

# Report: Project Studio Smart Society

## Delft Heritage - AR in your pocket



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# Sprint 0

## Strategic Intake & Research

After getting the assignment from the client, we discussed the tasks that we needed to start the project with.

These were the tasks, in order of execution:

- Create a style guide with the client.
- Prepare and, later, conduct interviews with tourists in Delft.
- Make a survey about tourists' habits
- Research existing tour guides.
- Create the information architecture for the app.
- Start wireframing the first basic features of the application (homepage, map, information page)
- Create a backlog spreadsheet to share with the client.

## Product Vision

The vision for our product was to facilitate the exploration and discovery of Delft's heritage sites for tourists through an Augmented Reality (AR) application.

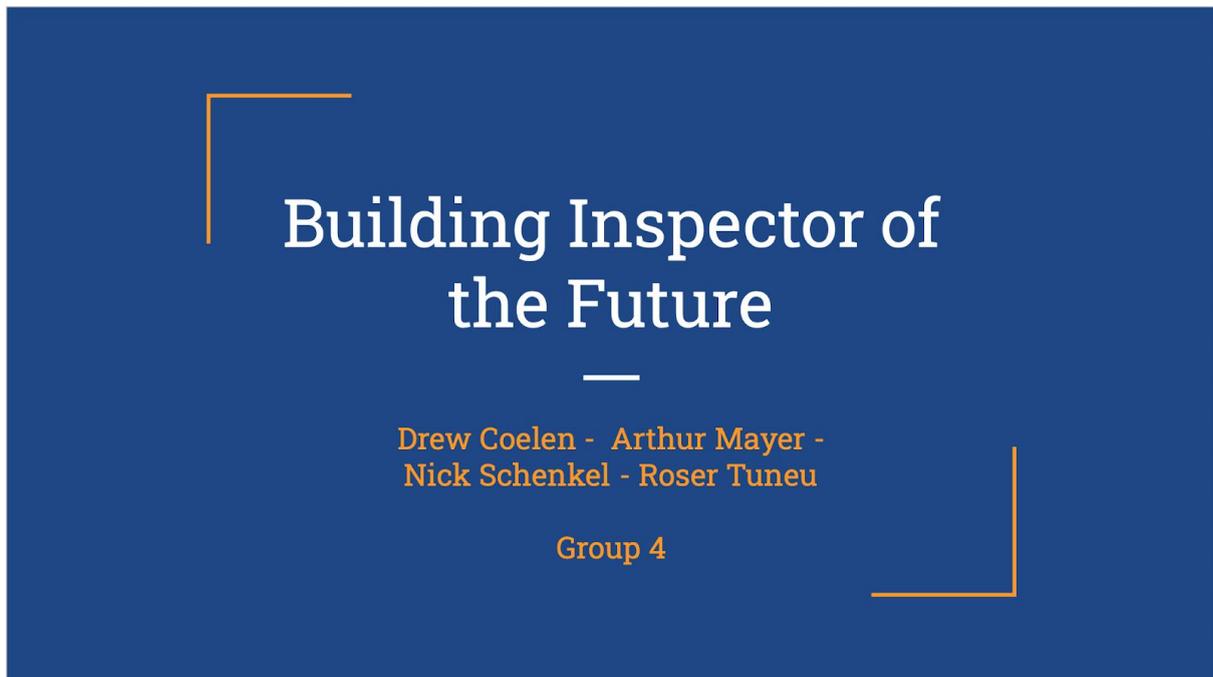
## Design Concepts

The initial concept was a phone application that acted as an augmented reality tour guide through Delft's heritage, providing different set routes and narratives.

## Pitch Deck

### Building Inspector of the Future

The concept we had for this particular case would be to create an optimised checklist system that allowed access for all necessary stakeholders, thus limiting bureaucracy and making Building Inspector's work processes simpler.

A dark blue slide with white and orange text. The title 'Building Inspector of the Future' is centered in a large white serif font. Below it is a thin white horizontal line. The names 'Drew Coelen - Arthur Mayer - Nick Schenkel - Roser Tuneu' are listed in orange sans-serif font. Below the names is 'Group 4' in orange sans-serif font. There are orange L-shaped corner brackets in the top-left and bottom-right corners.

# Building Inspector of the Future

Drew Coelen - Arthur Mayer -  
Nick Schenkel - Roser Tuneu

Group 4

## Research Opportunities

- Interviews
  - Inspector
  - Construction Companies
- Similar applications
  - What is already on the market?
  - What is working well?

## Main Direction

- Phone application
  - Communication app
  - Connection of the stakeholders
    - Inspectors / contractors
- Immediate action taking
  - Taking pictures/ videos
  - Taking notes
  - Sharing relevant information
- Maps and checklists related to protocols testing
  - Blueprints
  - Necessary data



Thank you for your time!  
Any questions?

## Digital Twin of Delft

This was our initial first choice as a case to work on. We drew heavy inspiration from video games, particularly the game city skylines, as well as existing digital twins like that of the city-state of Singapore.

# Digital Twin of Delft

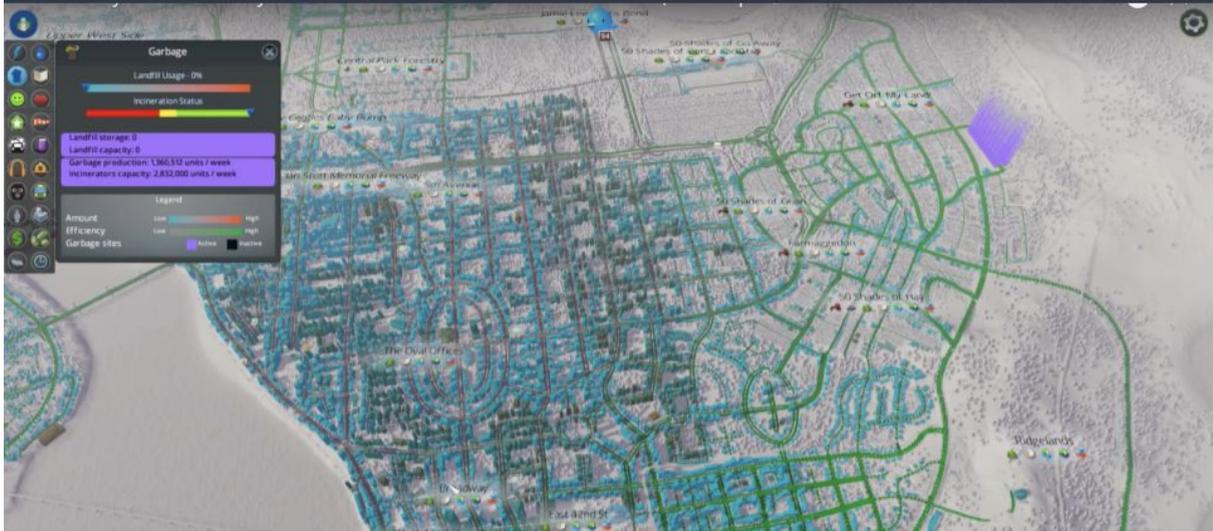
Drew Coelen - Arthur Mayer - Nick Schenkel - Roser Tuneu

Group 4

## Inspiration



# Inspiration



## Research opportunities

### Online Research

- Digital twin creation technologies
- Existing digital twins
- Data points
- Game design

### Interviewing

- City professionals (inventorising their needs)
- Gamers

# Main Direction

- 3D digital model with toggleable data flows.
- Attractive interface
- Efficient visualisation of the city

## Other proposals

- Relevant data research
- Set-up protocol for keeping the twin up to date

Thank you  
for your time

## Delft Heritage

This was another preferred assignment. Though the focus initially was on creating a way for property developers to retrieve data from the Delft municipal archives in order to cut-down the time necessary to research the feasibility of development projects, we added in another component. This component of utilising AR to take a look at history became our unique selling point as a team, and led to the client shifting the focus from an application for property developers to an application for tourists.

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# Delft Heritage

Drew Coelen - Arthur Mayer - Nick Schenkel - Roser Tuneu

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## Research opportunities

- Interviews
    - Designers and architects
    - Residents of the city of Delft
    - Tourists
  - Similar applications
  - The archives themselves
-

---

## Main direction

- Intuitive search system
- Utilising Google Maps API
- AR environment

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## Inspiration

The Night Sky application allows users to view the night sky with AR.



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## Other proposals and notes

- Special “tourist mode”
    - Story mode to tour the city
  - Design principle: Match the real world
  - What will the research reveal?
- 

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Thank you  
for your time

## Practical Agreements & Roles

To work better together and maximise our potential as a group, we divided roles and made several agreements:

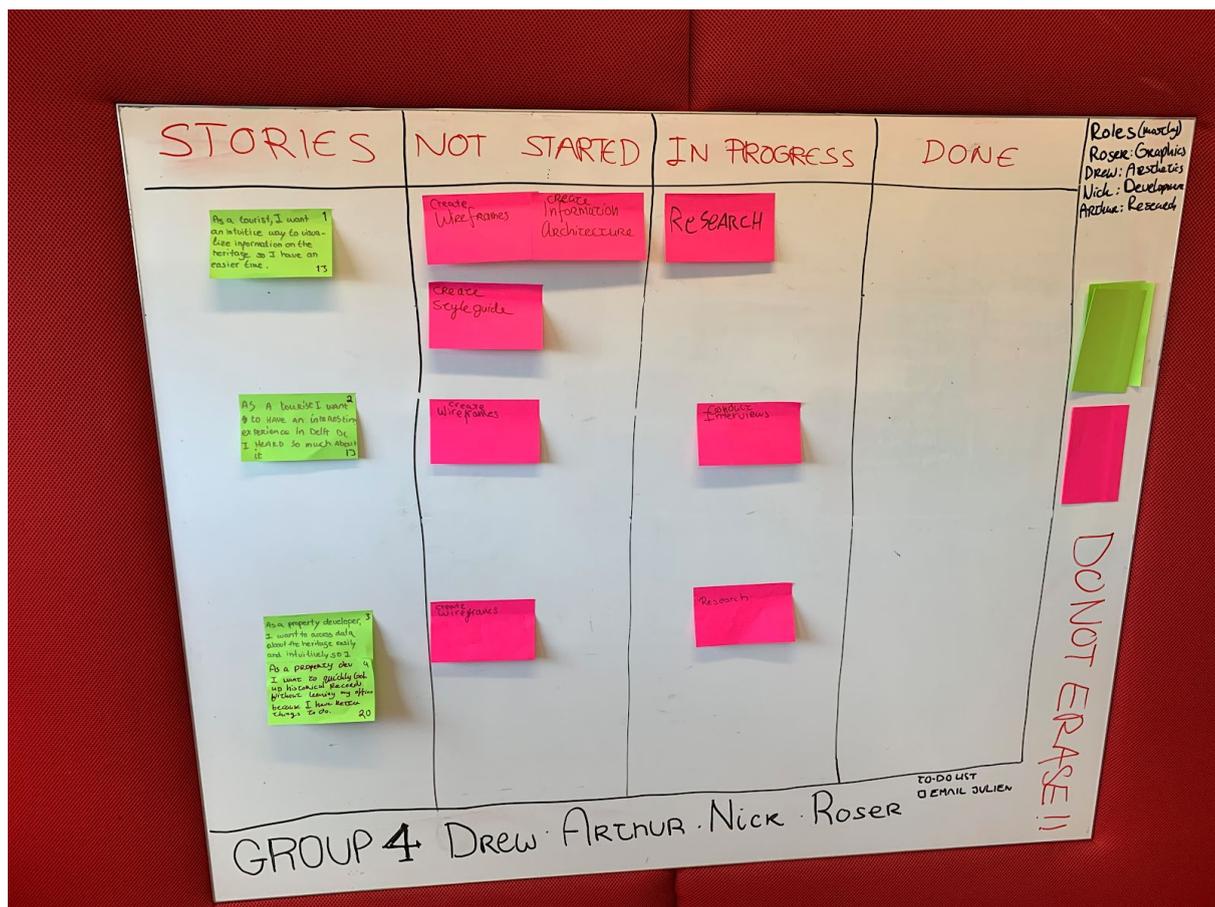
- Nick would preferably take care of the development of the product.
- Arthur would preferably take care of the research.
- Drew would preferably take care of the aesthetics.
- Roser would preferably take care of the graphics.
- If someone cannot come to class or a meeting, they must let the group know beforehand.
- Though not formalised, practically, communications should occur via the messenger group chat.

