



# VIRTUAL GRAND MIX



**Interreg**



Cofinancé par  
l'Union Européenne  
Medegefinancierd door  
de Europese Unie

France - Wallonie - Vlaanderen



**CrossTechXperience**



# SUMMARY / SAMENVATTING

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**DE UITDAGING WAAR WE VOOR STAAN**

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**HOE WERKT HET?**

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**VOLGENDE STAP?**



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Université de Mons



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LE  
GRAND  
MIX

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01 ↑

# WHO ARE WE?/WIE ZIJN WIJ?

1

**Roland Marvin***Tech designer*

- UNREAL / UNITY
- Developer XR
- C# / Blueprint

**Clautier Benjamin***Developer*

- Game design
- Developer XR
- Project management

**Vanden Waeyenbergh Emmeline***3d Artist*

- Level art
- Modelisation
- Lighting

**Megzari Amina***Data & AI engineer*

- Developpement IA
- Data processing
- automatisations

**Samain Eline***Product designer*

- User research
- Sketch
- Illustrator

**Philippon Alexandre***Spatial audio researcher*

- Signal processing
- Developer Sound Design
- Psychoacoustics

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02 →

## THE CHALLENGE WE ARE TACKLING/ DE UITDAGING WAAR WE VOOR STAAN



2



"Weeks before going to a show, I feel stressed and go over every possible scenario."

## Daily issues /Needs / Behoeften : problemen :

- Fear of being judged / Angst om beoordeeld te worden
- Anxiety for several months before the event / Angst meerdere maanden vóór het evenement
- Sensory hypersensitivity / Sensorische overgevoelighed
- Fear of changes in routine, of the unexpected / Angst voor veranderingen in de routine, voor onverwachte situaties

