PROJECT REPORT

EFTELING AI STORYTELLING
(MIJN SPROOKJE PWA)

Partnership with Livewall
Eindhoven

Date	**:**	**25/11/2024**
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Context

Mach8 is a company that focuses on the application of Gen-AI to create scalable, personalised, and simplified digital contents. This company is part of Livewall, a digital agency that specialises in the development of apps, games, and digital contents. In Livewall, Mach8 mainly specialises in product development that requires Gen-AI. The given assignment revolves around Gen-AI, specifically the application of Gen-AI in online storytelling. The task was to make a digital product that generates stories with AI based on user input, with a theme that revolves around the Dutch theme park: Efteling.

Goal of the Project

The goal of this project is to develop a Gen-AI implementing application to create an engaging and interactive storytelling experience for children of ages 6 to 10 years old. Taking into account the fact of the decreasing literacy level of children, aged 15 and under, in the Netherlands, this product will also be developed as a tool that will bring back the children's desire for reading. At the same time, this product could also contribute to a positive marketing for Efteling, and the specific Sprookjesbos area in the park.

The Assignment

Assigned Question:
"How can we create engaging and personalised stories using AI technology?"

The assignment is designed for the Efteling theme park in The Netherlands and more specifically for the Sprookjesbos (The fairytale forest) area. The goal is to leverage the AI technology in order to create not only personalised but also educational and fostering imagination stories.

Client requirements:
1. *Usage of GenAI for text, image, video and audio generation*
2. *Interactive storytelling:*
    - the user must be able to change the narrative of the story
3. *Metrics of success:*
    - Measuring engagement of the final deliverable by examining completion and abandonment rates, sessions per user recorded

Process and Result

A. Introduction
This project ran for roughly 2 months from 7th of October to the 9th of December 2024. For the project, the team decided to follow the double diamond phase, and used the CMD

methods pack as reference to the methods used for every phase. The briefing phase and the four phases of the double diamond (discover, define, develop, deliver) were all implemented within the mentioned time span of the project work, where the briefing phase lasted for a week, and the rest of the double diamond phase, were each implemented as sprints that lasted roughly 1-3 weeks. From the start until the end of the project, all members actively participated in discussions and contributed to the project works.

B. Process Elaboration

    a. Briefing phase (07/10/2024 - 16/10/2024)

    The project was initialized with a briefing phase. In this phase, the kick-off meeting with the client was held, and the overall project planning and collaboration tool (Trello board, Gantt chart, project plan document) were initialized. In this phase, the formulation of the project's research questions were also done.

    b. Discover phase (17/10/2024 - 29/10/2024)

    This phase is where all the literature and field research that are crucial and relevant to the project were done. In this phase, the team focused purely on just research, understanding the target group and also the field of the project, AI, which is a new topic for everyone in the group. However, the whole research is still weighted the most on the target audience. This phase lasted for roughly 2 weeks, the methods implemented are:
- Target group literature research
- Generative AI literature research
- Target group interviews

    c. Define phase (30/10/2024 - 06/11/2024)

    Entering this phase, the team had possessed all the needed information regarding the target audience and so it only lasted for roughly 1 week. In this phase, all the information from the Discover phase were summarized and concluded into tools to help the team mold the concept to accurately fit the target group's requirements, as listed below:
- Personas
- Customer Journey Map
- Empathy Map
- User stories

    d. Develop phase (07/11/2024 - 29/11/2024)

In this phase, the project's final product, the PWA (progressive web app) development was started. The methods implemented in this phase are:

- Prototyping
- User testing
- Proof of Concept (PWA development)

e. **Deliver phase (30/11/2024 - 13/12/2024)**

In this phase, the team focused on the following activities in preparation of the concluding stakeholder presentation:

- Product testing
- Code finalization and validation, in preparation for final delivery
- Creation of product advertisement video
- Writing the advisory report