# Sprint 1

## Definition of Done

One of our first pitfalls as a team was not having a clear Definition of Done. We believed, perhaps naively, that we would be able to manage the project without having agreed upon one. This simply was not communicated within the group. We had a loose idea of where we wanted to go.

## Scrum room setup



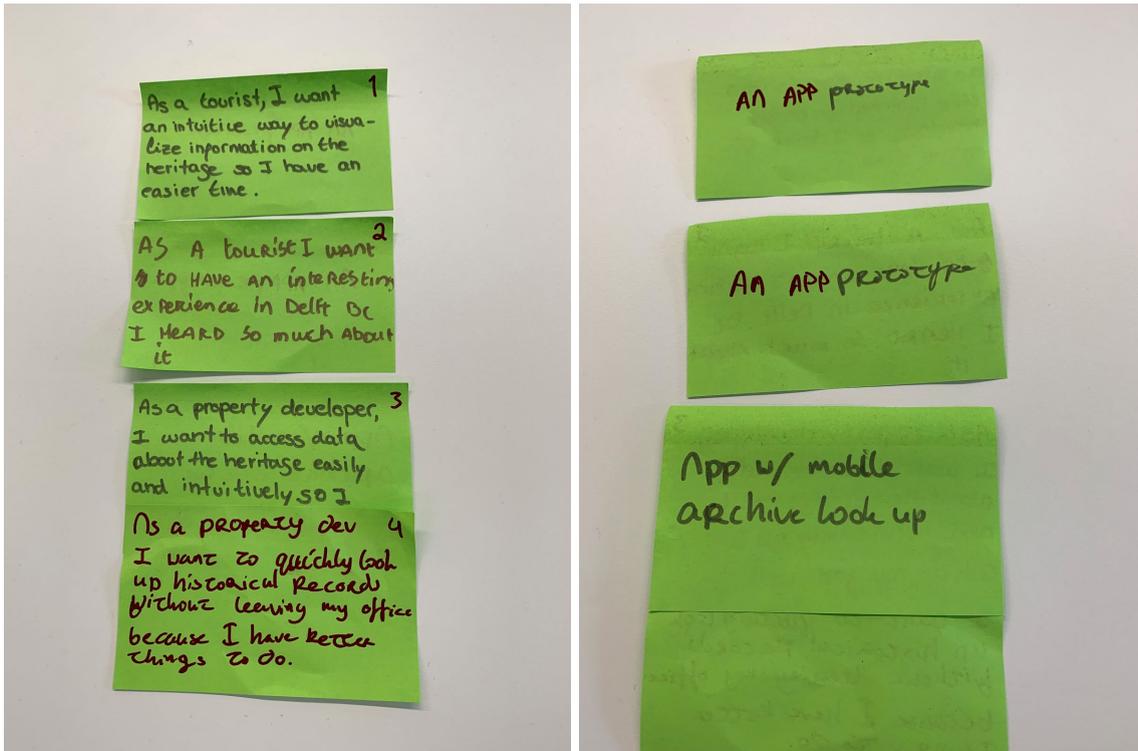
We additionally had a digital scrum board running in tandem on Trello in case of us losing the analogue one.

## Sprint scope estimate

The sprint scope estimate for the first sprint was very ambitious, at a total of **46 points**.

## Product Backlog

Our product backlog on the scrum board was as followed. In hindsight, these were rather vague definitions and should have been broken down into smaller components.



## Sprint goal

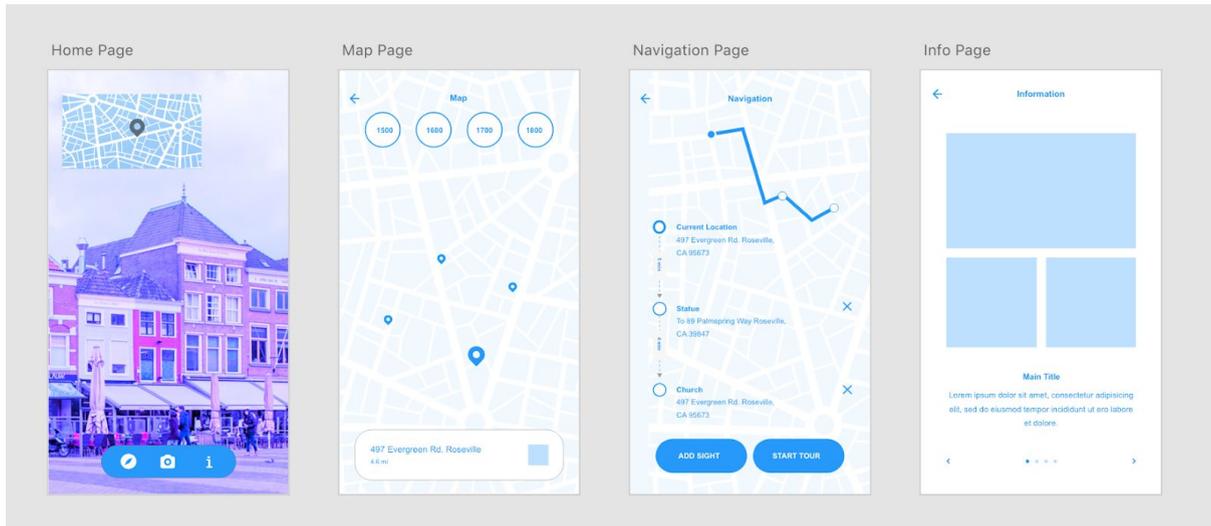
Our main goals were to have:

- A rough experiential prototype of the application or some wireframes to show the client
- A style tile to use for the application
- Conducted user interviews in order to get a better understanding of the direction of the application

# Sprint outcome, experiential prototype, and research

## Wireframes, application prototype

The application prototype was very minimal to start with. We did not have an information architecture at the time to guide the process of building the application prototype.



# Style tiles

## Delft Heritage - Tour guide in your pocket

Delft Heritage is an application for those who wish to tour the city of Delft.

With this application, you can tour the city, get discounts on various cafés and restaurants, and maybe learn a few new things along the way.

### Buttons



### Palette



### Graphics



## Delft Heritage - Tour guide in your pocket

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### Buttons



### Palette



### Graphics



After deliberation with the client we settled on the following style tile.

## Delft Heritage - Tour guide in your pocket

Delft Heritage is an application for those who wish to tour the city of Delft.

With this application, you can tour the city, get discounts on various cafés and restaurants, and maybe learn a few new things along the way.

### Buttons



### Palette



### Graphics



## Interview notes and survey results

We took notes from our interviews around Delft to learn about the users' perspectives.

### Person working at windmill

- There's a lot of tourists these days
- Keeps increasing

### 2 french tourists +/- 45 years old

- They enjoyed the area a lot
- Staying in Scheveningen, getting here with the tram
- Like the "local experiences"
- Found out through friends about Delft
- Like to explore by just walking around unguided
- Would not be interested in an application or AR

### 2 eastern european tourists

- High expectations from the internet and colleagues
- Expectations were met
- They would not be interested in an application
- They liked cities in france a lot because of their atmosphere

### 2 New Zealanders +/- 30 years old

- No initial expectations
- Family is source of information
- Respond positively to the idea of an augmented reality application
- Like walking tours
- Interacting with locals makes a trip meaningful
- Meaningful trip to York, location of accommodation is important

### 2 Spaniards (Galicians) +/- 30 years old

- Impression of Delft: Mini amsterdam, small village with pretty canals

- Expectations of Delft were certainly met
- Main sources of information: Google, tourist information centre
- Interested in the app
- Value the cohesiveness of the experience I.e: Paris is not cohesive, zones change a lot
- Impression of other european cities: Prague is small and pretty

## Online survey results

Click the link below to see the outcomes of the survey we conducted.

[https://docs.google.com/spreadsheets/d/1HYrtQuaTx-eUp3be0uPP3uw\\_DntStA\\_vdO1excZF3BA/edit#gid=1967500786](https://docs.google.com/spreadsheets/d/1HYrtQuaTx-eUp3be0uPP3uw_DntStA_vdO1excZF3BA/edit#gid=1967500786)

## Debrief to client

The main issue that came about in the first demo was the lack of productivity. Despite our enthusiasm, the results that came about were not satisfactory in terms of quantity. Additionally, we had plans to create a user persona. This was shot down rather quickly, as that fit a waterfall approach better than a scrum model. So we decided to let that idea go and focus on simultaneously researching, designing, and prototyping at the same time.

## Prioritised product backlog

Our product backlog system was one that worked rather well, despite our other issues with working in scrum. We put together a Google Spreadsheet in which the client could rank the user stories according to their preferences. That way we could immediately see the priorities and the client would be able to change them whenever they liked.

User story	Product	Weight (fibonacci scale)	Priority (1-10 scale)
As a tourist, I want an intuitive way to visualise information on Delft's heritage, so I have an easier time (finding things)	An app prototype	13	1
As a tourist I want to have an interesting time in Delft, because I heard so much about it	An app prototype	13	2
As a tourist, I want to quickly learn as much as possible about Delft, because I have limited time here	Narrative (written information/storyline)	3	3
As a young backpacker/traveller, I want a cheaper way to discover a city because I'm poor	Gamify	1	6
As a travelling business person, I want to have a quick look around the city I'm in bc I have limited time	An app prototype	8	7
As a tourist, I want to navigate info about Delft's heritage without wasting time so I can explore more	An app prototype	20	5
As a tourist, I want to get notified when I'm near an important place, building, or monument so I don't miss the chance of learning about	An app prototype	1	4

## Burndown chart

We honestly slacked on maintaining our burndown chart for the first sprint. We only successfully made one in the third sprint.

## Retrospective report



To summarise:

What went well?

- Communication with the client and prioritisation
- Style
- Adapting to the client's needs
- Deadlines
- Group enthusiasm
- Real world data

What could go better?

- Product presented was lacking
- Explaining design choices to the client

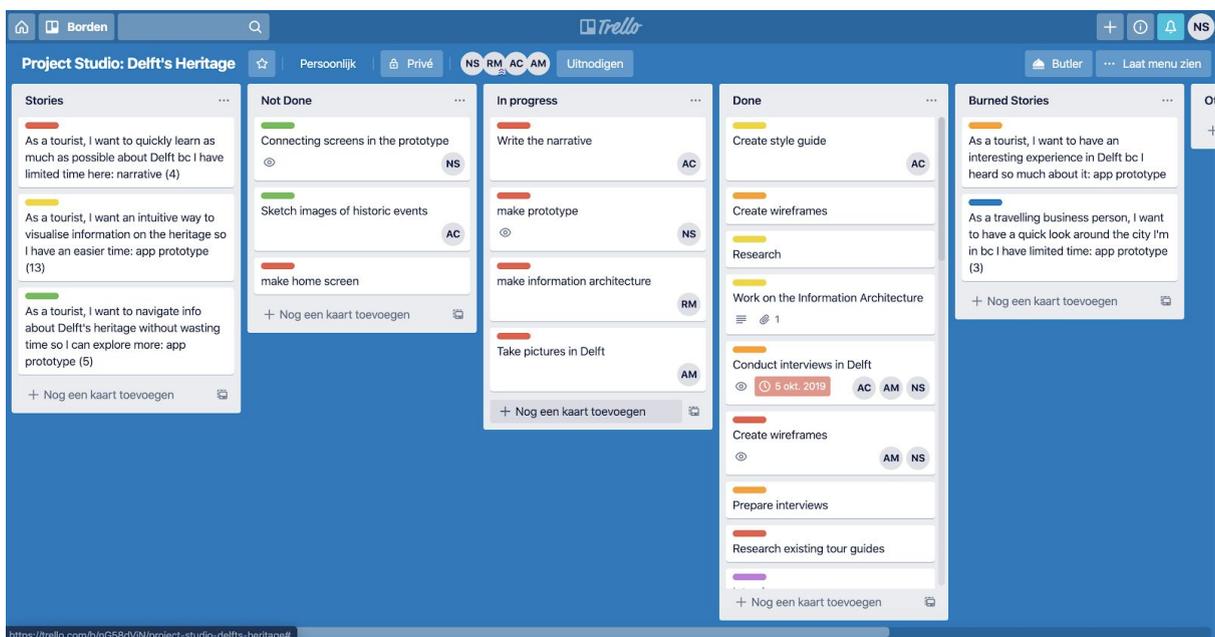
- Speed and burning stories faster
- Task load division
- Scheduling a real life meeting

# Sprint 2

## Definition of Done

Our definition of done for this sprint consisted of one deliverable consisting of multiple parts that needed work. Our “done” was an Adobe XD prototype that included a showcase of how our AR feature would work, it included an interface that took you through a guided tour. Also the application had to show some kind of map interface at the very least. The guided tour had to be a written-out story that included a history lesson with information provided to us by the municipality of Delft.