## Needs / Behoeften :

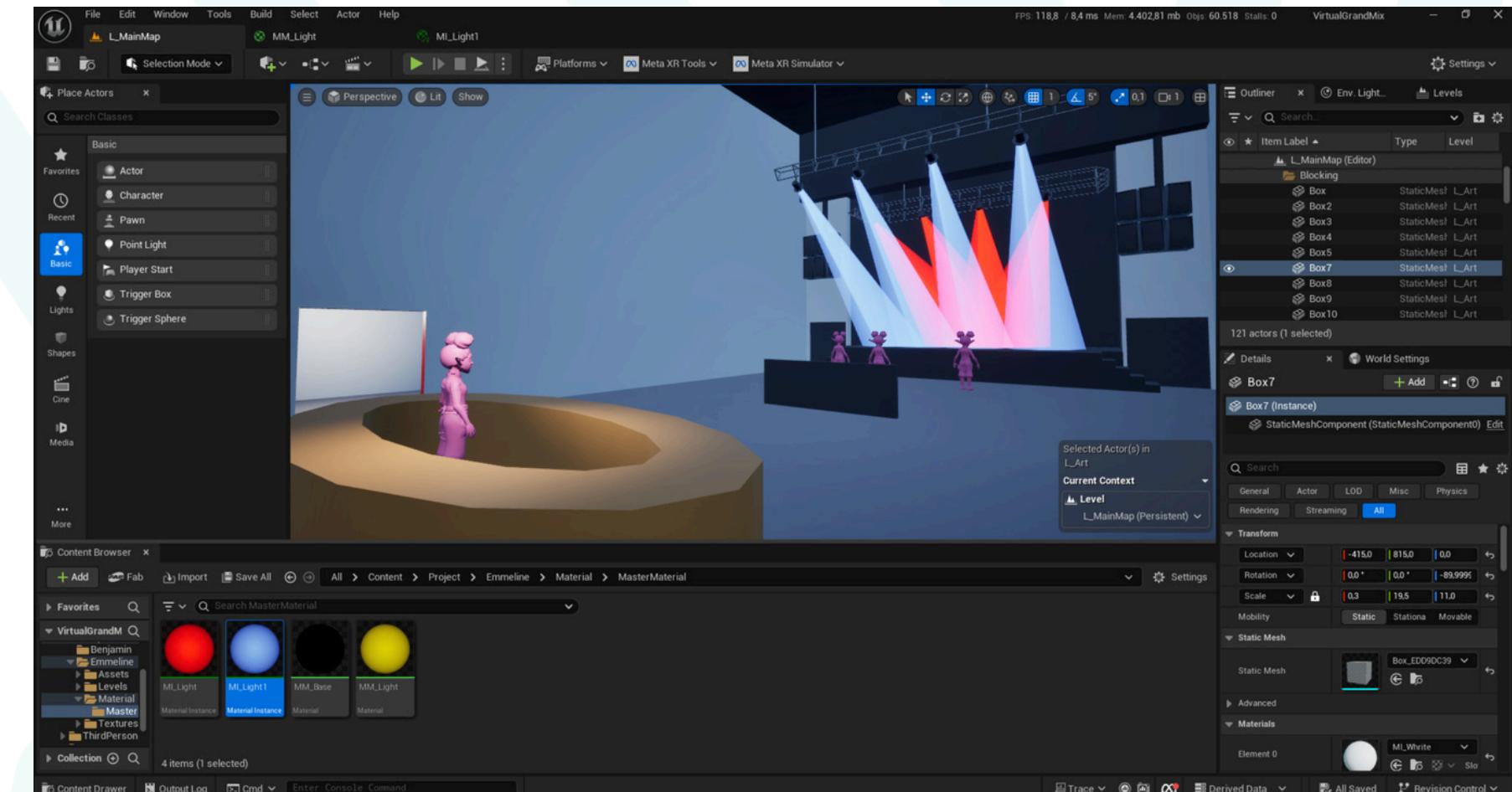
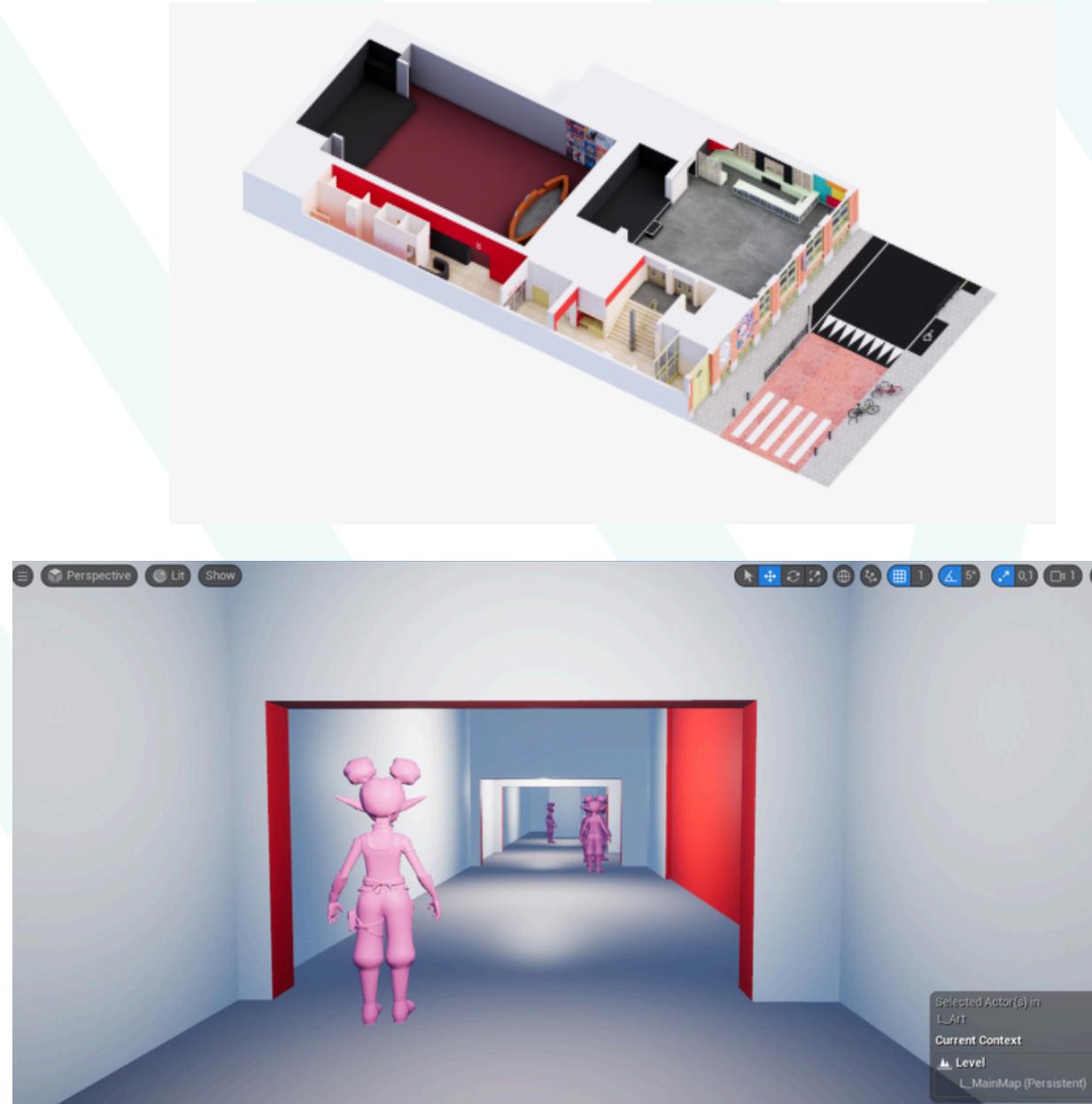
- Modular (adapting to each person) / Modulair (aanpasbaar aan iedereen)
- Easy to use / Eenvoudig te gebruiken
- Communication in advance about the infrastructure and atmosphere / Vroegtijdige communicatie over de infrastructuur en de sfeer