C. **Members Contributions**
  a. **Discover phase**
    i. *Claudia*
       1. Target group literature research
       2. Generative AI literature research (speech and text generation)
       3. Interviewed two children from the initial target group (before target group shift)

    ii. *Ellyshia*
       1. Target group literature research
       2. Generative AI literature research (image and video generation)
       3. Contributed to formulating research questions and interview questions
       4. Interviewed two children from the initial target group (before target group shift)

    iii. *Jasmin*

       1. Conducted interviews with children (ages 6-10) to understand their story preferences and interactive features.
       2. Researched apps like the Efteling apps to learn what works well for our project.
       3. Explored the Efteling FairyTale Forest to gather ideas for visually engaging stories.
       4. Helped create research questions to collect the necessary information.

iv. *Magda*
1. Generative AI literature research (image and video generation)
2. Secondary moderator of a interview with the target group (before target group shift)
3. Research on existing applications targeting kids and implementing storytelling features

v. *Nikoleta*
1. Target group literature research
2. AI generated animation research
3. Target audience interview summary

vi. *Sumaya*
1. Interview target group basisschoolkinderen groep 1 t/m groep 7 (4 jaar t/m 9 jaar)
2. Second interview finally target group 4 year until 6 years

b. Define phase
i. *Claudia*
1. Contributed to creating empathy map
2. Created Customer journey

ii. *Ellyshia*
1. Summarized interview results in the form of a readable statistics with google forms
2. Created two personas (male and female) for children from group 2 of the target audience (5 year-olds)
3. Contributed to creating empathy map
4. Wrote user stories

iii. *Jasmin*
1. Conducted interviews with children from the new target group (ages 4-6).
2. Analyzed and combined interview data and research into a target analysis.
3. Created personas to represent the needs of children in the app and story.
4. Contributed to the Empathy map and created user stories.

iv. *Magda*
1. Contributed to creating empathy map
2. Contributed to writing user stories
3. Problem statement formulation

v. *Nikoleta*

1. Wrote some user stories
2. Created Customer journey
3. Contributed to creating empathy map

  vi. ***Sumaya***
1. 2 persona group 1
2. Target analyse first intervieuw
3. Target analyse seconde intervieuw
4. Contributions made to empathy map
5. Questionnaire created for a clear overview

c. Develop phase

  i. ***Claudia***
1. Contributed to creating a high-fidelity prototype
2. Worked on speech and text generation backend
3. Connected backend with frontend

  ii. ***Ellyshia***
1. Contributed to creating a responsive high-fidelity interactive prototype
2. Worked on image, text, and speech generation backend
3. Responsible for integrating the backend and frontend for image and text generation, and speech recognition. Main area of work: client-side and server-side Javascript
4. Maintained Git branch merging
5. Developed sequential display of generated elements

  iii. ***Jasmin***
1. Helped design a responsive, high-fidelity interactive prototype.
2. Conducted user testing of the prototype with the target audience.
3. Focused on the front-end development of the project (characters pages).
4. Managed the data structure to ensure the AI could recognize and process the information (bad characters).

  iv. ***Magda***
1. Creation of a high-fidelity testing prototype with interactions.
2. Contributions to the general story narrative (image and text generation specifically) and set up basic backend.
3. Contributions to the client-side JavaScript and responsible for fixing duplicated voiceover bugs and lazy loading

     v.   *Nikoleta*
1. Contributed to creating a high-fidelity prototype
2. Worked on a part of the front end development - specifically the part where the story generation is happening
3. Worked on making the AI generation slow down for more user friendly display

     vi.   *Sumaya*
1. Contributed to creating a responsive high-fidelity interactive prototype
2. Usertesting the prototypes with target audience
3. Worked on the front part of the develop part
4. Responsible for the first page intro and genre part and also good personages
5. Responsible for the data information sow the ai will reconsigned de information

d. Deliver phase
     i.   *Claudia*
1. Completed "Threads" and "Risks and mitigations" sections in the advice report

     ii.   *Ellyshia*
1. Finalized code structure and content
2. Created advertisement video for presentation
3. Identified the weakness and opportunity of MijnSprookje in the advisory report

     iii. *Jasmin*
1. The CMD methods and conclusion are explained and supported in the project advisory report.