## Scrum room setup



At this point in time, our physical scrum board had been erased multiple times, therefore we decided to go completely digital. This screenshot represents the beginning of the second sprint. This Scrum set-up went a lot better than the first, we did consistent stand-ups every meeting and added a lot more detailed tasks throughout the sprint, making our progress a lot more clear to us while working. Also, because we went full digital, everything was visualised a lot better, post-its would not fall off the board anymore, etc.

## Sprint scope estimate

The sprint scope estimate for this sprint was a little less than the previous one, where we were a little too optimistic. It consisted of **22 points**.

## Product backlog

User story	Product
As a tourist, I want an intuitive way to visualise information on Delft's heritage, so I have an easier time (finding things)	An app prototype
As a tourist I want to have an interesting time in Delft, because I heard so much about it	An app prototype
As a tourist, I want to quickly learn as much as possible about Delft, because I have limited time here	Narrative (written information/storyline)
As a young backpacker/traveller, I want a cheaper way to discover a city because I'm poor	Gamify
As a travelling business person, I want to have a quick look around the city I'm in bc I have limited time	An app prototype
As a tourist, I want to navigate info about Delft's heritage without wasting time so I can explore more	An app prototype
As a tourist, I want to get notified when I'm near an important place, building, or monument so I don't miss the chance of learning about it	An app prototype
As a tourist, I want to be able to see info about Delft on my phone, because I care about the environment and don't want a pamphlet	Paper free solution
As an athlete/runner, I want to see beautiful things as I run, because it's a good motivator to go outside	Scenic/park route planning
As a social media star, I want a quick way to share content (videos, photos), because my instagram is my life	Share options incorporated
As a tourist I want to be notified about any interesting happenings close to me because I hate missing out on fun activities	Event notifications
As a tourist I want to be properly immersed in the story, because an immersive story is more memorable	Music
As a tourist I want to have an experience close to the locals, because that makes the experience authentic	Local tips section
As a tourist, I want to have the option to customise as much as possible in the app and the information/story presented, so it matches my needs	Customisation for app and story

At this point in time, this was our product backlog, we redid it all so that the user stories were very clearly described, however the “product” section could have been a little more specifically described.

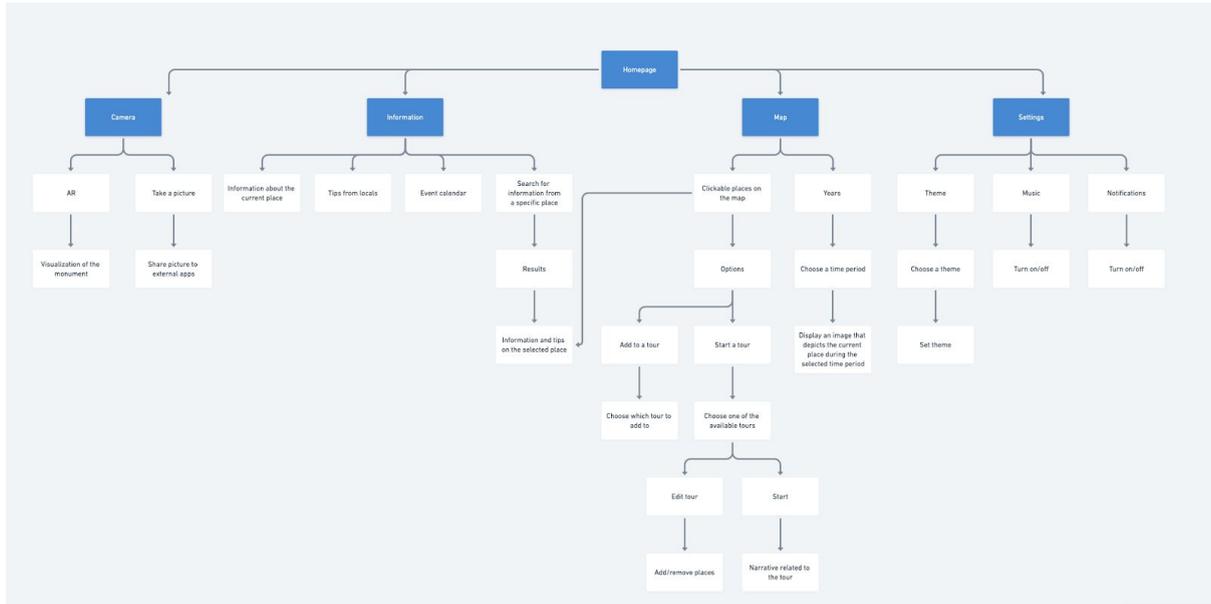
## Sprint goal

Our goals were:

- To showcase our idea of how the AR would look
- To have a prototype that worked as close to a real application as possible
- To have a guided tour planned out and included in the app

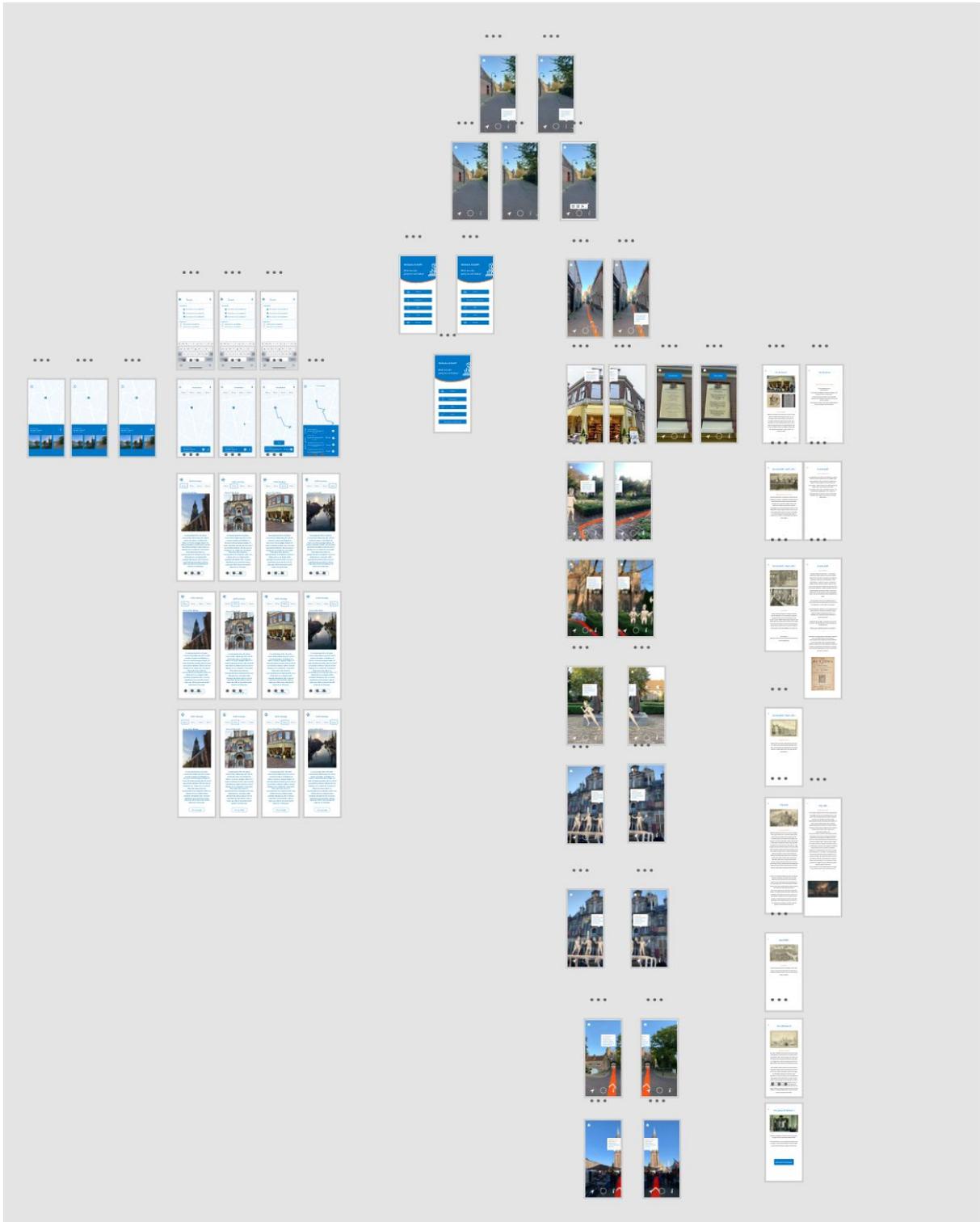
# Sprint outcomes, experiential prototype, and research

## Information architecture



This is the Information Architecture that Roser created and that the prototype was based on.

# Application prototype



This is the complete prototype Nick made in Adobe XD



## City Hall



### Locked up and trial

Gerards was kept as a prisoner in prison "De Steen", which was located in the current City Hall of Delft.

During these four days he was heavily tortured.

On the first night of his imprisonment Gérard was hung on a pole and lashed with a whip. After that his wounds were smeared with honey and a goat was brought to lick the honey off his skin with his rough tongue. The goat however refused to touch the body of the sentenced. After this and other torture, he was left to pass the night with his hands and feet bound together, like a ball, so sleep would be difficult.

During the following three days, he was repeatedly mocked and hung on a pole with his hands tied behind his back. Then a weight of 300 metric pounds (150 kg) was attached to each of his big toes for half an hour. After this half hour Gérard was fitted with shoes made of well-oiled, uncured dog skin; the shoes were two fingers shorter than his



removed, his half-broiled skin was torn off. After his feet were damaged, his armpits were branded.

After that he was dressed in a shirt soaked in alcohol. Then burning bacon fat was poured over him and sharp nails were stuck between the flesh and the nails of his hands and feet. Gérard is said to have remained calm during his torture.

At his trial, Gerards was sentenced to be brutally killed. The magistrates decreed that the right hand of Gerards should be burned off with a red-hot iron, that his flesh should be torn from his bones with pincers in six different places, that he should be quartered and disemboweled alive, his heart torn from his bosom and flung in his face, and that, finally, his head should be taken off.



## City Hall

### General Information

The City Hall in Delft is a Renaissance style building on the Markt across from the Nieuwe Kerk. It is the seat of the city's government as well as a popular venue for civic wedding ceremonies. Most administrative functions have been transferred to an office inside the Delft railway station building. Originally designed by the Dutch architect Hendrick de Keyser, it was heavily changed over the centuries and was restored in the 20th century to its Renaissance appearance.

In the town hall from 1618 are some group portraits, and portraits of the counts of Orange and Nassau, including several by Michiel van Mierevelt (1567–1641), one of the earliest Dutch portrait painters, and with his son Pieter (1595–1623), a native of Delft.