03 →  
**OUR SOLUTION/ONZE  
OPLOSSING**

# 3

## Map Creation



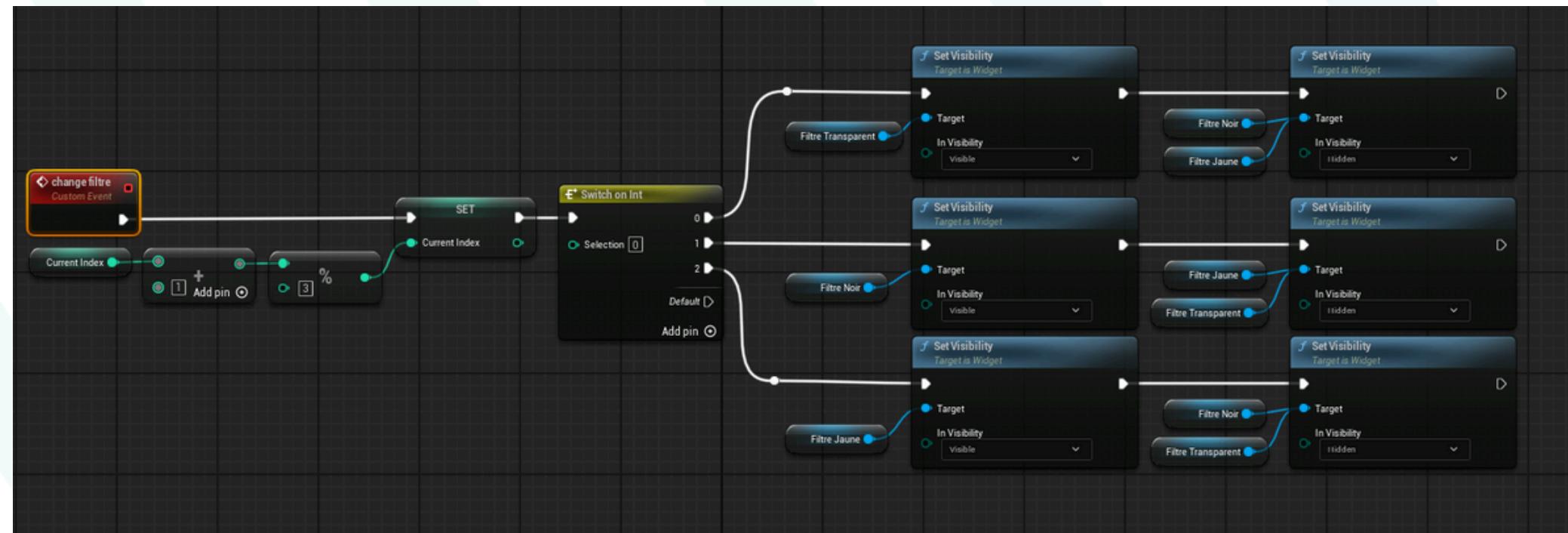
**Our goal is to create a VR application that allows users to explore and experience venues perceptively and sensorially, helping to mentally prepare people with anxiety disorders.**

**Ons doel is het creëren van een VR-applicatie waarmee gebruikers locaties perceptief en sensorisch kunnen verkennen en ervaren, om mensen met angststoornissen mentaal voor te bereiden.**

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## **Immersion in the use of the tinted glasses kit**



