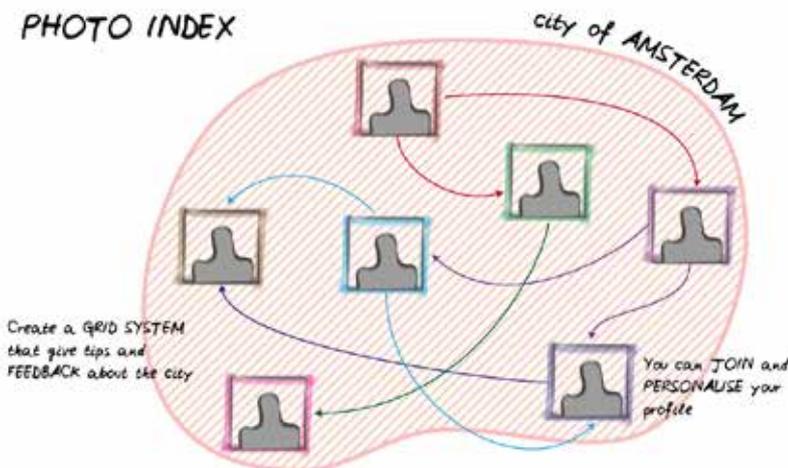
BACK





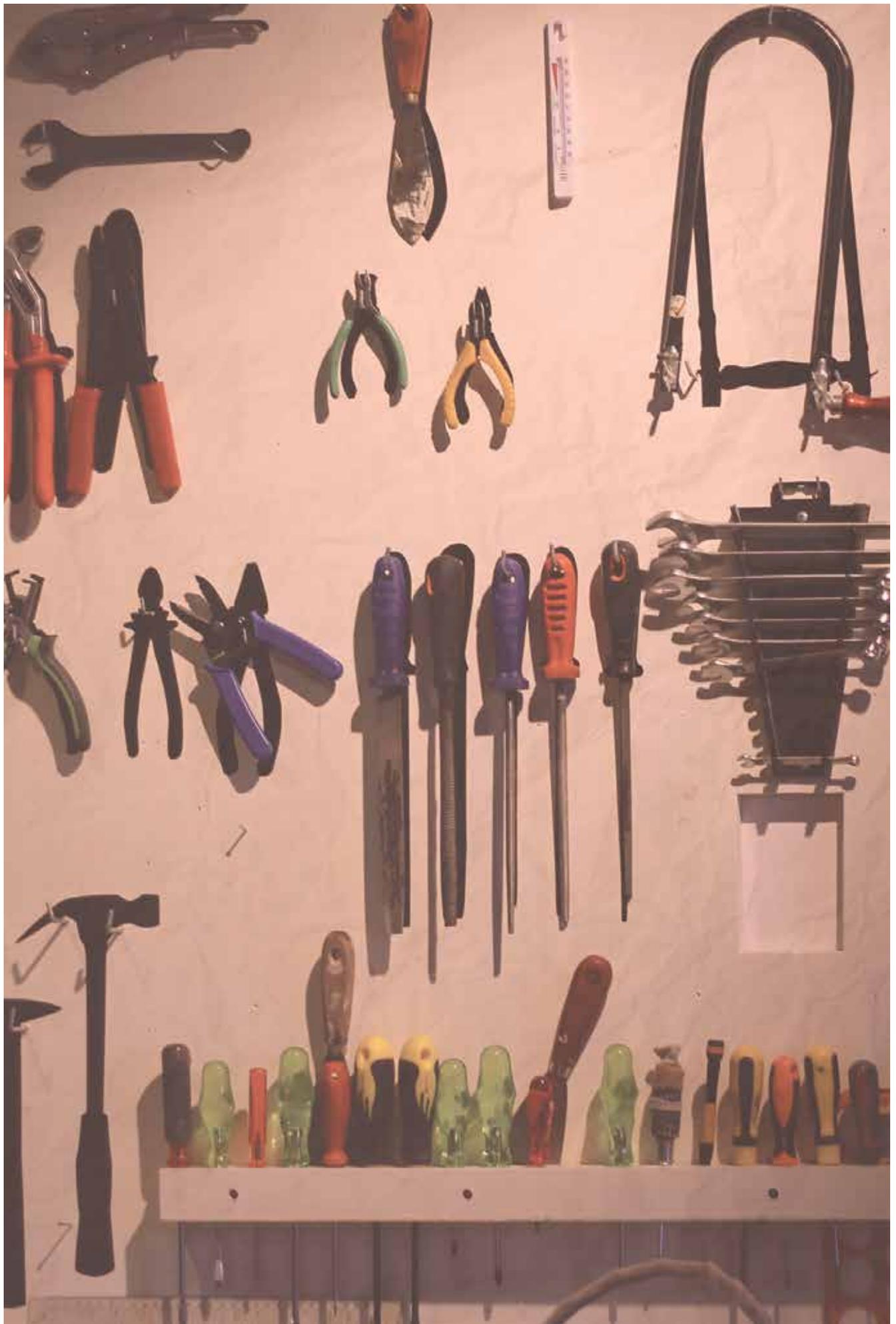
CHOOSE A PIC that can have SIMILAR INTEREST to myself

PHOTO INDEX



Info in REAL TIME about people with similar interest and SUGGESTIONS

61-62-63-64. Concept sketches and storyboards.