The oldest part of the complex is the belfry covered in "Gobertanger" limestone from Wallonia, a building material used often in important renaissance buildings in the Netherlands up to 1600. The tower, called "De Steen" or "The Stone", was originally built around 1300 and has decorative clockfaces from 1536 and the bells were made by Hendrick van Trier and Francois Hemony. The facade has a "Justitia" statue. Under the tower is an old city prison where the assassin of Willem the Silent, Balthasar Gérard, was kept before sentencing.

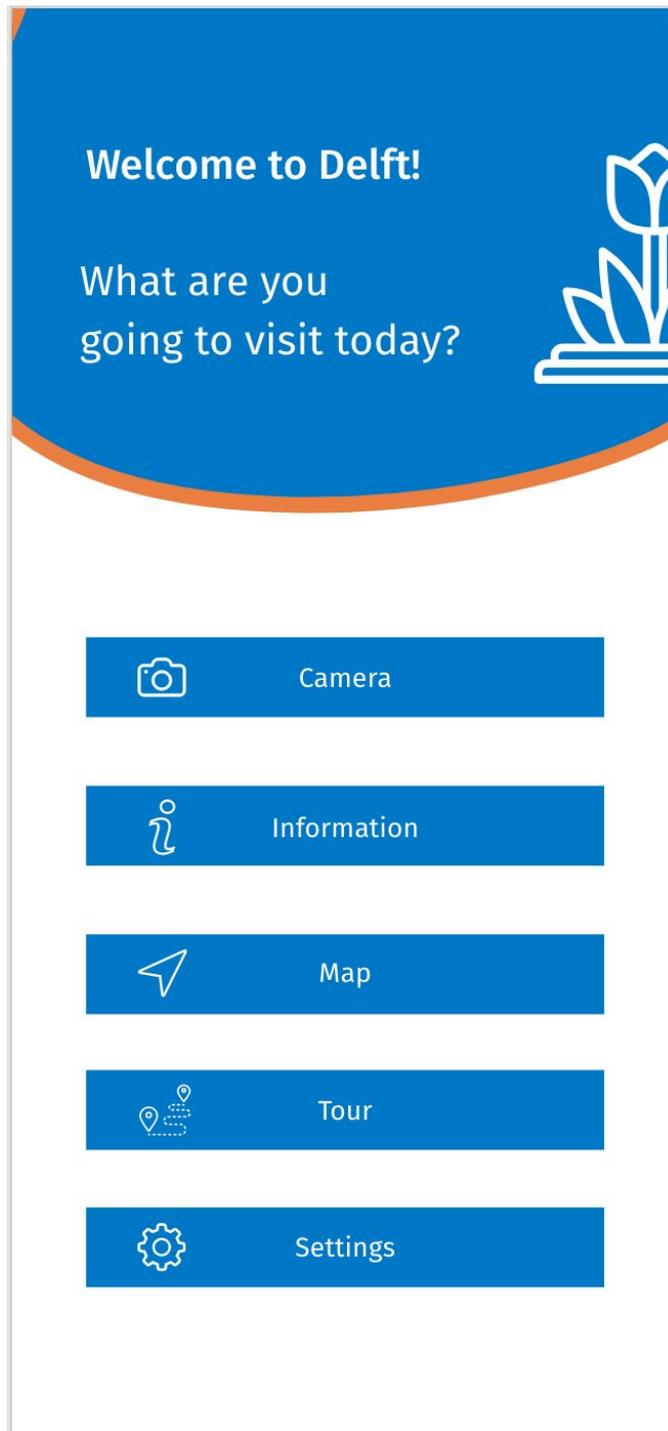
Up the stairway and immediately behind the heavy wooden entrance doors is the Vierschaar with a



This is an example of how the narrative was combined with general information about Delft in the tour.



This is an example how Arthur's photography was combined with Drew's illustrations to create the illusion of AR. These were used to create the AR experience in the app.



This is the Homepage Roser designed for the prototype.

## Debrief to client

This debrief went very well, we were proud of what we achieved this sprint and it showed in our presentation. We made sure that the prototype was showable on a phone that the client could hold in his hand which added to the experience. We think during this we showed the client how enthusiastic we are about this project and what we can achieve.

## Prioritised backlog

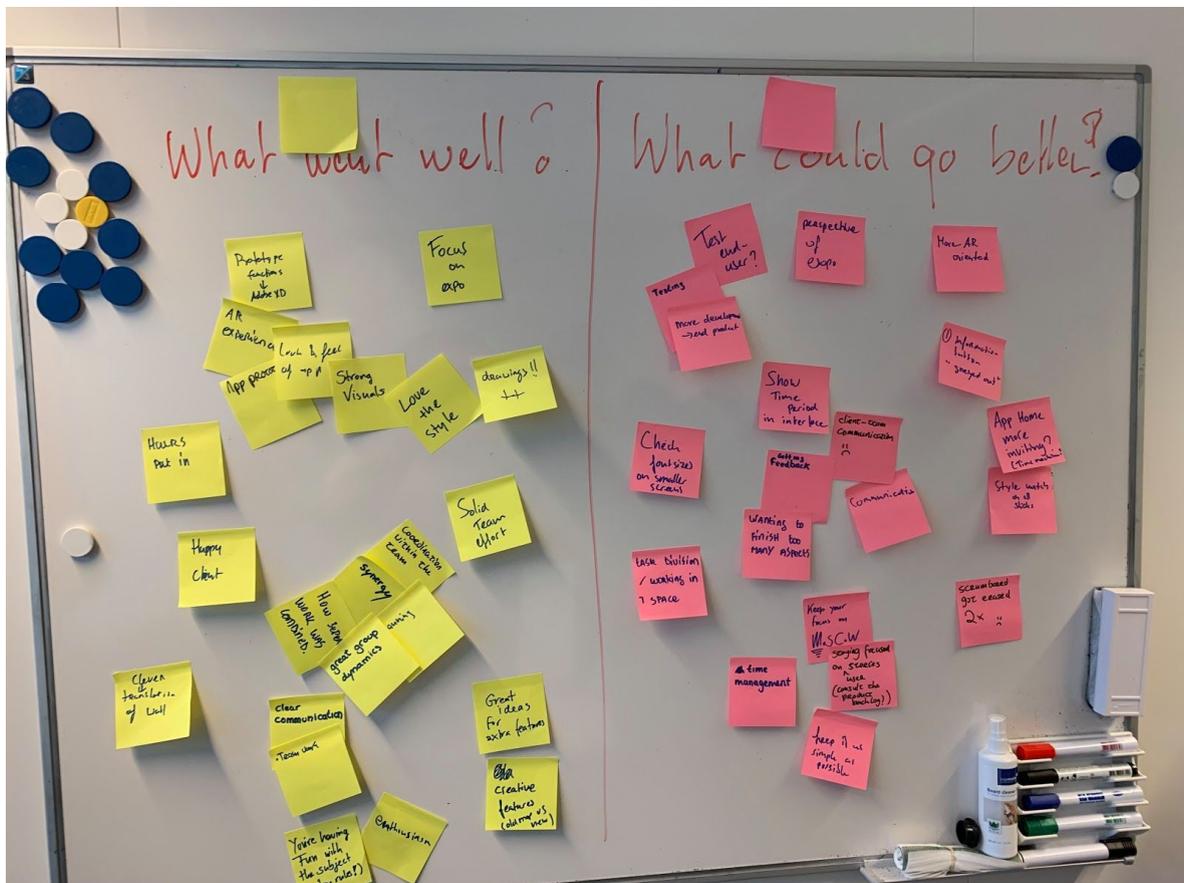
	A	B	C	D	E
	User story	Product	Weight (fibonacci scale)	Priority (1-10 scale)	Status
1	As a tourist, I want an intuitive way to visualise information on Delft's heritage, so I have an easier time (finding things)	An app prototype	13		Done
2	As a tourist I want to have an interesting time in Delft, because I heard so much about it	An app prototype	13		Done
3	As a tourist, I want to quickly learn as much as possible about Delft, because I have limited time here	Narrative (written information/storyline)	3		Done
4	As a young backpacker/traveller, I want a cheaper way to discover a city because I'm poor	Gamify	1	5	
5	As a travelling business person, I want to have a quick look around the city I'm in bc I have limited time	An app prototype	8	4	
6	As a tourist, I want to navigate info about Delft's heritage without wasting time so I can explore more	An app prototype	20	1	
7	As a tourist, I want to get notified when I'm near an important place, building, or monument so I don't miss the chance of learning about it	An app prototype	1		Done
8	As a tourist, I want to be able to see info about Delft on my phone, because I care about the environment and don't want a pamphlet	Paper free solution	0		Done
9	As an athlete/runner, I want to see beautiful things as I run, because it's a good motivator to go outside	Scenic/park route planning	2	9	
10	As a social media star, I want a quick way to share content (videos, photos), because my instagram is my life	Share options incorporated	1	8	In Progress
11	As a tourist I want to be notified about any interesting happenings close to me because I hate missing out on fun activities	Event notifications	2	2	
12	As a tourist I want to be properly immersed in the story, because an immersive story is more memorable	Music	5	3	
13	As a tourist I want to have an experience close to the locals, because that makes the experience authentic	Local tips section	3	7	
14	As a tourist, I want to have the option to customise as much as possible in the app and the information/story presented, so it matches my needs	Customisation for app and story	8	6	
15					
16					

The prioritised backlog was decided in collaboration with the client, The client had constant access to this document in Google Spreadsheets and therefore was aware of any change or addition we made and vice versa.

## Burndown chart

At this point in time, we still did not do a burndown chart, we believe this did make things a little unclear in terms of extrapolating how much we did over the course of the sprint. In hindsight, this is something we should have definitely been doing.

## Retrospective report



To summarise:

What went well?

- Good visuals in the prototype
- AR experience was nice
- Clear communication
- Enthusiasm
- Good team effort

What could go better?

- Testing with user
- Client to team communication
- Task division
- Focus on stories

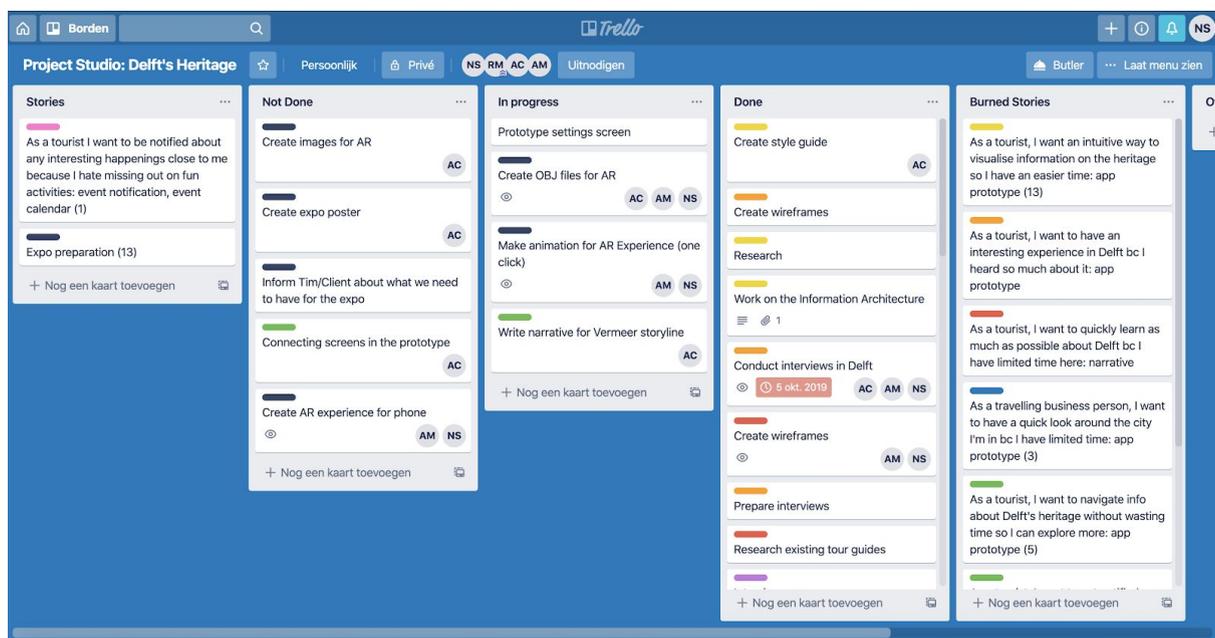
# Sprint 3

## Definition of Done

Our definition of done for this sprint focused mainly on the AR experiences and some smaller work which needed to be done to the already established application prototype. Our “done” for this sprint was a working AR program with a hand-drawn model by Drew and the map provided by the municipality acting as a marker for the camera recognition.