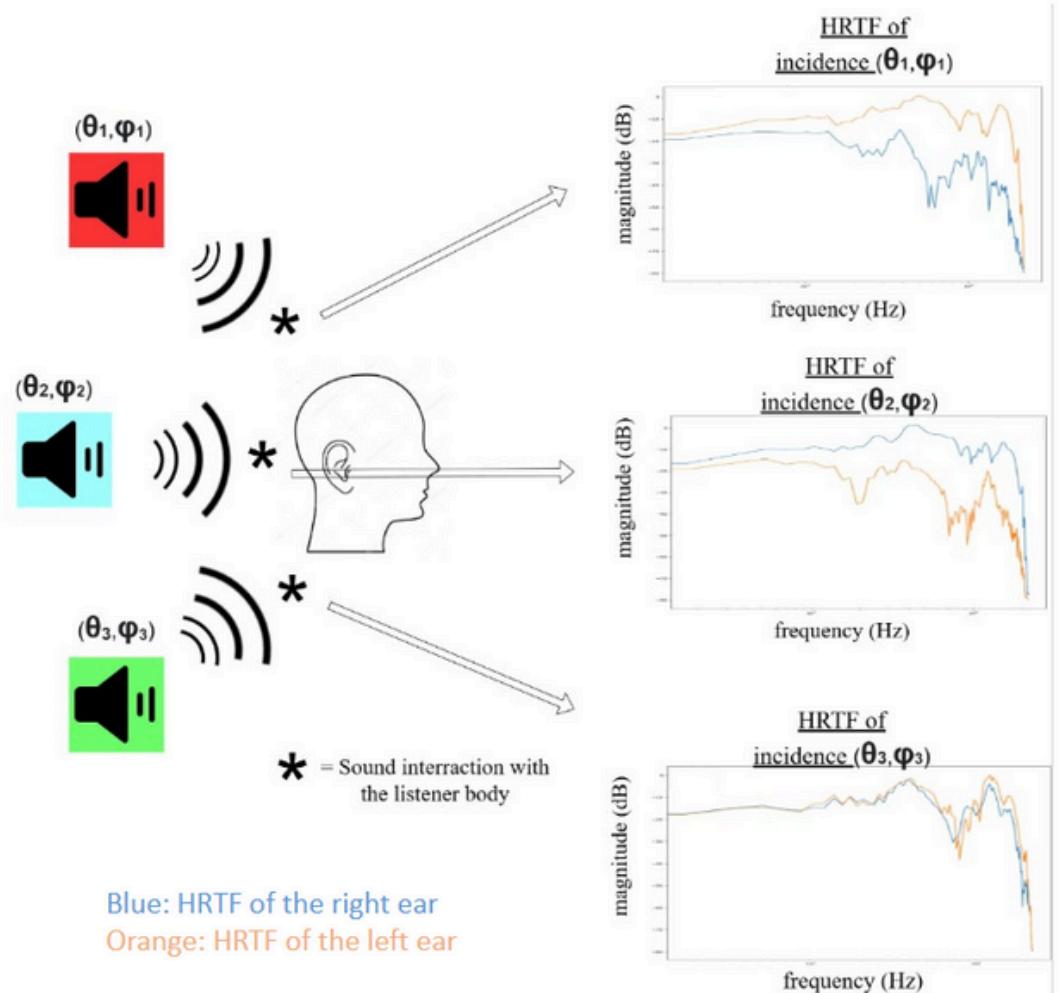
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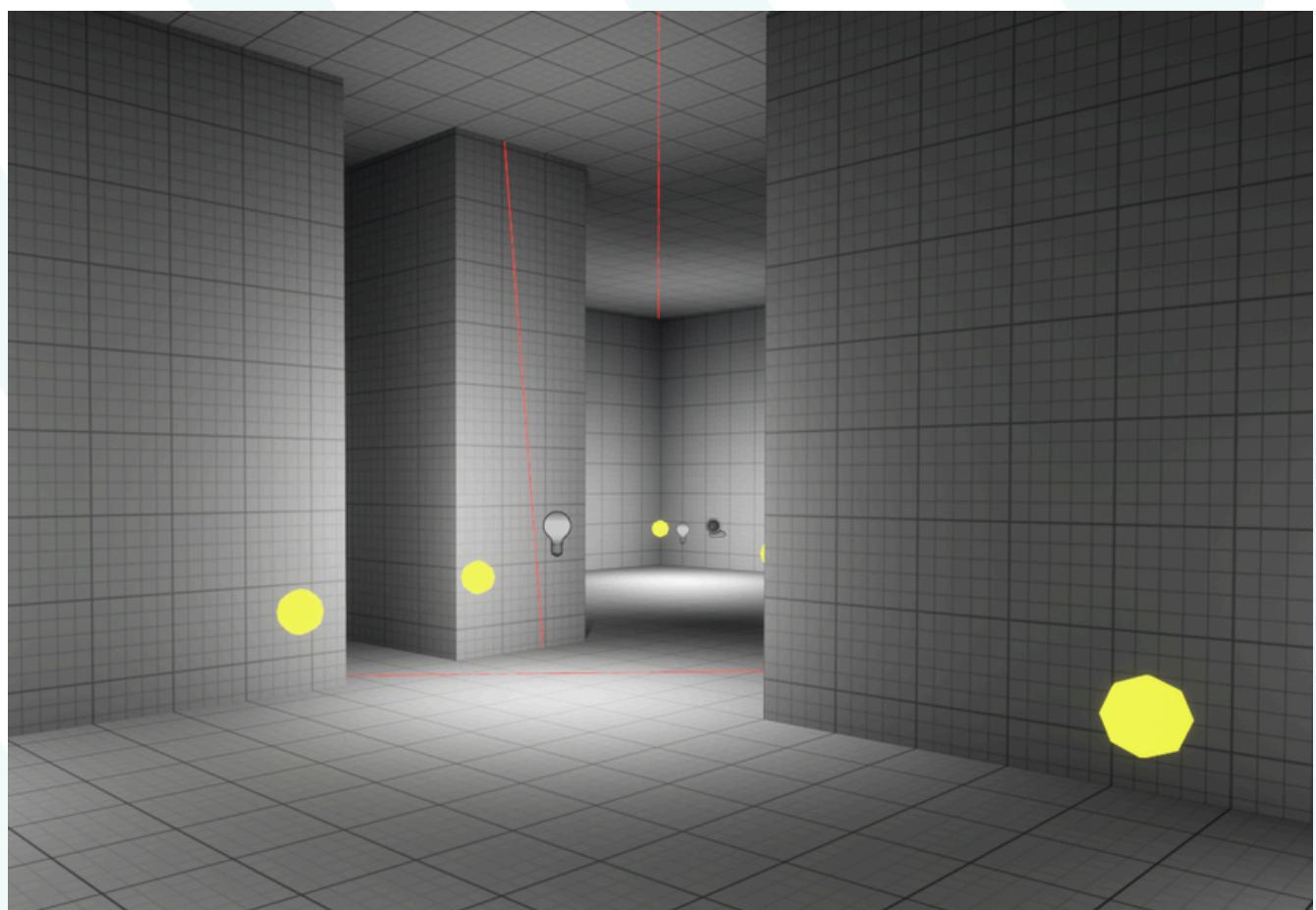