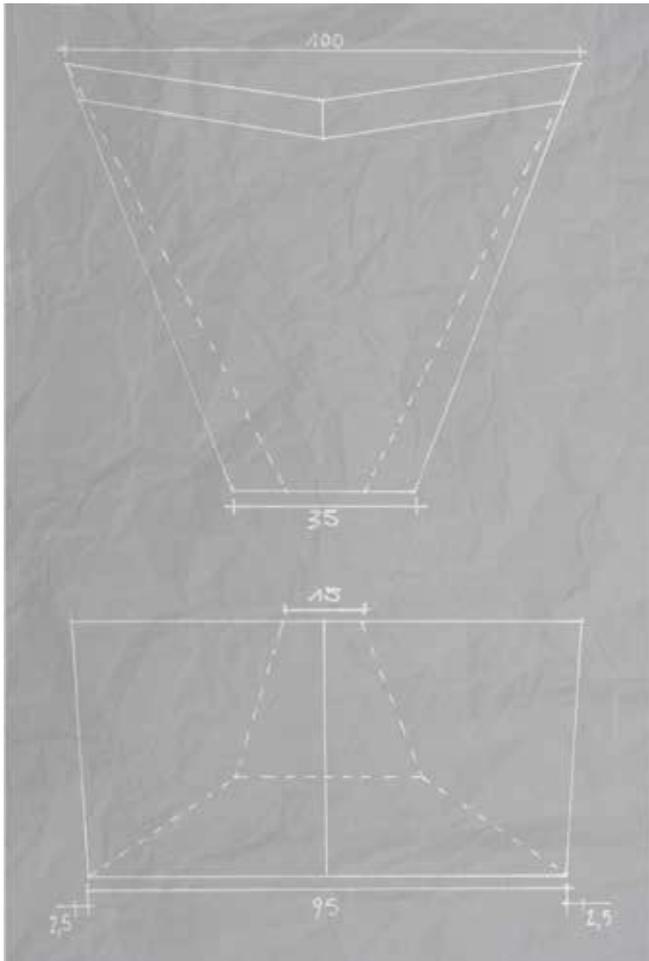


05

DESIGN

PHASE

DESIGN PHASE



65. Technical drawing sketch.

After the research and concept phases, we had to think about all kind of design matters of our concept for Project Blending Amsterdam Reality. Its not only technical design, also content choices, interface designs, location choice and the design of the shape is part of this phase. In the design document we provide design considerations including methods followed and the subsequent design choices made. In this chapter we give an overview of these design choices we made and other possibilities which could be used in the future.

TECHNICAL IMPLICATIONS

One of the requirements of the Gemeente is a media platform which can used for more projects, re-usable, often termed as “White Label App”. It is a re-usable platform or application which can be used for other cities, projects, places or other content. White label apps are the category for apps which is developed with consideration for compatibility with other contents. So it must be flexible enough to use with other cities, projects, places or other contents.

Used Hardware

Hereinafter there is a list with a set of tools used for the implementation of final prototype, and then working. The various components are all interconnected, and their simultaneous operation, gives life to the physical installation system. In a perspective future, these components have to be implemented and calibrated to best in order to be part of a serial production.

Arduino

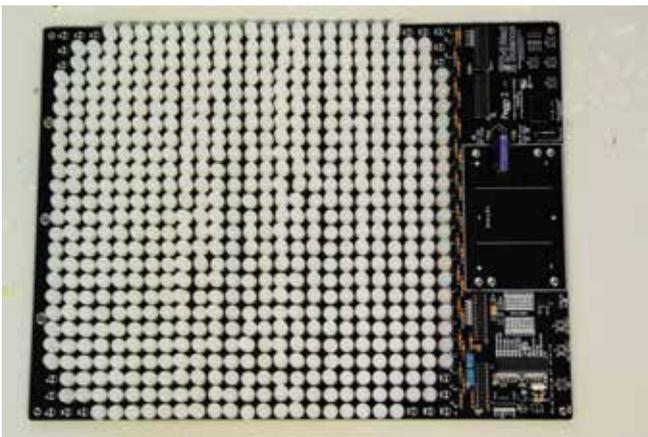
Arduino is an open-source electronics prototyping platform based on flexible, easy-to-use hardware and software. It is intended for artists, designers, hobbyists, and anyone interested in creating interactive objects or environments.

The **Arduino Leonardo** performs the following tasks crucial to the function of the prototype:



66. Arduino Leonardo.

- it takes input from the tactile sensors and relays it to the display units.
- it converts analog data from sensors into digital data to be used for control.
- it uses serial communication to communicate the user tactile input to the Arduino based Peggy 2 LED Matrix control board.
- It processes the chosen position and sends keyboard events to the pocket-sized computer to change the content displayed.



67. Peggy2 LED matrix board.

Peggy 2

Peggy 2 is a light-emitting “pegboard” display. It is a 25x25 LED Matrix control board with its circuits designed roughly along the lines of Arduino boards. It also provides an open sourced software library that makes it easy to program using the Processing IDE and USB-to-FDI converter. The Peggy 2 is kept under the map of Amsterdam to provide visual feedback when the users interact with the controls to navigate through the map-based content.

Raspberry Pi

The Raspberry Pi is a “credit card sized” computer that plugs into display and input devices to provide mobile computing capabilities. It is a capable device with most of the features provided by computers, and can run various ARM-architecture compatible distributions of Linux. The Raspberry Pi performs the following tasks in the prototype :

- It acts like a web server to display the content in a web browser connected to a touch-screen.
- It acts like a CPU running an OS and a browser.
- It receives Keyboard events simulated by the Arduino to manipulate content on the screen.



68. RaspberryPi.

Touch Screen

The ELO touchscreen provides a display with touch screen capabilities. It receives display visuals from the Raspberry Pi through a HDMI = VGA converter and sends touch data via USB for further control of content.

Flex Sensors

The flex sensors are membrane linear potenti-



69. Mobile app version.

meters that send analog values unique to the position that is touched. This analog data converts touch information into electrical signals which are then sent to the Arduino for further interpretation.

Router

The prototype provides a local wi-fi network in the vicinity using a wi-fi router. The router is DD-WRT capable and allows hacking of the firmware as well as runs a very basic version of Linux to provide advanced capabilities. The router is meant to act as a DNS server to redirect all web traffic from the mobile interface to the server on the Raspberry Pi. This also provides seamless integration when the user moves away from the vicinity and switches to his / her own data connection.