The application had to function seamlessly from a phone as an app, which had to be able to activate the camera function and as soon as the system recognises the marker, the 3D model appears on top of the marker. This was important because this served as proof of concept.

## Scrum room setup



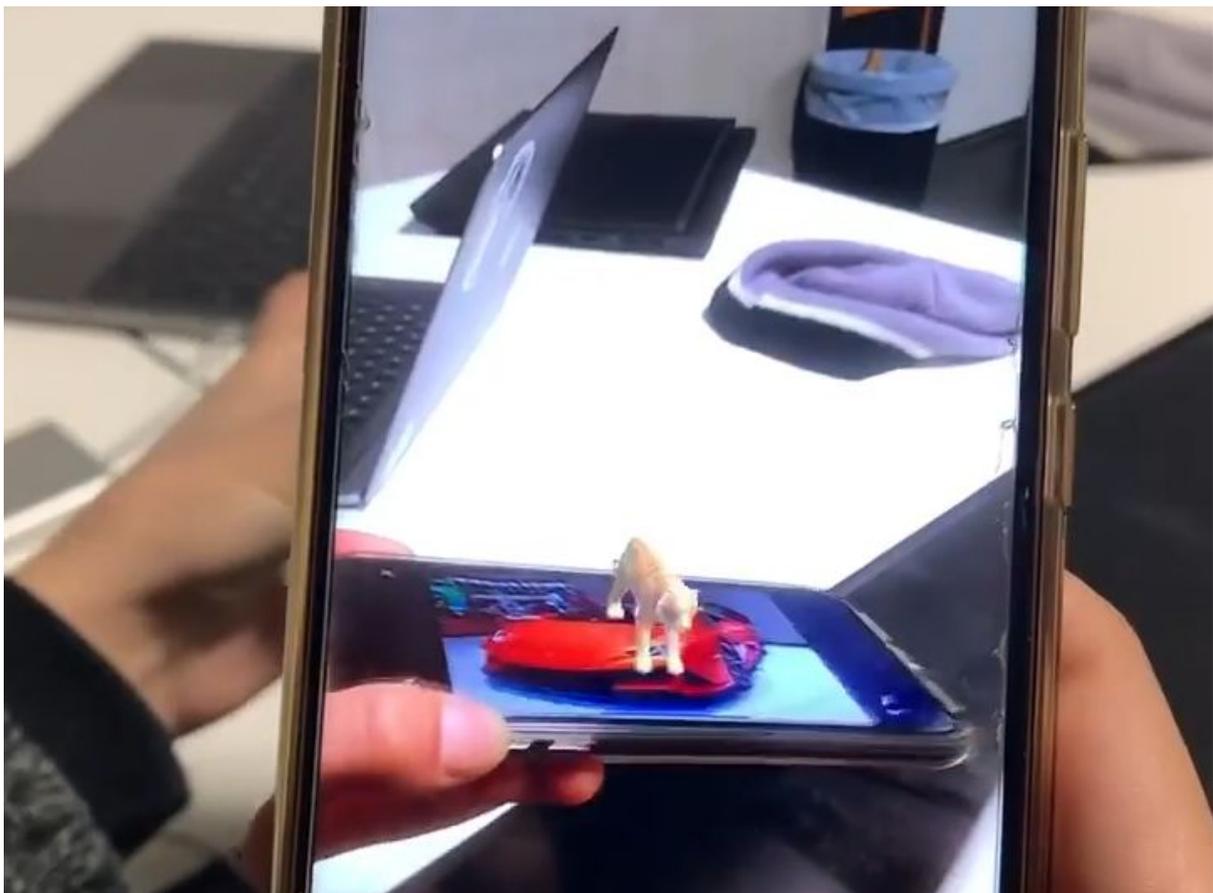
As mentioned before our scrum board was erased multiple times. By the time we got to the third sprint, everything what we were planning and doing on the scrum board was available online. This made monitoring progress a lot easier. This screenshot was taken a week before the expo, which also meant we had a limited amount of time to fix everything that we and the client wanted to. During this sprint we continued the stand-ups at the beginning of each meeting and handled the board accordingly.

## Sprint scope estimate

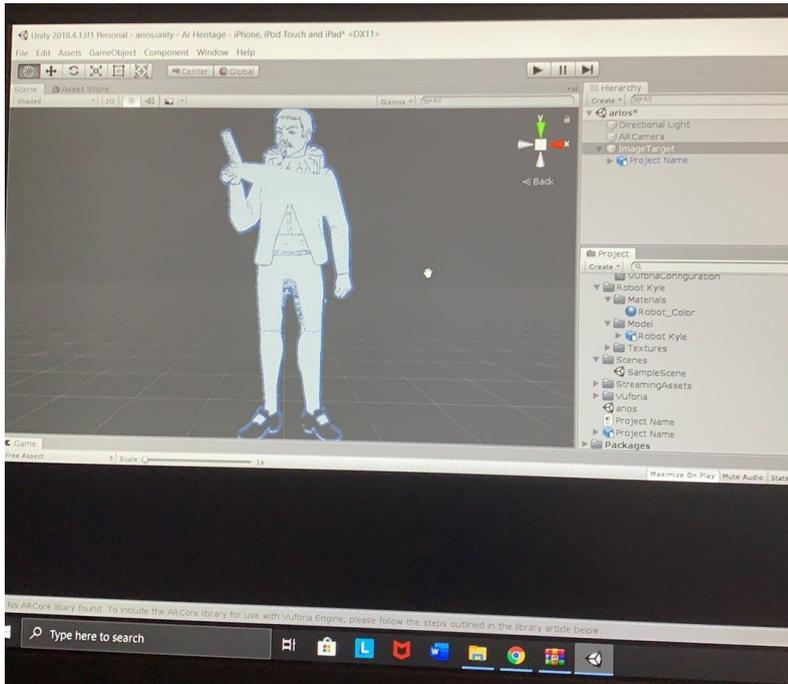
The sprint scope estimate for this sprint was way more than on the previous one, in order to catch up with all the deadlines. We were pretty rational about it and were still able to burn all the **35 points** which we set for ourselves.

## Sprint outcome and experiential prototype

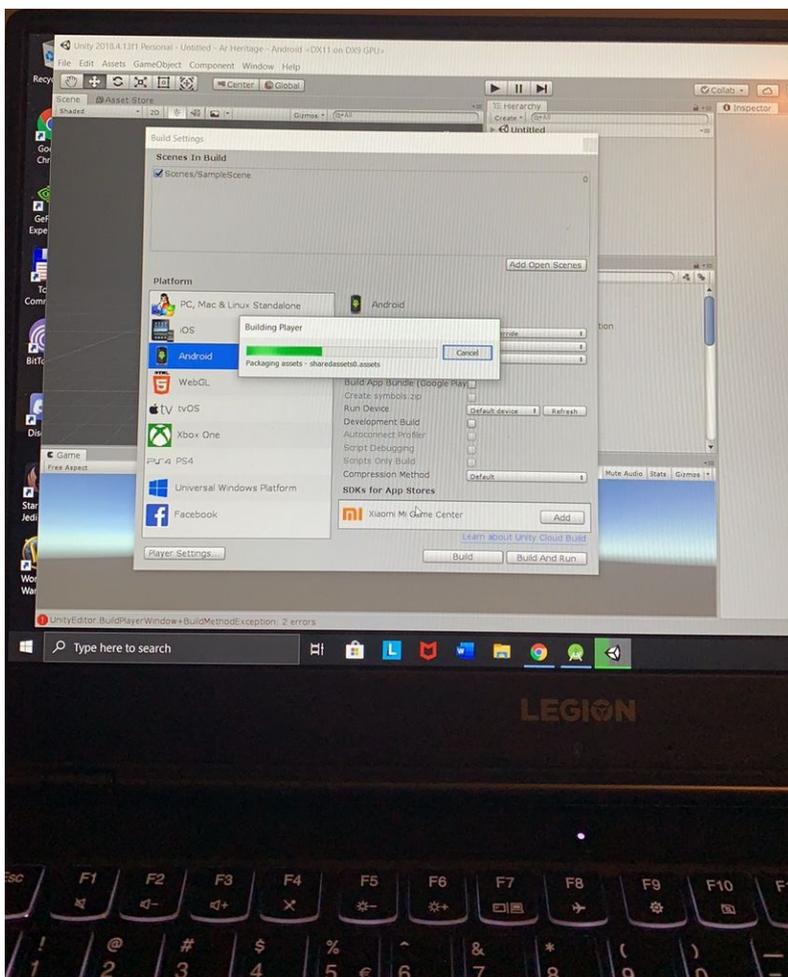
These were the prototypes presented to the client on the last demo and at the expo as well. The previously mentioned application prototype with the AR tour/story guide and the proof of concept: a real, working AR experience installed onto a tablet as an application can be seen below.



Aside from completing the story and tour guide application prototype, it was crucial to get a 3D model working from a phone. For this purpose we used a picture of a lamborghini and a 3D model of a tiger for testing purposes. This is what we presented as proof of concept during the client meeting.



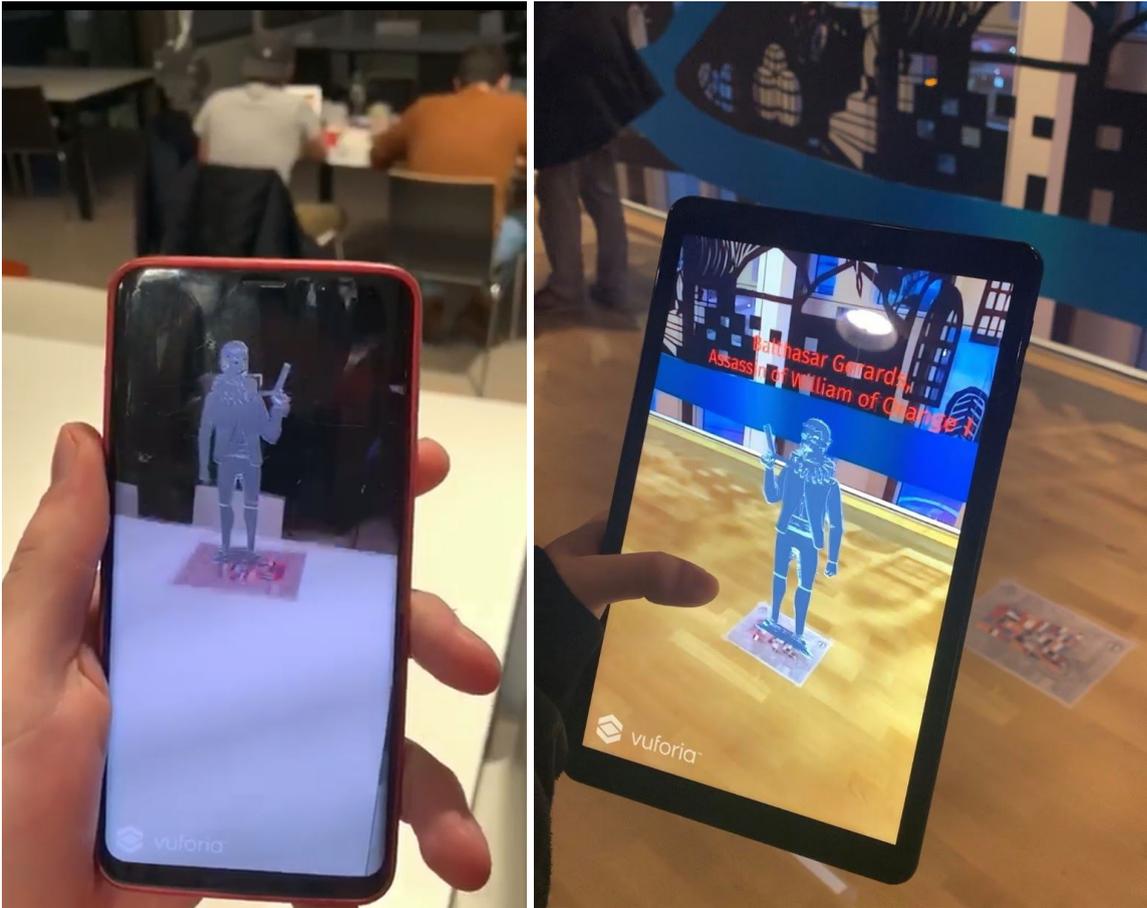
Model created by Drew,  
inserted into Unity by Arthur.