## Sound spatialisation / ruimtelijke geluidsweergave

HRTFs spatialisation / Ruimtelijke weergave door HRTF's



Including occlusion / Inclusief occlusies



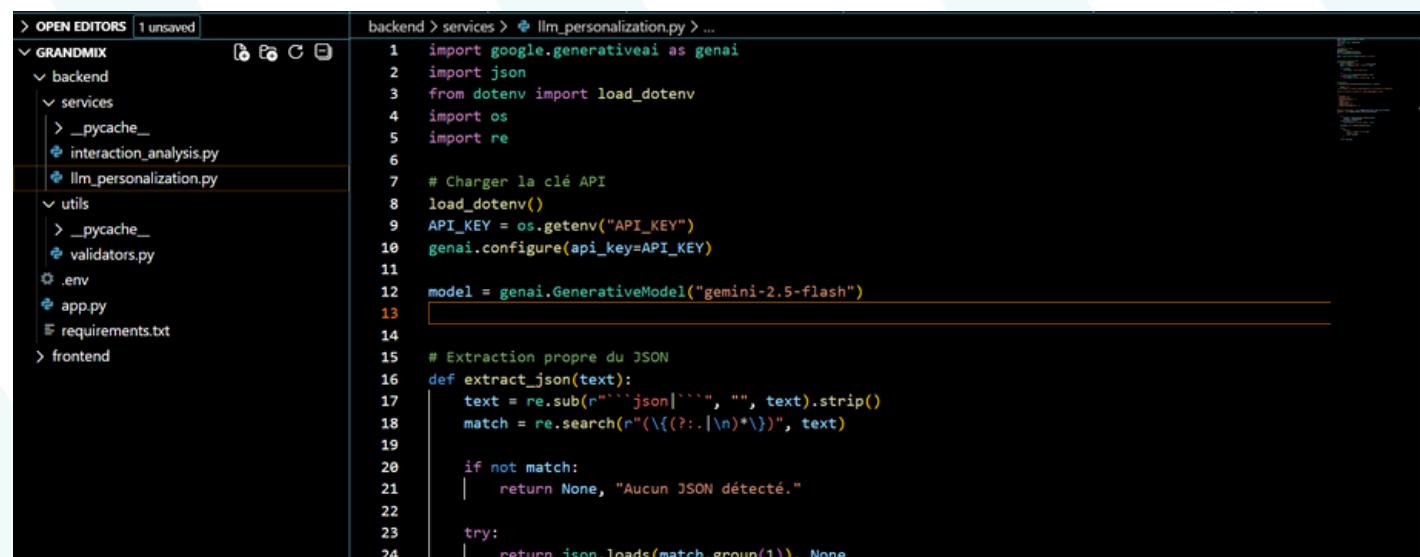
# 3

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## Behavioral Analysis and AI/Gedragsanalyse en AI:

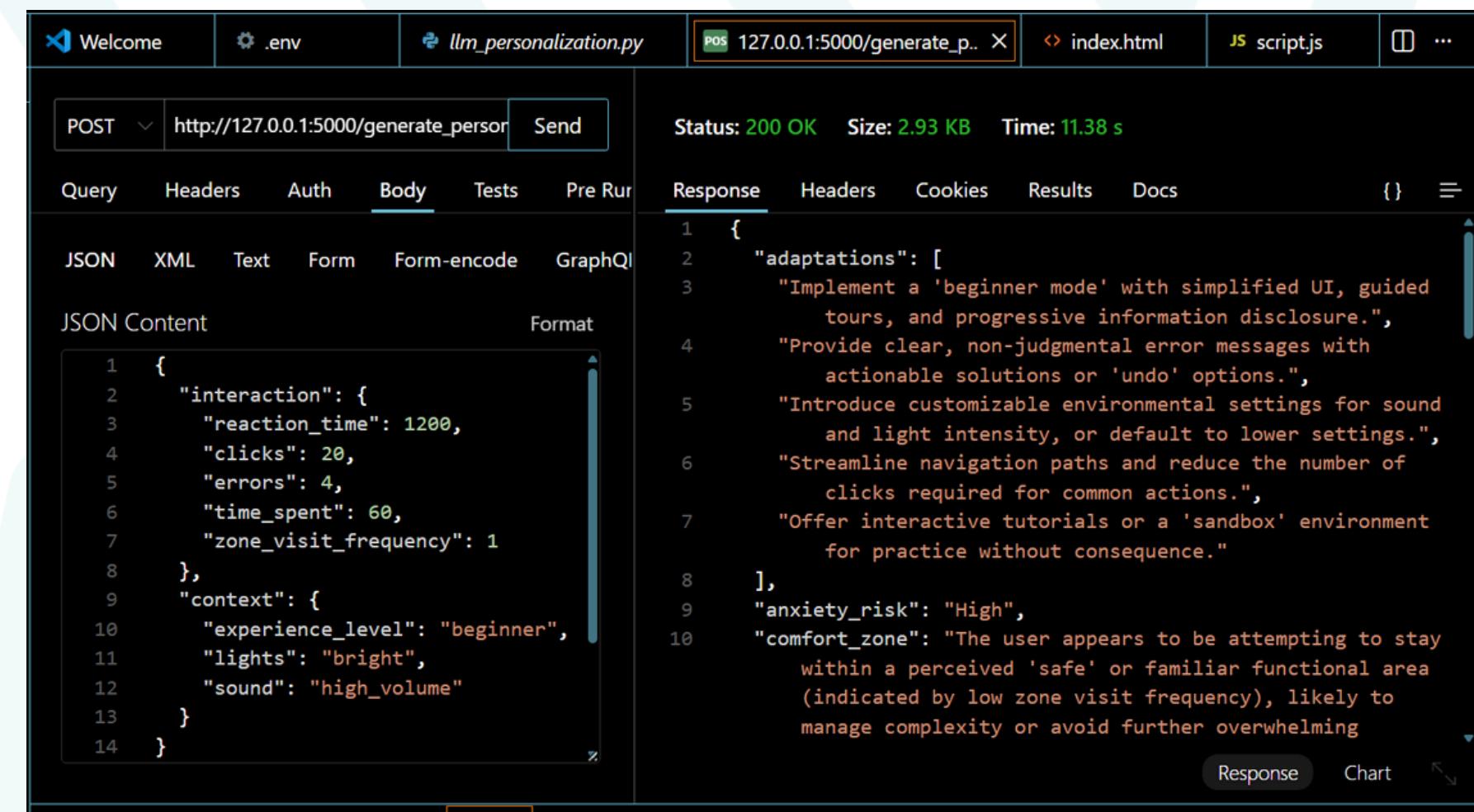
Backend (Flask API) processing/Backendverwerking (Flask API)



```

OPEN EDITORS 1 unsaved
backend > services > llm_personalization.py ...
1 import google.generativeai as genai
2 import json
3 from dotenv import load_dotenv
4 import os
5 import re
6
7 # Charger la clé API
8 load_dotenv()
9 API_KEY = os.getenv("API_KEY")
10 genai.configure(api_key=API_KEY)
11
12 model = genai.GenerativeModel("gemini-2.5-flash")
13
14
15 # Extraction propre du JSON
16 def extract_json(text):
17     text = re.sub(r"^\s*json|^\s*", "", text).strip()
18     match = re.search(r"\{(?:.|\\n)*\}", text)
19
20     if not match:
21         return None, "Aucun JSON détecté."
22
23     try:
24         return json.loads(match.group(1)), None
    
```