Sound

The installation uses powered speakers with 3.5mm Audio jack as sources for playing sound accompanying videos. The speakers receive sound signals from the Raspberry Pi audio jack. The design of the form of the installation eliminates the need for directional sound, since the speakers direct their sound through outlets designed specifically for the purpose.

Internet connection

The Internet is one of the main factors connected with our solution. Usage could provide a lot of opportunities and at the same time problems. This factor therefore deserves a deeper study as below.

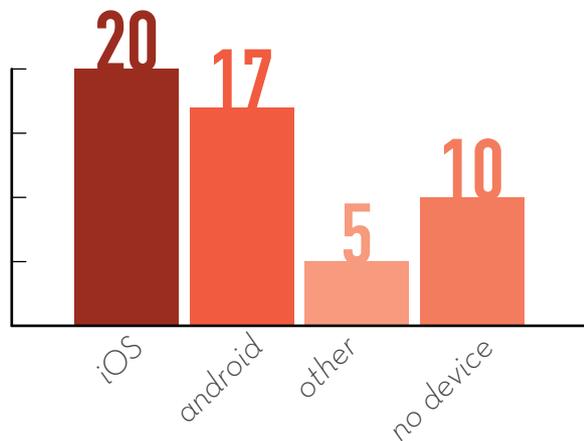
3G

The statistics from interviews indicate that only 12% of people can use the 3G connection on the street and the remaining 88% try to find Wi Fi spots so as to be able to use internet because they don't have a 3G connection. This indicates that developing apps that require significant use of the internet will exclude a majority of the people.

Wi-Fi



70. 3G connection statistics.



71. Operative system installed on users devices.



72. Wi - Fi logo.

There are about 40 free Wi Fi spot inside the ring and almost of them are hosted by major food chains, for examples, Bagel & Beans, Burger King and McDonald's. These shops call these Wi Fi spots as "free Wi Fi spot" but the Wi Fi spot is generally inside the store and the service is provided provided a purchase is made. On the other hand, accessible Wi Fi spots are missing around Centraal Station although almost tourists' trips start form this place, as well as places like Dam square, Nieuwmarkt and Anne Frankhuis, which are popular tourist spots but don't have any public Wi Fi spots.

A remarkable observation is that almost all tourists said that they used Wi Fi spots of their hotels, which suggests that these spots can be good environments to make an interaction point with tourists. Delivering our solution here can help take the solution to larger audience.

WiFi hotspot is also a dominant tool that can be used to detect user's location and deliver relevant content, employed by Google as well. PirateBox, a self-contained mobile communication and file sharing device is a WiFi based local filer server, that can be built under \$30 and can transform any space into a free and open communications and file sharing network, can be used.

Problems

To summarise, the problems related to internet connection are : there are no Wi Fi spots around some very popular tourist spots, many "free Wi Fi spots" are not free, and nearly 100% of international tourists don't have access to WiFi. A research "What's happening online ' by Ruyigrok | NetPanel 2012 said: The Internet has become indispensable in today's society. Almost everyone now has a PC or laptop with an Internet connection. The smartphone (58% of the Dutch people between 15 and 65 years have one) is increasingly being used to access the Internet.

Of all smartphone users six of ten people access internet on their smartphone several times a day. Mobile internet is more frequently used by

young people than older people (70% of 35 years used it several times a day vs. 40% of people over 65 years).

The research also shows that the use of the smartphone at home is greater than outdoors. Both the smartphone and tablet are widely used for looking up information and reading news. The tablet is more popular to view photos or videos, and for the purchase of products.

It appears that women tend to seek information on their tablet, while men use their smartphone more. Also a quarter of the smartphone and almost half the tablet are used for playing games. Interestingly this is seen more often in women than men.

Only a small part of the Dutch people interviewed can use internet connection with mobile phone.

Opportunities

The following list contains tools of minor importance, which we considered in the concept phase, but actually have never been part of the installation, even if it could be implemented later in a future prototype study for the production.

GPS

Another way to detect user's location is GPS. Almost all smartphones and tablets now have GPS capabilities and it is available even when devices lose their internet connection, which means they can be used in conjunction with maps cached offline.

Camera

There are a lot of historical images from the city archives and almost all smartphones have cameras, so these can be combined to show the change of a particular place / location with the lapse of the time. As an example, two photos, taken in the same place but at different times, can give a feeling of being familiar with history to the user.

Kinect

Until the Kinect was released, equipped with depth measurement feature, the camera was an expensive device and used to be applied mainly



73. GPS logo.

in academic research. But now thanks to Kinect, it is quite cheap and easy to capture not only image but also field depth at the same time. In addition, the Kinect can easily capture motion and detect varied body motion without particular marker suits or trackers. The Kinect, is also open in the sense that it allows the data structure to be analyzed and open-source drivers can be developed by users. Following Kinect, quite a few competing technologies arose. For example The LEAP, a gesture detection device, to be released in February 2013 surpasses Kinect in speed of detecting motion and resolution.



74. Microsoft Kinect.

Augmented Reality

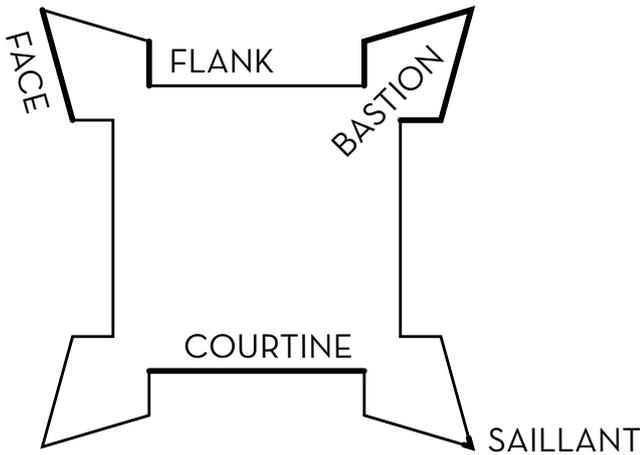
To understand the current situation of Augmented Reality Technologies we have conducted a web research. For each step of the research method, a visualization has been made, in order to create an overview that is easy to read for both our team and the different stakeholders. Furthermore a literature research has been done. This has helped the team to better understand the current academical debate about Augmented Reality Techniques and their implications. Augmented Reality (AR) is a live, direct or indirect, view of a physical, real-world environment whose elements are augmented by computer-generated sensory input such as sound, video, graphics or GPS data. Like already said before, because of lack of expertise and budget we didn't use AR functions. It seems it's a nice concept and idea for the future, but not for now. A nice example is the inspiration we had from The Berlin Walk of Fame. Even we like to be innovate and a trendsetter in the idea's of the product, we don't have to be the early adopters.