     iv. *Magda*
1. Research on WCAG and GDPR for the advice report

     v.   *Nikoleta*
1. Completed the "Overview" in the advice report
2. Completed the "Implementation plan" in the advice report

     vi.   *Sumaya*
1. *Visuale for the presentation*
2. *User testing*
3. *Worked on the advice report*

Conclusions and Recommendations

The AI Storytelling project was aimed to create a fun and engaging web application that appeals to children ages 4 to 6 years. The outcome of this project is the MijnSprookje PWA (Progressive Web App) that is designed based on the thorough research that was done on the target audience to meet their needs and requirements.

At the end of this project, the product along with the highlighted features and the research behind was presented to the stakeholders: Bas Couwenberg (client from Mach8) and Jan Salge (FHICT Media Design semester coordinator, the team's semester coach & assessor). The feedback that the team received from the stakeholders regarding the product is fully positive, the client especially was very pleased with the final delivery from the team.

To conclude, this project can be said as a successful project for the team, as the team maintained the collaborativity and cooperativeness until the conclusion of the project, and the team also managed to deliver satisfying deliverables that meet the requirements of both the stakeholders and the target audience.

Evaluation/Reflection

A. Claudia

This project has been an invaluable learning experience, offering significant personal and professional growth. Working in a team environment has greatly enhanced my communication, coordination, and task management skills, while also teaching me the importance of flexibility and constructive feedback. The technical aspects of the project, particularly working with AI and back-end technologies, have deepened my understanding and practical skills in these areas. Collaborating with a real client, Efteling, provided unique insights into product development processes, including interpreting client requirements, managing expectations, and the value of direct user feedback. The project presented various challenges that improved my time management, prioritization, and problem-solving abilities. Adapting to changing requirements underscored the importance of agility in software development. Overall, this experience has given me a comprehensive view of the software industry, equipping me with practical skills and knowledge that will undoubtedly be applicable in future projects and contribute significantly to my IT career development.

B. Ellyshia

As this project concluded, I would say that I learned the most about teamwork and experiencing working with individuals of different working ethics. This also contributes

to my professional skills, as I recognize that communication is one of my weaknesses, however throughout the project, I learned to make an effort to communicate clearly to my teammates what I expected on their part of the group work. Additionally, I also learned to respect and understand my teammates' way of working that is different from mine. Aside from the differences of the individuals in the team, I feel that throughout the project, everyone in the team is willing to cooperate, therefore making the communication and teamwork easier to organize. However, what I think can be improved from the team is for every member to have the same initiative of fully involving themselves in every step and discussion of the project making sure all members are on the same page to minimize the amount of miscommunication and the delay caused by it. From a technical aspect, I also learned a lot, especially on the development part, which is something completely new for me to work with AI and backend API routing. However, I am very grateful that I got this opportunity to help me grow in my front-end development skills, helping me move one more step forward in achieving my goal as a competent frontend developer. To reflect on my technical works, I think that I could have helped more in fixing the bugs if I started with the hands-on AI research earlier. So to say, for the next projects that I would have the opportunity to work on, I will think even more ahead and try to have an even more accurate judgement between the time constraints and the available human resources. To conclude, although we weren't able to deliver a perfectly working product without bugs, I would still say that the project itself is successful as the whole team are proud and satisfied with what we managed to deliver.

C. Jasmin

This project was a valuable learning experience for me. I was able to improve my skills in designing and developing interactive media, and I also learned how important it is to do proper research and gather the right feedback. Working with children and other stakeholders helped me understand how to adapt my ideas to their needs and expectations.

What I found especially interesting was the process of defining the target audience and creating personas. This helped me focus on what really matters for the end user. It was also a challenge to turn my ideas into a working prototype, especially testing it with the target audience and making changes based on their feedback. This gave me real insight into the importance of user-centered design.