We created the AR  
experience using Vuforia and  
Unity. The previous tries were  
done in processing, sadly  
without any visual outcomes.



First, pictured up is the fully running AR with added text above (which seemed so easy, but only later). The lamborghini was still used as example marker.



The text would initially not show above the model, as seen on the top left here. So Arthur remade the whole process.

## Debrief to client

Compared to the previous two demos, the third one was a disaster. Murphy's law was truly in effect, as everything that could have gone poorly, went poorly. Before we could even start the presentation for the client, our application prototype malfunctioned and was not clickable. As such, we had to show to the client every screen of the prototype step by step, which took away all the satisfaction of a fully functioning concept.

At this point, we hoped we could salvage the demo by showing the example AR. The fact that we used a lamborghini as a marker, combined with the fact that the trial model we used was a tiger, came as quite a shock to our client and Tim. This double backlash lead to an unsatisfied client and a disappointed team. In their feedback they pointed out the key problems and recommended solutions to them. Their only concern was if we would be able to deliver a fully functioning application prototype and AR concept to the expo. In the end, we remedied the situations and the outcomes can be seen above.

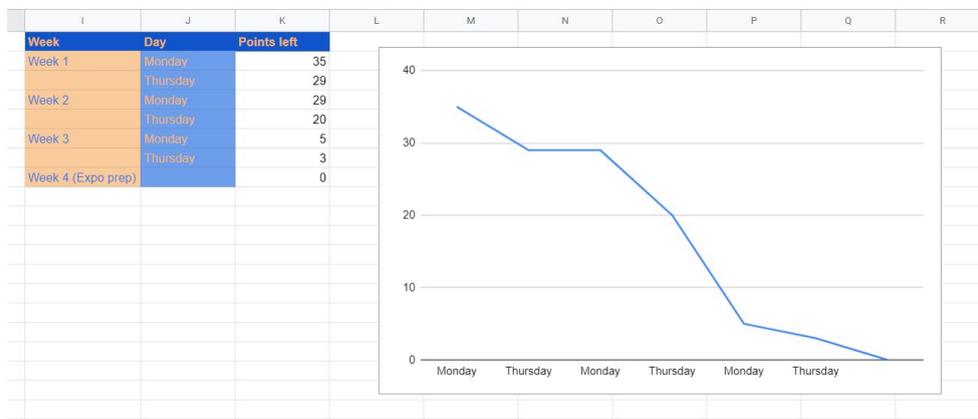
# Prioritised backlog

	A	B	C	D	E	F	G
	User story	Product	Weight (fibonacci scale)	Priority (1-10 scale)	Status	Specific articulation	
1	As a tourist, I want an intuitive way to visualise information on Delft's heritage, so I have an easier time (finding things)	An app prototype	13		Done		
2	As a tourist, I want to have an interesting time in Delft, because I heard so much about it	An app prototype	13		Done		
3	As a tourist, I want to quickly learn as much as possible about Delft, because I have limited time here	Narrative (written information/storyline)	3		Done		
4	As a young backpacker/traveller, I want a cheaper way to discover a city because I'm poor	Gamify	1	4		Potential discounts by using the application	
5	As a travelling business person, I want to have a quick look around the city I'm in bc I have limited time	An app prototype	8		Done		
6	As a tourist, I want to navigate info about Delft's heritage without wasting time so I can explore more	An app prototype	20	1	In Progress	Information database for sights listed in the app	
7	As a tourist, I want to get notified when I'm near an important place, building, or monument so I don't miss the chance of learning about it	An app prototype	1		Done		
8	As a tourist, I want to be able to see info about Delft on my phone, because I care about the environment and don't want a pamphlet	Paper free solution	0		Done		
9	As a social media star, I want a quick way to share content (videos, photos), because my instagram is my life	Share options incorporated	1		Done		
10	As a tourist, I want to be notified about any interesting happenings close to me because I hate missing out on fun activities	Event notifications	2	2	In Progress	Event notification, event calendar	
11	As a tourist, I want to be properly immersed in the story, because an immersive story is more memorable	Music	5		Done	Royalty free classical music	
12	As a tourist, I want to have the option to customise as much as possible in the app and the information/story presented, so it matches my needs	Customisation for app	8	3	In Progress	Darkmode	
13							
14							

The prioritised backlog was decided in collaboration with the client, The client had constant access to this document in Google Spreadsheets and therefore was aware of any change or addition we made. Although some things were not communicated clearly between our group and the client, the outcome exceeded the expectations.

# Burndown chart

Although in the previous sprints we did not maintain a burndown chart, we still managed to keep ourselves on track. However during those times there were definitely some chaotic moments. After setting up an automatically graphing burndown chart, finally we were able to see our progress on a week-to-week basis. This turned out to be the most helpful close to the end of the project, where we needed to know what to focus on, and what still needed to be done.



# Retrospective report



To summarise:

What went well?

- Proof of concept
- Confidence and determination
- Taking the project really serious
- Dark mode looks good
- Burned stories
- More work put into this sprint

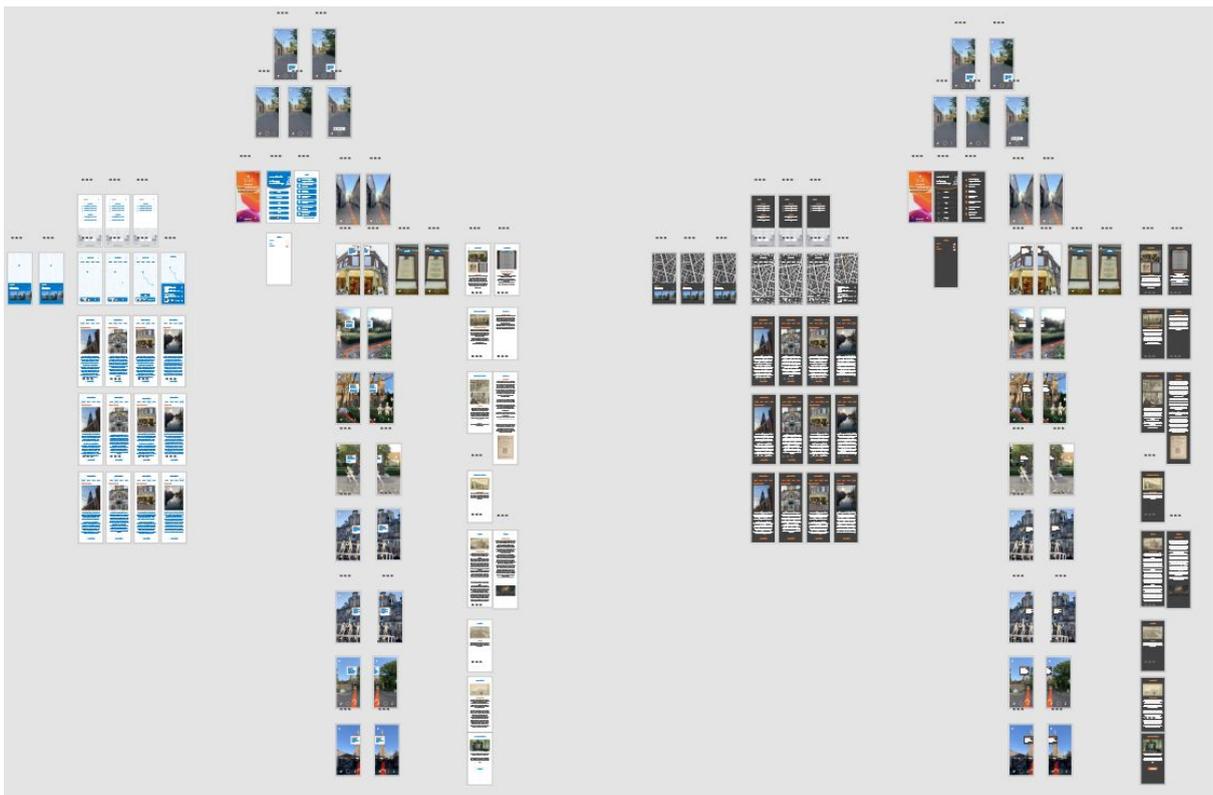
What could go better?

- Rushed demo preparation, we needed more preparation for presentation
- Communication towards the client
- A second story for the tour

- Prioritisation
- Presentation
- Communication between team members/work distribution

## Final Product

### Application Screens



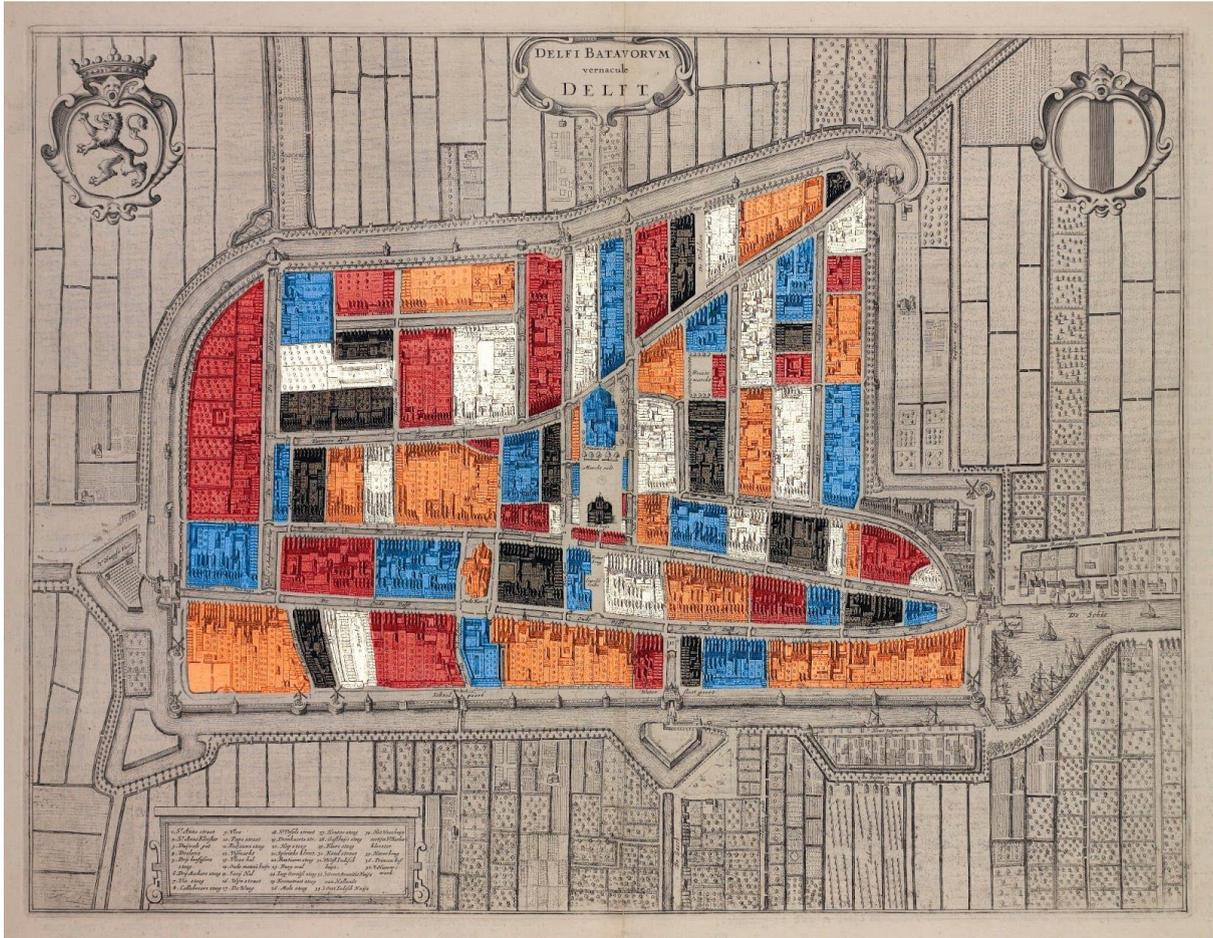
To view the full Adobe XD prototype, please refer to the link below.