75. Augmented reality on a mobile device.



76. Rob van Reijn Bolwerk Oosterblokhuis stone.



77. Oudnederlandse vestingstelsel system.



78. Muiderpoort (1987).

CONTENTS

Having decided on a strong concept, our next concern was the content that influences the functionality and design of the physical object. The contents strategy we made in a content matrix. A Content Matrix captures each piece of content present in the database for the digital interface and installation. The captured content include all kind of images, video and text. This Content Matrix helped to catalog and identify each piece of content. The content matrix was a living document; regard it as the definitive source for all content of the interface. Later we transferred the content to the format the programmer provide us.

Selection

The topics of content are inspired by the assigner, archives and Rob van Reijn. And once we identified materials that will aid the research, the question then becomes how to access them. For this prototype we could use every kind of material because its non-commercial. We also use from government city archives include those maintained by local and state government as well open source data, which are free to use. Anyone may use a government archive. For some contents we have to pay when we use it for commercial reasons. In this chapter we give an overview from all contents in the prototype. We identified the following classes of content:

1. Former City Wall
2. Amstel canal
3. Other locations

Former City Wall

The former city wall, the bolwerken and its mills, that were instrumental in shaping the city are quite near theater carré location. Bolwerk or bastion number 19 is the closest to Carré. The bolwerken or bastions of the city wall were based on the Oudnederlandse vestingstelsel system. Every point of a bastion had a system of walls, canals and gates. We added three Bastions (Bolwerken) to the content:

1. Bolwerk 19: Oosterblokhuis



79. Amstel Hotel (1870).



80. Amstel Hotel now.



81. Hermitage museum now.



82. Windmill the Bul.

2. Bolwerk 22: Muider
3. Bolwerk 24: Oosterbeek

The first is suitable because it's the nearest to the Carré in the front of the Amstel hotel beside the Amstel River. The stone symbol (see picture) from Rob van Reijn and the local Government is located at the Huddestraat next to the Hotel. Oosterblokhuis was built about 1663 on the eastern bank of the river Amstel commanding the river to the right and the city gate Weesperpoort to the left. Windmill 'de Bul' was built on the bastion Oosterblokhuis in 1862. Two years later the Amstel Hotel, which was constructed along the river, was built. The second bolwerk is good to be included because the Muiderpoort can still be seen from this this place and it was one of the biggest gates of the former city wall in the 16th century. On October 9, 1811 Emperor Napoleon rode through the gates into the city. The third location is Oosterbeek and windmill the Gooyer and is suggested to be included because it still exists in quite the same shape as at Brouwerij het IJ. Next step is to add the next 23 Bolwerken.

Amstel canal

Amsterdam, capital of the Netherlands, has been called the "Venice of the North" for its more than one hundred kilometres of canals. The Amstel is a river or canal, which runs through the city of Amsterdam. The well-known Magere Brug bridge in Amsterdam crosses the river, as do the Blauwbrug, Hoge Sluis and Berlagebrug bridges. The Hermitage, Amstel Hotel and Carré theatre are both located on the banks of the river. Theater Carré The Royal Theatre Carré on the river Amstel in Amsterdam opened on 3 December 1887 by founder and circus director Oscar Carré. It was originally called Circus Carré and is built in the neo-Renaissance style. In the past 125 years, Carré has grown into the theatre of theatres in the Netherlands for large-scale circus performances, revues, variety theatre, music performances, musicals and cabaret. At that time was the (inter) national reputation of theatre Carré as confirmed by regular performances by top

stars as: Lou Bandy, Samuel George “Sammy” Davis, Jr, Toon Hermans, Andre van Duin, Snip and Snap Revue, Frank Sinatra and more.

Other locations

Other historical information and attractions to add at the contents are:

- De Waag at Newmarket
- Leidseplein
- Damsquere
- Central Station

Content visualization

Going into detail of what we imagine will be the interface with which the user will relate, we reported a few points of interest on the map, which should have the right content to be “explored” by the user. This consist a chronology of historical events of the place, the board of famous people linked to that particular location, photos and video historical witness as the place has changed over time, and an index of interesting places to reach from the place selected.



83. Leidseplein (1862).



84. Carré theater (1961).



85. Muiderpoort now.

PLATFORMS

There are several options to connect the installation and all contents for users with a Smartphone or Tablet. The two options we consider are Native apps VS Mobile web platform. Native apps, which are coded with a specific programming language (ObjectiveC for iOS, Java for Android) are fast, reliable, and powerful but are tied to a mobile platform. Nearly all games are native apps. A mobile web platform, which rely on development framework offer a very specific platform or form factor designed to match every web-enabled phone, like Android and iOS.

Best Practice

First we did research to make the choice between apps or mobile platform. We made a list of all app's in Amsterdam and about history because it isn't always necessary to reinvent the wheel. We studied existing solutions and picked out strengths and approaches from the best of them. There are more than a 100 apps for travelling, and 52 apps for Amsterdam alone, and also 10 apps which incorporate augmented reality. We made a selection most relevant to our project and focused on 3 major mobile apps based on category:

- Augmented reality based
- GPS based and
- History based.

