Grant Call Application

European Project Semester WS2022
Game & Multimedia
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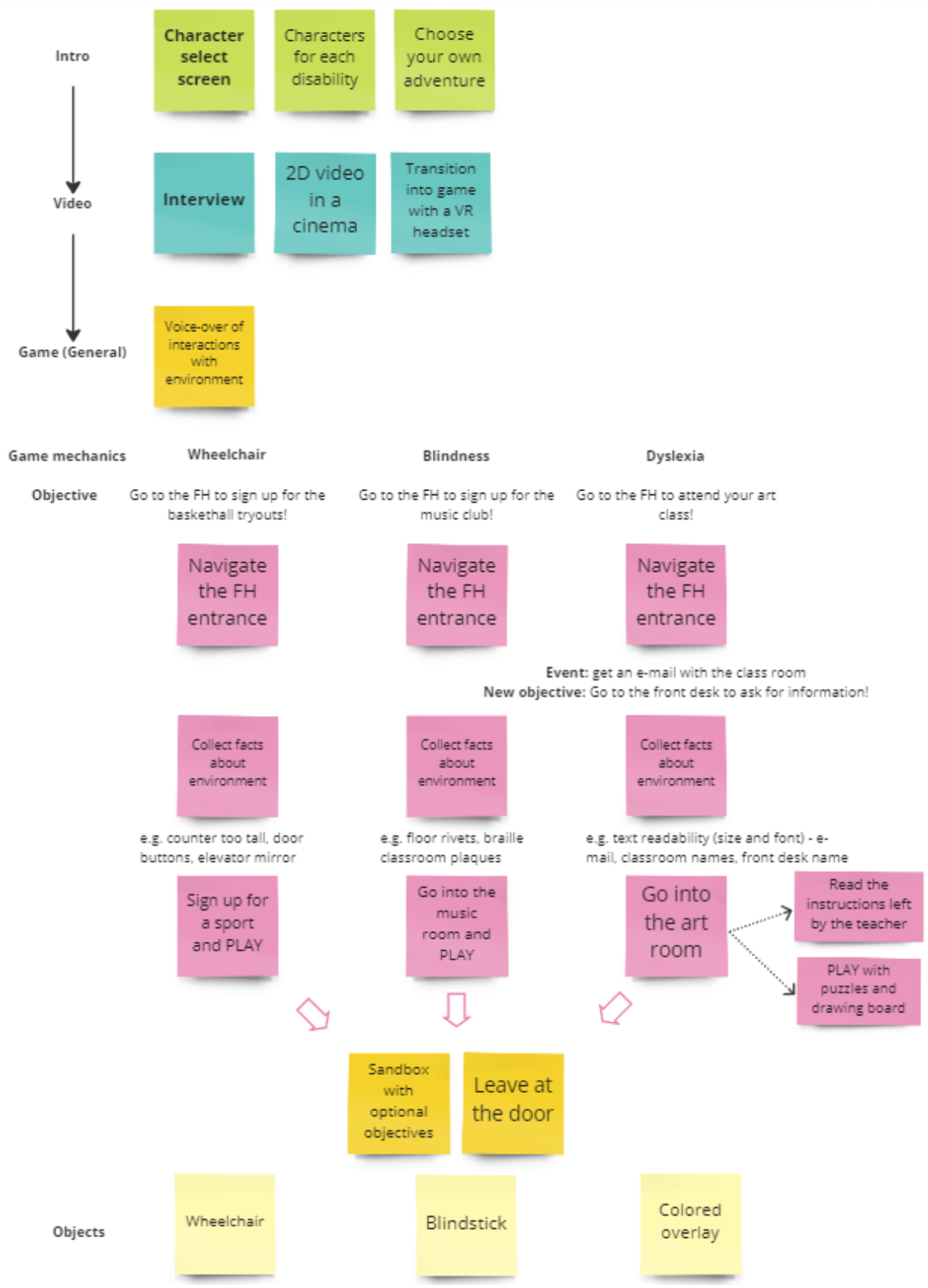
According to the WHO more than 70 million people rely on a wheelchair and only 5 to15% have access to one. ‘In addition, there is a shortage of health personnel with the knowledge and skills to provide a wheelchair to meet a person’s specific needs.’ (WHO, n.d.)

It is essential to raise awareness of obstacles and barriers people with disabilities are facing.

People without disabilities, specifically students and visitors at the St. Pölten UAS, such as Open Day, Researchers’ Night, etc would now have the chance to experience the barriers and needs a disabled person has ever had with our self implemented game using virtual reality.
We propose to design a virtual reality application for the Oculus Quest 2 hardware.
The application will consist of two elements: a video interview and an interactive environment based on the St. Pölten UAS.
For the video interview, we will tell the story of 3 characters with disabilities (specifically visual, mobility and learning disabilities). This section intends to inform users about each disability by describing what it is, the obstacles and challenges that come with it as well as behaviors that are harmful and how to correct them and be more considerate. The characters and interview will be fictional, but based on real-life research, people and interviews conducted by our team.
For the interactive environment, we intend to simulate some areas of the St. Pölten UAS building, particularly the entrance and some of the classrooms. The user will take on the role of one of the disabled characters with the goal of performing some daily tasks. They will be asked to navigate the university entrance while facing some of the obstacles exposed previously, as well as learning about special accessibility features in the building. Afterwards, they will be placed in a classroom (e.g. art class, music class, sport class) and will be able to perform various leisure activities.
The purpose of the two environments is to show, in the first place, the daily struggles of this group of people, but also show that they are human beings who can enjoy the same hobbies, albeit with some adaptations.