The biggest challenges were the times when things didn't work as expected. Sometimes it was hard to find the right balance between being creative and focusing on the technical side of development. Also, gathering enough feedback from the right people wasn't always easy, but in the end, it was crucial for improving the project.

What I found exciting was working in a group, especially with my English. But luckily, it turned out fine, and I had a great team to work with. We communicated well and worked in the right branches, which made the development process easier. Of course, there were times of miscommunication and different levels of involvement, but I believe you can learn from everything. Everyone is responsible for what they want to achieve, and in the end, I'm proud of what we accomplished together for the Efteling project.

D. Magda

During this first actual project that involved an external stakeholder, I could say that I learned a lot - from technical skills to professional practices in a team. What I am proudest of, is that I got the chance to work with the backend services and Gen-AI which was completely new to me. I might not have presented the perfect solution but I got the chance to try and experience how server-side code works. Through the project I also felt much more comfortable with using Git, setting up branches and essentially using my own for the features that I worked on.

On the other hand, I got to experience working with a completely new group that I have never worked with before. Because of this transition, I got to understand that sometimes, group work can be messy. Everyone is used to their own ways of work according to their lifestyle and everyone has their own way to communicate which sometimes can lead to misunderstandings. Eventually, as with many changes we experience in reality, the key to success was time and desire to achieve, which at the end led us to a product that we are all proud of.

E. Nikoleta

This project has been an incredible journey of growth and self-discovery, allowing me to expand my skills and navigate challenges both technical and interpersonal. From a technical standpoint, I improved my abilities in designing and developing interactive media, which was an area I was eager to refine. Additionally, I became more proficient with Git for version control, gaining confidence in managing branches and collaborating effectively on shared codebases. Working with back-end technologies offered an invaluable opportunity to enhance my understanding of server-side development, bridging the gap between theory and practice.

Equally important was the development of my soft skills. I made considerable strides in communication, coordination, and task management, learning how to approach projects with greater flexibility and adaptability. These experiences taught me the value of listening, adjusting to new circumstances, and managing feedback constructively. Gaining insights into client interaction and product development was another key

highlight, as it deepened my understanding of interpreting client requirements, managing expectations, and appreciating the importance of direct user feedback.

One of the most challenging yet rewarding aspects of this project was learning how to navigate team conflict. In one particularly stressful situation, I felt deeply disrespected, but I am proud of the way I remained calm and approached the issue with composure. This experience tested my emotional resilience and taught me the importance of clear communication and maintaining professionalism, even in difficult moments.

Despite these challenges, the time and effort invested by our team culminated in a product we were all proud of. This journey has shown me the value of persistence, collaboration, and self-reflection. Overall, I walk away from this experience not only with enhanced technical and interpersonal skills but also with a deeper understanding of how to contribute meaningfully to a team while navigating the inevitable hurdles of a complex project.

F. Sumaya

This project was a valuable learning experience for me. I was able to improve my skills in designing and developing interactive media, and I learned that when proper research is conducted, the design and creation of a product become much easier. We worked with a diverse team, and at times it was challenging because we had to carefully consider whether everything was being done correctly, but despite the difficulties, we delivered a strong product.

What I found most interesting was the entire process, from start to finish, which was very educational. However, the most enjoyable part was designing based on the needs we gathered from our research, and then later refining the product with the feedback we received to create a working prototype.

A challenge for me was communication within the group, as much of the conversation was in English. I often felt hesitant to speak up because I am not fully fluent in the language. Additionally, working with six people sometimes meant that some members contributed more than others, which I struggled with. I find it difficult when we, as a team, want to reach a certain standard. This was an important learning point for me, and in the future, I would address this sooner, either with the team members or a teacher.

Aside from that, I didn't find the project itself particularly challenging. I feel like I did my best and offered help where I could contribute. Personally, I could probably push

myself more to speak in English, as I think it would help me learn and grow in the process.

I am extremely proud of what we achieved as a team, and it was a successful and rewarding project.