We also tested Augmented Reality city viewers and public screens with interaction with the users. This was a list of our possible inspirations:

- (1)LAYAR - Augmented reality app for mobile devices with use of GPS and digital content.
- (2)TRIPADVISOR CITY GUIDE AMSTERDAM - Offline guide book with GPS.
- (3)HISTORYPIN - User generated archive of historical photos and recollections.
- AMSTERDAM 1572 - Pictures of Amsterdam in the year 1572 (Award winning)
- UAR AMSTERDAM - Urban Augmented Reality with historical photo's, designings, 3D model.



86. Layar logo.

historypin
from we are what we do[®]

87. Historypin logo.



88. Tripadvisor logo.

- WIKITUDE - Augmented reality working together with all content at Wikipedia.
- GOOGLE GOGGLES - Augmented reality working together with all content at Google.
- UIT - APP - All events and upcoming festivals at Amsterdam.
- VISITORY - Guide book for virtual destination.
- AMSTERDAM THE MAP - Detailed offline tourist map of Amsterdam with GPS and 3D drawings.
- AMSTERDAM OFFLINE MAPS - High detail, high quality big map of Amsterdam.
- ETIPS - Augmented reality with GPS and tour guides.
- TRIPOSO TRAVEL GUIDE - OFFLINE - Dynamic travel magazine.
- CELEBRATION 400 YEARS CANALS APP - How the canals were started to built 400 years ago.
- TILBURG AR PILLARS - City pillars with 360° ARpicked movies and photos from the past of the city Tilburg.
- WALK OF FAME - Pillars at the Walk of fame in Berlin with AR famous people in Berlin.

(All sources can be found in the literature).



89. Oneindig website screenshot.

Mobile platform

Users can scroll through time and space, also at the mobile platform Starting-point develop for the project. It's a Content Management system made from scratch. The Content Management System (CMS) is a Web application that uses a database to create, edit, and store HTML content in a manageable way. The content is created and edited on the web in an administration portion of the web application (referred to as the Backend). The resulting content is then displayed to the viewers on the regular site (referred to as the Frontend). This consist a chronology of historical events of the place, the board of famous people linked to that particular location,

photos and video historical witness as the place has changed over time, and an index of interesting places to reach from the place selected.

Oneindig Noord-Holland

We the good thing out of It and decide not to make an native App, but an web platform. For this we try to find out some examples with other platform. We research the structure and had meetings with people from Platform Oneindig Noord-Holland. We also like to work together with other parties to develop the mobile platform. Oneindig North Holland is an ever growing platform of stories about the rich history of North Holland (including Amsterdam). Written stories, but also images, videos and sound clips can be found at this platform. Oneindig North Holland connects stories behind events in history, people, places and monuments, with collections of museums, archives and cultural institutions. Oneindig North Holland brings the rich history of North Holland to life and creates a bridge between past and present.



89. Oneindig website homepage.

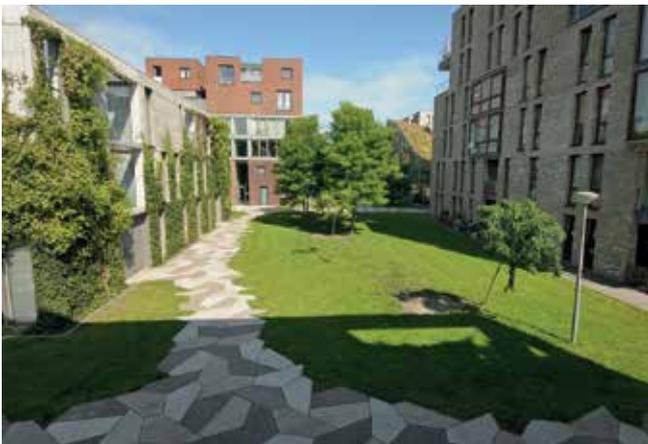
Website | <http://www.oneindignoordholland.nl>

LOCATION

Starting to think way in which will be more specific function of our project and imagining structure and a form, we started to make assessments on ideal location in which to install our product, although even for a prototype test.



90. Carré theater now.



91. Funenpark now.



92. Scheepvaartmuseum now.

Royal theater Carré

After having been in contact with Carré theater and organized some discussions, we realized that the ideal place to test our prototype could be in an area adjacent to the theatre to involve more people to try the experience and provide a safety element for that, since the theatre being close, acts of vandalism may be discouraged.

Also the place is close to two very strong points of interest for the people: the HERMITAGE MUSEUM and the "SKINNY BRIDGE" that attract masses of tourists in this area.

We also noticed that people don't know what to see around when visiting this area, so we just took action with a promotional campaign to promote the future product although the area of choice is clearly visible from the middle of the bridge. we did surveys of the area, going to detect the real measures of streets, sidewalks, marking trees and other obstacles, and trying to realize what would be the best solution to place the structure. Here you can find the visualizations of the location.

Other possibilities

In long terms the project location can be extent at more locations. We spoke with partners and the assigners to discuss other possible locations: Hermitage museum, Scheepvaartmuseum, Leidse square, Central Station, Funenpark

Our prototype was a one-off production: it's only one product what is made at one time. The installation is made by hand in combination with some machines. The prototype has to be modified and think of the easiness to make if the product is installed at different places in public space. If one installation is broken, we need to make easy a new one. But in longer term it can be made in a sort of Batch production. This is when a small quantity of identical products are made. Batch production may also be labour intensive, but jigs and templates are used to aid production. Because one of the installations is broken, we need to make easy a new one. if other cities can use the information pillars, we can even think about mass-production.