JSON diagnostic generation/Generatie van JSON-diagnose



| Query  | Headers | Auth                   | Body                               | Tests | Pre Rur |
|--|---------|------------------------|------------------------------------|-------|---------|
| POST   | .env    | llm_personalization.py | http://127.0.0.1:5000/generate_p.. | Send  |         |
| Status: 200 OK Size: 2.93 KB Time: 11.38 s   |         |                        |                                    |       |         |
| Response Headers Cookies Results Docs { } =  |         |                        |                                    |       |         |
| JSON Content Format  |         |                        |                                    |       |         |
| <pre> 1 { 2     "adaptations": [ 3         "Implement a 'beginner mode' with simplified UI, guided 4             tours, and progressive information disclosure.", 5         "Provide clear, non-judgmental error messages with 6             actionable solutions or 'undo' options.", 7         "Introduce customizable environmental settings for sound 8             and light intensity, or default to lower settings.", 9         "Streamline navigation paths and reduce the number of 10            clicks required for common actions.", 11         "Offer interactive tutorials or a 'sandbox' environment 12             for practice without consequence." 13     ], 14     "anxiety_risk": "High", 15     "comfort_zone": "The user appears to be attempting to stay 16         within a perceived 'safe' or familiar functional area 17         (indicated by low zone visit frequency), likely to 18         manage complexity or avoid further overwhelming"     </pre> |         |                        |                                    |       |         |