Intro
Character select screen
Characters for each disability
Choose your own adventure
Video
Interview
2D video in a cinema
Transition into game with a VR headset
Game (General)
Voice-over of interactions with environment
Game mechanics
Wheelchair
Blindness
Dyslexia
Objective
Go to the FH to sign up for the basketball tryouts!
Go to the FH to sign up for the music club!
Go to the FH to attend your art class!
Navigate the FH entrance
Navigate the FH entrance
Navigate the FH entrance
Event: get an e-mail with the class room
New objective: Go to the front desk to ask for information!
Collect facts about environment
Collect facts about environment
Collect facts about environment
e.g. counter too tall, door buttons, elevator mirror
e.g. floor rivets, braille classroom plaques
e.g. text readability (size and font) - e-mail, classroom names, front desk name
Sign up for a sport and PLAY
Go into the music room and PLAY
Go into the art room
Read the instructions left by the teacher
PLAY with puzzles and drawing board
Sandbox with optional objectives
Leave at the door
Objects
Wheelchair
Blindstick
Colored overlay

Project conceptualization

All costs stated below are estimations since no products or services have been purchased by the team at the date of writing the present report.

Category	Description	Vendor	Cost	Justification
3D Models	Models of various people, a basketball court, a gym building, a classroom, various animations)	Unity Asset Store	150,00€	The 3D virtual reality environment must be populated with various objects to make it feel realistic. While some of the assets will be designed by our team, it is not possible to design every single item due to time constraints.
Audio	Royalty free sound effects and music library	Soundsnap	125€ (6 month license)	To make the environment realistic we also need various sound effects such as the sound of a door opening, footsteps, ambient noises, etc. The team does not currently have audio designers therefore all audio will have to be acquired online.
Equipment	USB 3.0 to USB-C cables	Amazon	33,00€ (3 units)	Cables necessary to connect the Oculus Quest 2 hardware to the development PCs for testing purposes.
	AA Batteries	Amazon	15,00€ (pack of 20)	Batteries necessary to power the Oculus Quest 2 controllers.
	Oculus Quest 2	Media Markt	449,00€	The team considers it necessary to have at least one unit of the Oculus Quest 2 permanently during the semester, for development, which cannot be guaranteed by the renting department of the FH.
	Wheelchair	Amazon	185,00€	Physical element to be used in the project presentation. We intend to create a controlled environment for people to sit and control an actual wheelchair (instead of a virtual one) while experiencing the virtual application.

Software	Editing software license	Adobe Creative Cloud Student	234,00€ (1 year license)	The Adobe license will be used to generate any necessary 2D assets (Photoshop/Illustrator) such as avatars and UI elements and to edit video footage (Premiere Pro).
Travel	1 round-trip to Vienna (from St. Pölten) for 2 people	ÖBB	57,60€	During our research phase, we expect some travel may be needed to conduct interviews or capture video footage.
Food	Catering for actors on the set	–	170,00€	We expect to allocate about 12% of our budget to catering and meals while filming.
Total	**1418,60€**			

Our project will be divided into 7 sprints or stages:

- Sprint 1 - from 12 Oct. 22 to 18 Oct. 22 - Understand project scope, decide on a product idea & goal, define the product roadmap and prepare the product backlog.
- Sprint 2 - from 19 Oct. 22 to 1 Nov. 22 - Understand the development framework, implement basic movement mechanics and define layout for the 3D environments.
- Sprint 3 - from 2 Nov. 22 to 15 Nov. 22 - Further develop 3D environments with the finalized assets, define interaction points with the environment and the user.
- Sprint 4 - from 16 Nov. 22 to 29 Nov. 22 - Schedule and conduct research interviews and look into other sources. Finalize script for video interview and voice-over interactions. Define filming schedule and locations, as well as necessary equipment to rent.
- Sprint 5 - from 30 Nov. 22 to 13 Dec. 22 - Conduct filming for the video interview and audio capture for voice-over interactions. Develop scene transitions in the application and main menu.
- Sprint 6 - from 14 Dec. 22 to 20 Dec. 22 - Integrate audio into the application. Define project presentation structure and create promotional images and trailers.
- Sprint 7 - from 9 Jan. 23 to 24 Jan. 23 - Conduct user tests and bug fixing.
    - Project Showcase - 17 Jan. 23
    - Final Project Submission - 24 Jan. 23

WHO
link:https://www.who.int/teams/health-product-policy-and-standards/assistive-and-medical-technology/assistive-technology/wheelchair-services