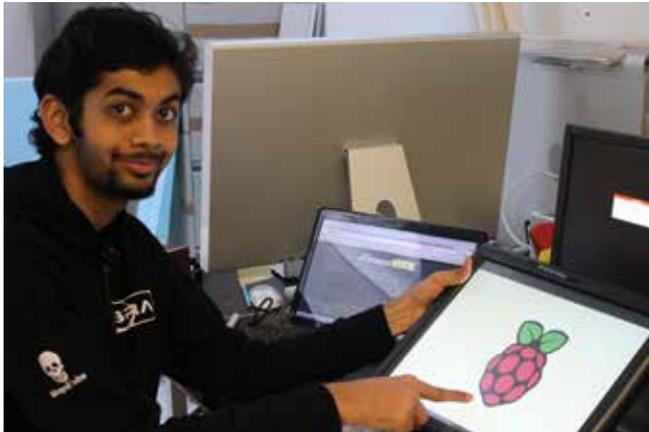


06

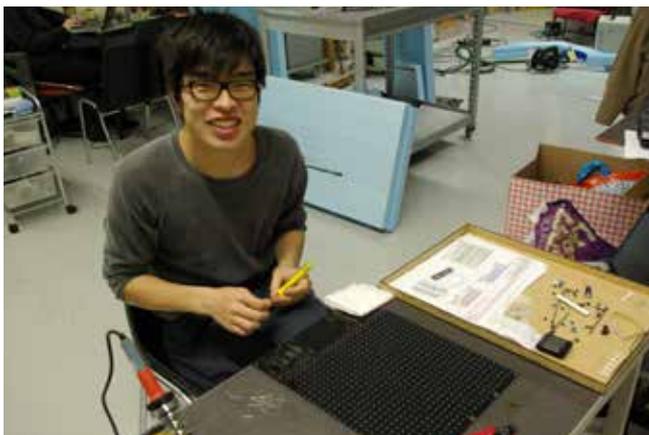
DEVELOPMENT

FINAL CONCEPT

DEVELOPMENT FINAL CONCEPT



93. Touchscreen setup.



94. Peggy2 board LED soldering.



95. 1:20 study model.

Designing interactive systems and installations demands collaboration between creative people of many different disciplines. For this project we needed the skills of programmers, designers, interaction designers, industrial designers, and a project manager.

Mmmh... prototype? What does it mean... even the term “prototype” is likely to be ambiguous inside the team members. Everyone has a different expectation of what a prototype is. Industrial designers call a blue foam or Styrofoam model a prototype. Interaction designers refer to a simulation of on-screen appearance and behavior as a prototype. The programmers call a framework a prototype. What if we just put everything together!! Blue foam installation, physical interface, a mobile framework or platform, and all connected to each other.

MAKING OF PHYSICAL INTERFACE

Out of all components the part of making the physical interface was the most difficult and time eating part. The idea of thinking beyond the traditional screen, keyboard and mouse interface was born already in an early stage of the process. Also the traditional gaming or joystick controller came along with the ideas. Simple low-tech switches and sensors to create custom physical interfaces to enhance the user experience.

We decide to make a physic map of Amsterdam from Plexiglas materials. The map was graved into the material with a laser cutter at the Fablab Amsterdam. Because of electronic stuff should be hidden behind it, there is also a wooden box around it. Underneath the map, is installed a Peggy LED-Board. The Peggy provides easy way to drive a lot of LEDs in a matrix and possible to program this board easy. This board is connected with Leonardo Arduino, a small microcontroller board which is connected again to the sensors at

the X and Y axes of the map of Amsterdam. The Leonardo is simply connect to power with a USB cable. This board or map is the part users can touch and play with. When they use the sensors they can scroll through space or locations at the map. Because next to the physic board the user can find a touchscreen with a timeline.

MAKING OF SHAPE OF THE INSTALLATION

The physical interface and the screen together is installed in the installation. The installation will be made for public space. But for the prototype we used other kind of materials: Blue Styrofoam and Epoxi. Blue Styrofoam is very light and easy to cut construction material. The shape is made from this and the outside layer is made from Epoxid. This last one is an basic component to make a coating around the shape of the installation.

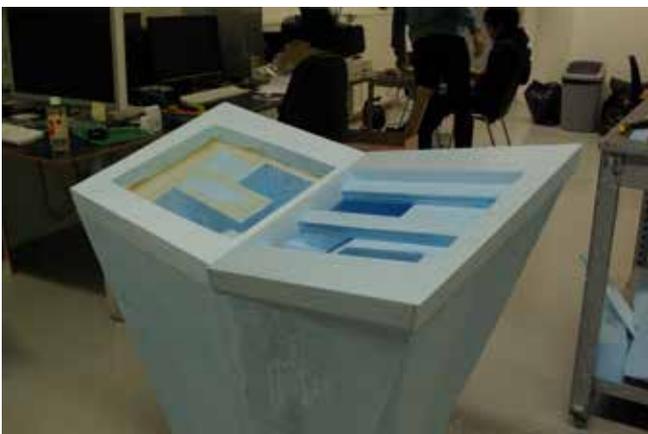
It's not easy to make a shape of the installation. Already many designs passed by. Varied from a telescope viewer to a triple X symbol shape. At the the fixed shape was designed: a book (as symbol of archive and information) at a pillar to easy use and touch. One side the physical board and the other side the screen to show contents.



96. Gluing sections.



97. Assembling prototype components.



98. Styrofoam Prototype.



99. Gijs Gootjes presentation.



100. Blending Amsterdam Reality exposition.



101. Blending Amsterdam Reality exposition.

FINAL EXPO

On Wednesday 16th January 2013 we had the final presentation of the prototype we developed as a part of our project, in an exposition alongside the two other projects done at MediaLAB this semester.

During the process of making the prototype and during the week of the final EXPO we also got some free publicity regarding the MediaLAB projects on two platforms: All articles are well written and give a quick insight in the project and problem we had to solve for the Gemeente Amsterdam.