Title

DATE

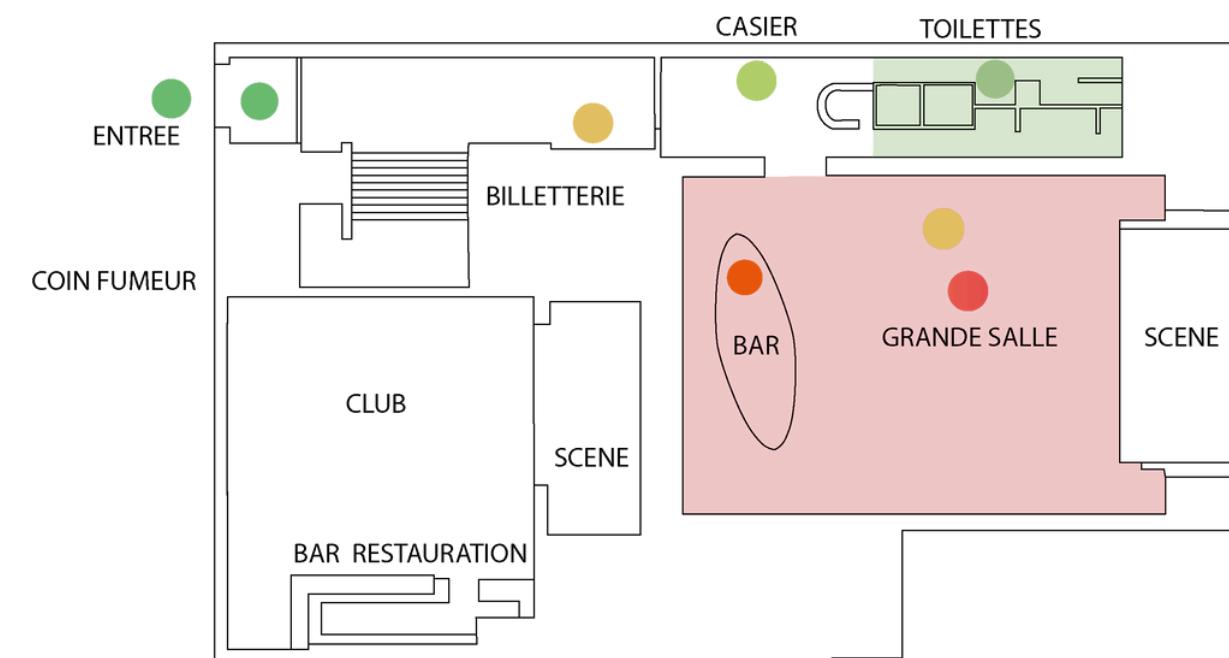
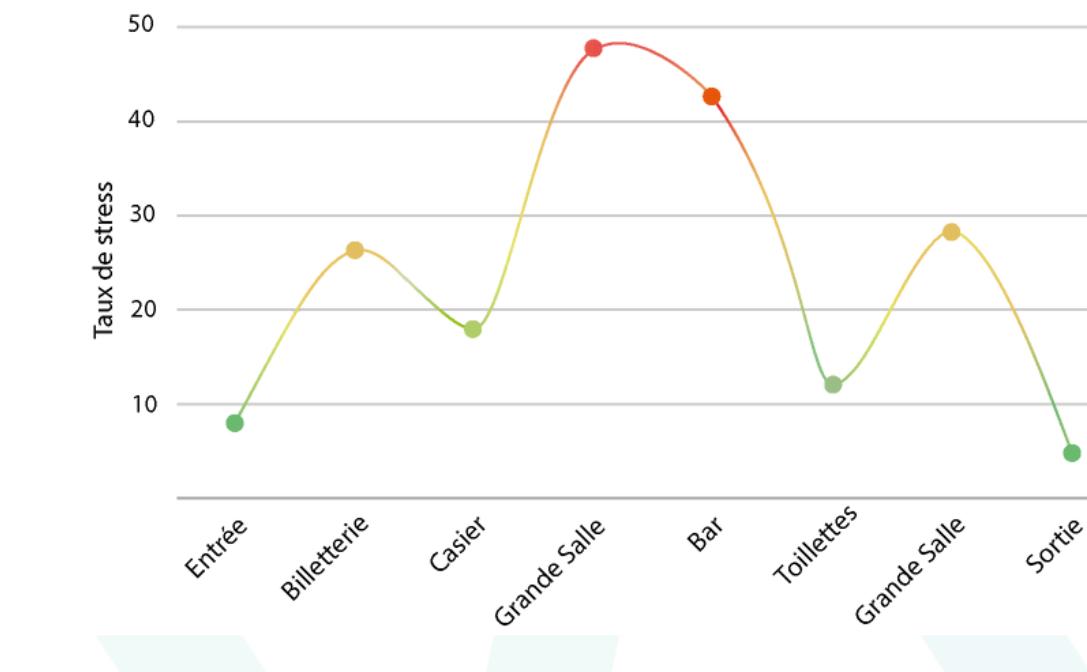


04 ➤  
**NEXT STEP? / VOLGENDE  
STAP**

# 4

## Anxiety Level Analysis/Analyse van angstniveau

■ Visualization Interface of stress zones and personalized recommendations /  
 Visualisatie van stresszones en gepersonaliseerde aanbevelingen



- Problems:**
- High number of clicks
  - Long reaction time
  - Sensory overload
  - Lack of guidance

- Stress Triggers:**
- High volume
  - Fear of making errors
  - Unclear instructions
  - Bright lighting

- Recommended Adaptations:**
- Automatic volume reduction
  - Contextual assistance and guidance
  - Adjustment of sensory settings