[Click to view the full Adobe XD prototype in browser](#)

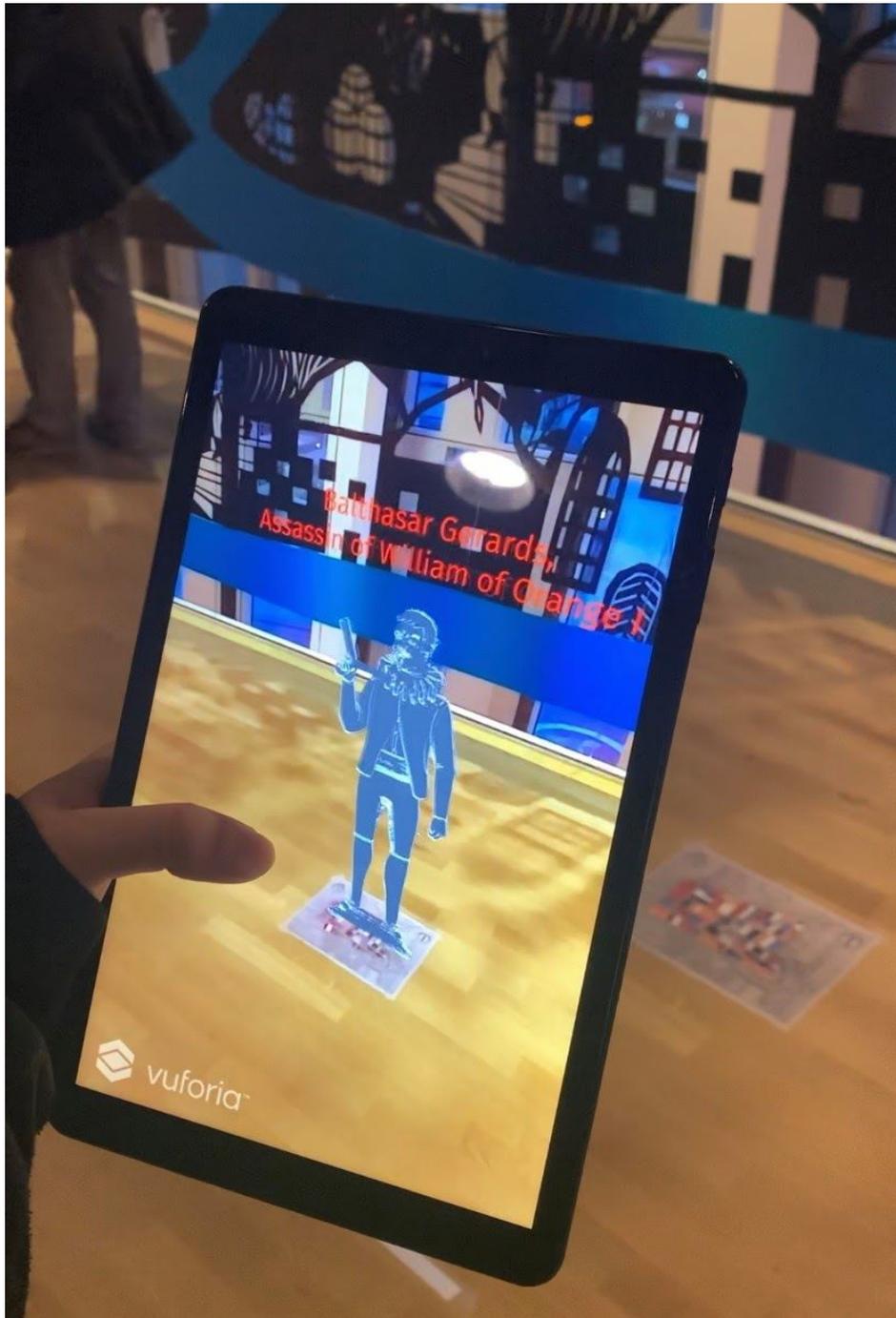
## AR application

To download the application, please refer to the link below.

[Click to download the application](#)



The marker we used for the AR application. At the client's request, we incorporated the old maps from the archive into the project in this fashion.



Working AR application on the expo. The model is scalable on the marker.  
[https://www.youtube.com/watch?v=0Dddh0\\_zQbw&feature=youtu.be](https://www.youtube.com/watch?v=0Dddh0_zQbw&feature=youtu.be)

# Rework & Exposition

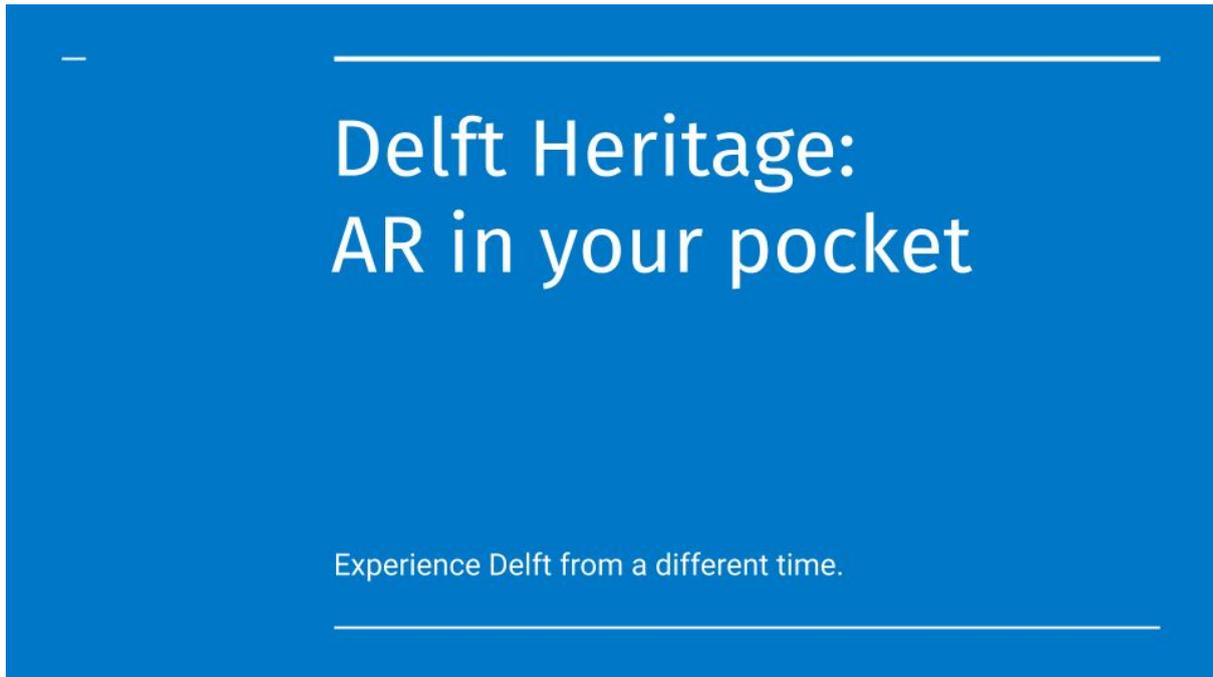
## Participation in the Final City Hall Exposition

Participation in the exposition was successful. On the Friday before the expo, we met with our client, Juliën, in the town hall to take a look at the exposition room and test the experience of using our product there. After this visit, we were able to make some minor but necessary changes to our prototype before the presentation, giving us lots of confidence in our ability to present our idea to the public.

During the presentation, we first showed and guided the visitors through the interactive application prototype. We had two phones available, one with the standard theme on, and another with the dark theme. Afterwards, we demonstrated the application's AR, again letting the user experience it by offering them a tablet and instructing them to point at the marker. After the demonstration, we answered any questions the visitors might have.

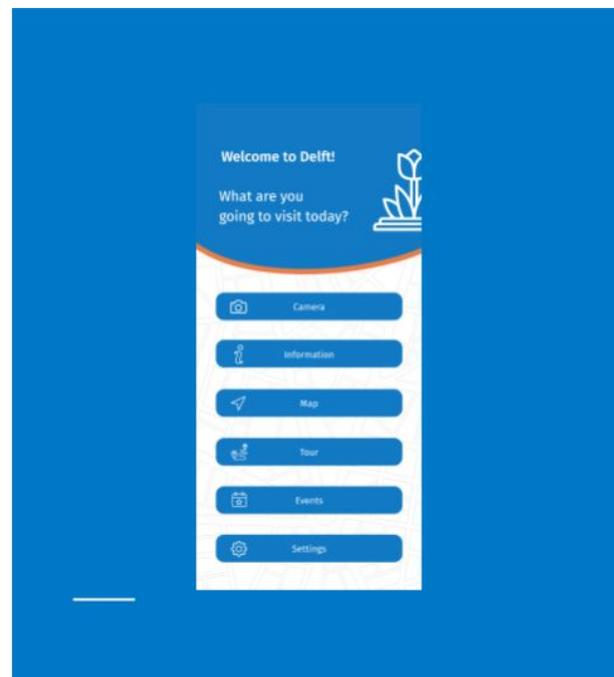
## Exposition Poster

Instead of a poster, we created a few slides, which were shown on a screen. We elected to do this as we figured it would be a more efficient method to showcase our product. We did, however, have a poster of the first slide for visibility on the side of our table.



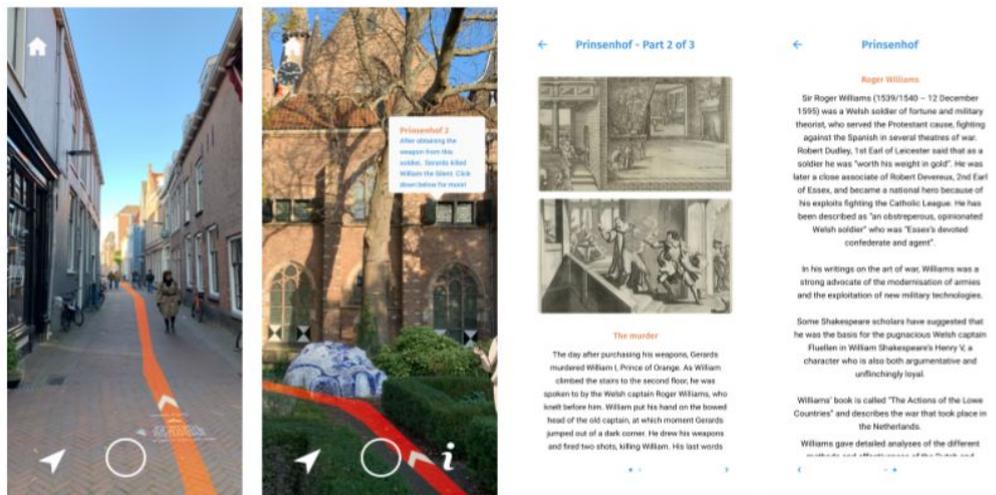
## Take a walking tour

Walking tours are a great way to be *active* and experience the city of Delft in an *organic* fashion.





Augmented Reality allows tourists to see interpretations of historical events.



Follow along the path and read up on the history of Delft.

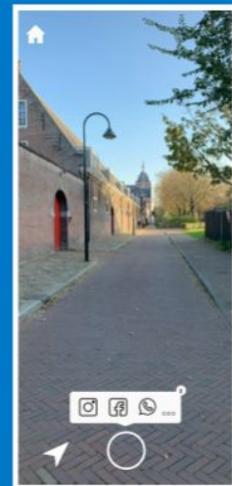
## Get notified!