1. Hogeschool van Amsterdam: 'Eindpresentaties MediaLAB: drie innovatieve producten'

Website | <http://www.hva.nl/nieuws/2013/01/18/eindpresentaties-medialab-drie-innovatieve-producten/>

2. A MediaLab Amsterdam project

Website | www.ankitdaf.com/projects/BlendingAmsterdamReality/

3. Ace: "Blending Amsterdam reality".

Website | acemag.nl/blending-amsterdam-reality/

4. WiseGuys: 'Urban Art Projects'.

Website | <http://wiseguys-urban-art-projects.com/medialab/>

At the final EXPO our project was aimed at answering the question of how to use / design objects in public space to spread awareness about the culture and heritage of Amsterdam. We came up with an interactive installation towards this goal. We made utmost efforts to take care that the installation is appealing, inviting, involves the users and proves to be both fun and learning, irrespective of who they are.

After a quick introduction to the audience, we were the first team to present our project. After quickly introducing ourselves and the project,

we dived down quickly into the final prototype, how it works and what it does. A few well supplied questions let us introduce the project better and address common concerns as well. The assigners from Gemeente Amsterdam showed good satisfaction with the outcome and expressed strong possibilities about the future and implementation of the project.

After the presentations we were beseeched by questions and got a lot of good feedback as well as valuable suggestions that will go a long way to making the final result better.



102. Blending Amsterdam Reality team.



103. Kees Bes interview.



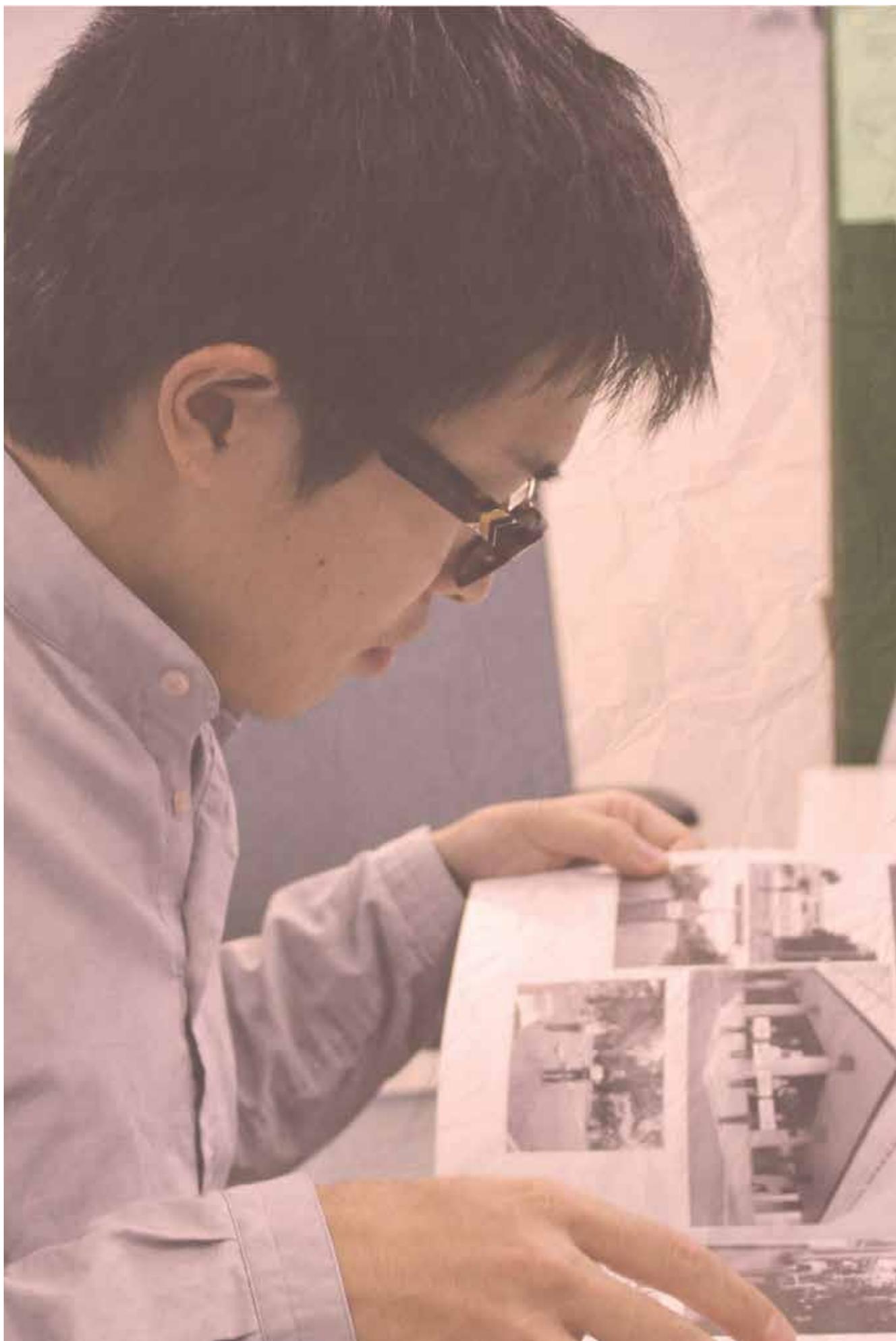
104. Roeland Lagendijk interview.



105. Rob van Reijn and his wife.



106. Technical details explanation.



07

CONCLUSIONS

& REFLECTIONS

CONCLUSIONS & REFLECTIONS

The goal of this project was to conceptualize an innovative way to present digital archives pertaining to the history of Amsterdam and develop a prototype for the same. Let's have a look at the key question again and divide this question into parts to address how they are achieved.

BRIEF

How to combine a marker (landmark) in public space (or better said a series of landmarks) and/or a physical object with each other to use digital history information and current situation, which can be blended into an interactive medium.

How to combine a marker (landmark) in the public space (or better said a series of landmarks) AND a physical object with each other

The landmark in public space has been developed as an installation in the form of a big book on the street. This installation is designed to be appealing by its form, size and choice of colors. It also provides context of an information source by virtue of its shape as a big, open book. The planned pilot location is in front of the Royal Theater Carré.

And an interactive information carrier

In this case, the experience provided by the installation can also be accessed via a local wireless network on mobile phones.

An interactive medium

The user can interact physically by manipulating and viewing the physical installation. At the same time, a very similar interface is also provided on the mobile phone taking advantages of the natural and novel interactions provided by modern devices.

Use digital history information and current reality situation

Historical information is used for contents of the installation and mobile platform. This information is obtained from various archives in the Netherlands, which are also the partners in this project. This information is meshed with the current realities by overlaying it on top of the modern day map of Amsterdam to provide a logical bridge.

“Blending Amsterdam Reality”

With this project “Blending Amsterdam Reality” we aim to give the people, tourists and locals alike, a new and innovative way to explore and discover the city.

All our information draws on the research from third parties as well as first-hand information gathered by our own research done in the 20 weeks of this project. In the course of the project, we have tried to satisfy every requirement and constraint presented, in terms of target audience, assigner requirements, team aspirations, technical feasibility, fabrication and time constraints in a more or less utopian way to satisfy all sides.

More facts, insights and information can be read at the website and blog.

[Website | BlendingAmsterdam.nl](http://BlendingAmsterdam.nl)
[Blog | medialab.hva.nl/gemeenteamsterdam](http://medialab.hva.nl/gemeenteamsterdam)

At the end, we hope to continue to get involved in the implementing and production phase of Blending Amsterdam Reality, in which we have been very busy for five months, working full time, and we are strongly believe this will be successful.

Blending Amsterdam Reality Team

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PICTURE INDEX

01. Map installation at Amsterdam Museum
02. Blending Amsterdam Reality at FABLAB
03. First assigner meeting, September 2012.
04. Brainstorming group session.
05. Mindmap table.
06. MediaLAB logo.
07. Wiseguys logo.
08. Stadsteel Centrum logo.
09. Stadsarchief logo.
10. Beeld en Geluid logo.
11. Oneindig Noord-Holland logo.
12. Carré logo.
13. UNESCO logo.
14. Rob Van Reijn logo.
15. Starting Point logo.
15. Data research session.
16. Desk research.
17. Bas Leurs methodology.
18. MoSCoW table methodology.
19. Stakeholders presentation.
20. Concept sessions.
21. Meeting with assigners.
22. Opening studio HvA.
23. Brainstorming mindmap.
24. Interviews layout sketch.
25. Facebook defence wall page.
26. Facebook timeline.
27. Research paper document, making of.
28. Table of needs.
29. Customer journey, making of.
30. Berlin walk of fame.
31. Berlin walk of fame, pillars.
32. Berlin walk of fame, augmented reality.
33. Leidseplein urban screen.
34. Leidseplein urban screen.
35. Leidseplein city theater.
36. Tillburg city viewers website.
37. Tillburg city viewers website.
38. Tripadvisor app screenshots.
39. Layar app screenshots.
40. Historypin app screenshots.
41. Target groups.
42. Typical tourist.
43. Amsterdam population (2010).
44. Perception of the city by locals.

45. Categories.
46. Maslow pyramid for needs of locals.
47. Typical outdoor activities.
48. Tourist nationalities (2010).
49. Why people visits Amsterdam (ATCB, 2012).
- 50-51-52-53. Users interviews.
54. Albert Cuyp market, october 2012.
55. Interviews summary.
56. Analogic and digital.
57. Concept # 1.
58. Concept # 2.
59. Concept # 3.
60. Creative process flux.
- 61-62-63-64. Concept sketches and storyboards.
65. Technical drawing sketch.
66. Arduino Leonardo.
67. Peggy2 LED matrix board.
68. RaspberryPi.
69. Mobile app version.
70. 3G connection statistics.
71. Operative system installed on users devices.
72. Wi - Fi logo.
73. GPS logo.
74. Microsoft Kinect.
75. Augmented reality on a mobile device.
76. Rob van Reijn Bolwerk stone.
77. Oudnederlandse vesngstelsel system.
78. Muiderpoort (1987).
79. Amstel Hotel (1870).
80. Amstel Hotel now.
81. Hermitage museum now.
82. Windmill the Bul.
83. Leidseplein (1862).
84. Carré theater (1961).
85. Muiderpoort now.
86. Layar logo.
87. Historypin logo.
88. Tripadvisor logo.
89. Oneindig website screenshot.
89. Oneindig website homepage.
90. Carré theater now.
91. Funenpark now.
92. Scheepvaartmuseum now.
93. Touchscreen setup.
94. Peggy2 board LED soldering.
95. 1:20 study model.
96. Gluing sections.

97. Assembling prototype components.
98. Styrofoam Prototype.
99. Gijs Gootjes presentation.
100. Blending Amsterdam Reality exposition.
101. Blending Amsterdam Reality exposition.
102. Blending Amsterdam Reality team.
103. Kees Bes interview.
104. Roeland Lagendijk interview.
105. Rob van Reijn and his wife.
106. Technical details explanation.
107. Installation map interface

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ASSIGNMENT:

How can we blend Urban Amsterdam History into reality in public space using interactive new media?

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USED SOFTWARE:

Adobe InDesign, Adobe Illustrator, Adobe After Effects, Adobe Photoshop, Blender, Prezi, Oneindig Noord-Holland API, PHP, MySQL, Raspbian, Arduino, nginx



107. Installation map interface

BLENDING AMSTERDAM REALITY

The background of the entire page is a stylized, light blue map of Amsterdam. The map features a complex network of white lines representing streets and canals, set against a light blue background. The map is centered and covers the entire area, providing a geographical context for the text.

Amsterdam has a lot of exceptional sights, history and heritage. These little-known gems are just waiting to be unlocked and (re) discovered, by tourists and locals alike. This project hopes to achieve just this by providing a physical interface to discover the digital archives of Amsterdam.

**“BLENDING AMSTERDAM REALITY”
IS AN INTERACTIVE PLATFORM
TO EXPLORE AMSTERDAM
THROUGH SPACE AND TIME.**

It blends mobile content with physical activation to provide the user a memorable experience of urban history using innovative storytelling techniques.