Receive notifications when you're nearby points of interest so you don't miss anything!



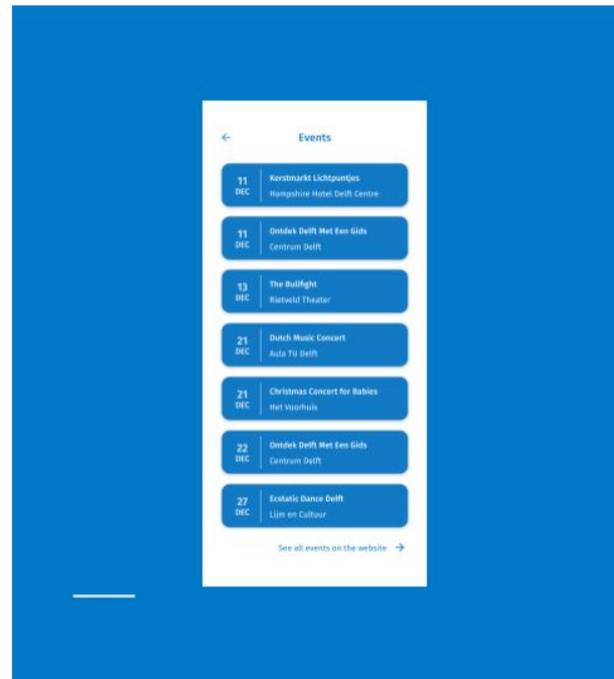
## Share your adventures

With quick and easy share buttons, you can post what you see on various social media.



## Stay on top of upcoming events

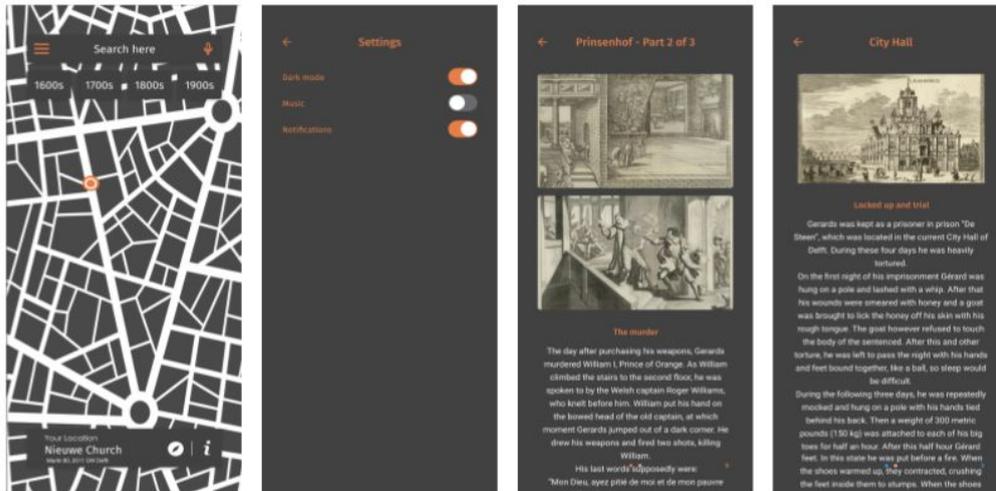
With the handy event calendar, you can see cultural events coming up near you.



## Still not convinced?

We have dark mode.





Dark mode is great for AMOLED screens and to keep your eyes from tiring.

# Final Debriefing to the Client

After the presentation, we sent an email to the client that contained the slides, the .apk file and its marker, and a link to the interactive application prototype, as well as a document with information and insights.

Coelen, A.T. (17060370) has shared a OneDrive for Business file with you. To view it, click the link below.

 [AR\\_Exp 5.1.apk](#)

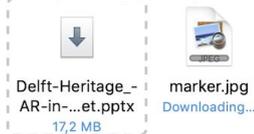
Dear Juliën,

Enclosed you will find the materials from the expo: the powerpoint, the android application for the AR experience, and the marker. Additionally, you can find the application prototype here: <https://xd.adobe.com/view/f6597180-4372-447c-6829-e98cb8be5be7-8068/screen/7365682d-2cae-4af4-a06d-489d039632f9/Intro-page-2/?fullscreen>. Lastly, the text document with the various locations from the Balthasar Gerards tour, notification copy, and interview insights can be found here: <https://docs.google.com/document/d/1iy46JL2IiZSfMLHpjeLpWWe2IHXd3Uzf8MgFB-EK2s/edit?usp=sharing>.

We would like to thank you for all your time and effort on this project. We certainly had fun with the project and we hope you share that sentiment. If you have any further requests, questions, remarks, etc, we would be happy to hear them.

Warm regards,

Drew, Roser, Arthur, and Nick



# Reflection

## Drew Coelen

Before the pitches, I was already invested in doing the Delft Heritage project. Looking back, I am glad that we got to do this project. From the get-go we were quite enthusiastic and the synergy within the team was strong. The task division seemed like a good balance of our various skills. I was particularly happy about being allowed to be creative with the visuals.

Going into the first sprint, we had a lot of ideas with what we wanted to do for the application. However, we had some pretty serious issues with being too nebulous with our definitions in the product backlog. The phrase “an app prototype” came up very often, and in hindsight it would have been better to breakdown this very broad term into specific components.

Predictably, I struggled with the interviewing component. Being with Arthur and Nick in Delft, I was very resistant to going to talk to people. That being said, I noticed that it got easier as I talked to more tourists.

Creating the style tile was something I greatly enjoyed, but I realise that within the context of the project it is a more or less superfluous component. That being said I liked taking on the task of communicating with the client about what their preferences were.

Furthermore, making the colour coded product backlog was fun and I am quite pleased with how it worked over the course of the project.

In the second sprint, my focus shifted from the application prototypes’s aesthetics to creating illustrations to simulate AR in the application. It was a lot to handle, but immensely enjoyable. I worked closely with Nick during this time, with him creating the prototype in as I illustrated the screens.

The third sprint was where I fell apart. We were initially supposed to include a second story in the application prototype, which I was tasked to write. However, I was struggling considerably with my physical and mental health which rendered me unable to complete any work for this sprint.

That being said, I think I managed to pull myself together during the rework before the expo. I managed to make the 3D model and marker for the expo. It was quite difficult to get the model completed, but it ended up being functional. During the expo I was unfortunately unable to stay due to my poor health. However, I heard from my teammates that it went well and I am more than pleased with how the project turned out.

If I could change one major component about our process, it would be to have an automated graphic burndown chart from the first sprint. Other than that, I believe we handled it quite well, and it shows in our outcomes.

## Arthur Mayer

After the kick-off of the course and learning about the possible projects, I was interested in two projects. The first one was the Delft Heritage project and the second one was the Digital twin of Delft. I was really happy when the Delft Heritage clients choose our group and not only chose us, but decided to change their initial case concept, to an AR-based tourist experience.

During the first sprint I felt rather useless. Perhaps due to us not knowing what, and how we were going to design and eventually create the "experiential prototype." So everybody was looking at each other with quite some uncertainty. After meeting the client on the first demo and talking about priorities, what the client would like to see, and what the people want in the city, what are tourists looking for/at, we got a clearer picture, however. Before the meeting we went to collect some relevant data from the residents and tourists of Delft. We interviewed a bunch of people on the street. From this relevant information we were able to start writing down the user stories.

I started off the second sprint a bit more confidence regarding what we were going to do and what actions we needed to take. Also, I never worked before with Scrum and at this point I started understanding why it is so useful, in a group project like this. My main job during this period was to go to Delft and take the intended walking route and shoot photos, which we wanted to implement into the AR's application version later and take pictures of certain locations. Other part of my work included designing a part of the application prototype.

Then came the second demo with the client which went far better than the previous one, the communication between us and the client was going pretty smoothly, things were looking good and also we got pretty decent feedback on the concept, the client just wanted us to focus more on a proof of concept, a truly working AR experience rather than just simulated AR.

So far, everybody was doing what they were assigned to, and the client was fully aware of the happenings. At this point I said I need to step up a bit, as everybody was doing amazing work, and I also wanted to contribute to that. So I started creating the AR experience using processing but after a week of trying I turned to Tim, who pointed me in the direction of Vuforia and Unity, which was a major breakthrough for the team. So I started researching how to create AR looking programs which could be used from any phone or device has a camera and display to it. To be honest for me this part was the most fun and, at the same time, challenging period, thankfully I had my team, who I could rely on. Nick and I worked together for several days to find a way to make the concept happen and meaningful at the same time. At this point we were pretty confident although the communication between our team and the client was not as back and forth as it was in the previous two sprints.

Then came the third and final demo with the client which went totally sideways. The application prototype was not clickable, so the client could not try out the experience as we intended. The AR worked, the only problem was it did not resemble the project topic at all. After this we all went beast mode and created something amazing, which not only works but

over exceeded the initial expectation of the client, which in my opinion is the most important thing.

I am really happy with the outcome of this project and thankful for the opportunity to work with a client like Juliën and the Delft Municipality among side the best teammates like Nick, Drew, and Roser.

## Nick Schenkel

During the first sprint, it took me a bit to get the hang of this project, our focus in the beginning was not entirely as it should have been. This also had to do with a little uncertainty about the focus on AR and tourists. After this was clear though, we rewrote our user stories and redid our scrum-board. This got me a lot more focused and motivated for the project.

During the first sprint I worked mainly on the prototype for a little bit, however there was no Information Architecture in place so therefore I was not properly guided in creating it. When the first demo came we did not have a lot to show. But after that things turned around immensely. We started with the Information Architecture and planned everything out perfectly. I was still focusing a lot on the prototype mainly and put a lot of hours into creating the working prototype with the AR experience which I was very proud of. The moral in the group was heightened and things were looking great.

During the third sprint, I kind of slacked a little bit. I was focused too much on my work outside of school and therefore did not pull my weight enough. After we had a rough sprint demo where everything went wrong it felt like a slap in the face, and we were back at it. Me and Arthur focused on the proof of concept for our AR experience and in my opinion pretty much nailed it.

We were very focused on redeeming ourselves to the client and delivered everything we wanted to deliver. Overall I am pretty satisfied with my performance this project, I pulled my weight and contributed sufficiently.

## Roser Tuneu

When I found out this was a group project, I was a bit worried. I do not doubt any of my classmates' abilities, but some combinations simply make for better group dynamics than others. Maybe it is the different working, learning, or communication styles we all have, but I wanted to be in a team and not in a group. Thus, based on previous experience, I had an idea of the people I would like to team up with, and I am happy to have been able to work with them in this project.

Before starting the sprints, I feared we would get a project we would not enjoy. Admittedly, the initial description of our assignment, Delft Heritage, did not inspire much in me and felt like it would be difficult for us to work with that. However, after ideating and discussing the possibilities with the client, the focus of the assignment shifted to a much more engaging one. That was thanks to the interesting contributions made during ideation sessions and wanting to create a better, more attractive product.

During the first sprint, I was not able to help my teammates with the interviews. Though I had started on a draft of the information architecture, I felt I could maybe help by creating a survey about tourists' habits and, while the results were interesting, I still feel I could have contributed more. In general, we did not work as much as we could have during this sprint.

We tried to fix this productivity problem in the second sprint by setting realistic but strict goals and dividing tasks, despite not doing very well in the latter. During this sprint, I worked on the final information architecture and designed the homepage for the application prototype. Tasks and workload are not the same, and we realized that here.

The third sprint went much better, everybody tried to do their best to be able to present a nice, working proof of concept to the client. I worked on adding some missing screens to the prototype and updating existing ones, adjusting everything to a grid, and creating the dark mode. We had some roadblocks before the exposition, but we never doubted our ability to deliver what we had in mind.

The presentation was a very cozy event and everything went perfectly. I not only enjoyed showing our product to the people interested in it but also seeing other people's ideas and presentations. Overall, it was a very rich learning experience and I would be very happy to embark on another project with this team, and also with this client.