## User Testing Plan

**Location and setup**

Online (remote). Meetings conducted via Microsoft Teams or Discord. Participants are required to have machines running x64 bit Windows OS and a microphone.

**Recruiting participants**

Participants will all be recruited online, through a combination of communications with RNIB and social media posts about the research project.

**Session Outline and Timing**

We will conduct 5 individual 30 minutes usability sessions. We will use 5 minutes of each session to explain the session to the participant and review basic background information with the participant. And then, for 10 - 15 minutes of the session, participants will use the provided application and try to make a simple level for a 2D platforming game. Finally, we will conduct a post-test debriefing interview for 10 minutes.

**Pre-test arrangements**

Have the participant:

* Review the participant information sheet (PIS) and the consent form.
* Return signed consent form to moderators.
* Download artefact application onto home computer.
* Run application once to confirm its compatibility with tester hardware.

**Introduction to the session / Background Interview (5 minutes)**

* Debrief data collections and recording permissions.
* Start Recording on Teams or with OBS on Discord!
* Explain the objectives of the testing session.
* Ask background questions.

**Tasks (10 - 15 minutes)**

Participants will start a series of tasks to play the provided game using the level editor application.

* Objectives and Introduction.
* Think aloud method.
* Loading the application.
* Editor tool overview.
* Provide tasks.

**Post-test debriefing (10 minutes)**

* Follow up on any problems that came up for the participant.
* (optional) Ask their experience compared to other similar products.
* Ask broad questions to collect preference and other qualitative data.

*\*\* Save the live transcript before leaving the meeting*

**Script – Introduction to Session**

**Session introduction:**

“Hello, I’m Bridget, it’s lovely to meet you. Thanks so much for agreeing to help me out. Before I delve into what exactly we’re supposed to be doing today, I just want to debrief you on some of the ethical information again, just so you’re aware.”

**Ethics debrief:**

“Just as a reminder, your participation is completely voluntary. We can stop the meeting at any time and any of your data, like recordings or questionnaire answers, can be removed and erased if you request it. Your data will be stored privately until the end of the project timeline in May in accordance with the European GDPR, and after that all recordings will be erased and any quotes used in my writing will be attributed anonymously, so you can’t be identified. Also, any questions that you don’t feel comfortable answering, like user profile questions, are optional. Does that all make sense?”

*Confirm with tester that they understand ethics information.*

“If that sounds good to you, can I start recording this meeting, and then I’ll give you an overview of the project and ask you some background questions?”

*Confirm recording permissions with tester. Start recording on Microsoft Teams or OBS if on Discord!*

**Script – Background Interview Questions**

**Project background information:**

“So, you might have gathered an idea of what the project is and what I’m trying to do with it, but just for clarity, I’m an undergraduate and I’m in my final year studying Computer Games Technology, so I have an interest in the tools and technology that people use to make games. For my honors project, I’m researching strategies to improve blind accessibility in game engines, or any sort of graphical-based development tool.

You may or you may not already know that most industry standard tools and engines have graphical editors to speed up the development process, but these editors are not readily blind accessible – you can’t use screen readers, the interfaces are really cluttered and complicated. Even excluding the navigation issues, there’s no way for the user to know what’s going on in their scene or how all these game objects that they’re creating are interacting with each other without at least some level of vision.

So, that’s the issue my research is trying to investigate. I just want to ask you a handful of quick questions now related to what we’re about to do, to build a small profile of you. Can I do that?”

*Confirm permission to ask background questions.*

**Background interview questions:**

1. What is your background and interest in computer games and computer games development? Have you used a game engine or game editor tool before?
2. To what extent does your vision loss affect your ability to interact with computers?
3. What software and tools do you prefer to assist you when using computers? (Names of specific screen readers, other tools, etc.)
4. What kind of games do you normally like to play or make?
5. Are there any kinds of games you’d like to be able to play or make yourself, but haven’t been able to thus far due to accessibility issues?

**Introduction to prototype:**

“Thanks for your answers. So, onto the prototype application itself. This is the software I’ve developed that I sent you last week, and it’s an editor tool specifically for making levels in a simple, 2D platforming style game.

Essentially, it’s designed to have most of the basic functions of any game engine editor. So, you can create a scene, you can add game objects – which are also called entities – to this scene, and you can change their properties to make them do slightly different things.

Currently, due to my own time constraints, the example gameplay is very limited. There’s a controllable character which walks left and right and double jumps, and you can add different platforms to walk on. That’s it for now, so it’s extremely simple. There’s no win condition build in, so you can’t create a full game. But essentially, the goal of this test session is that when you’re in edit mode, you should be able to lay out all these different objects, understand how that scene looks, and then in play mode, you can move your character across all these platforms that you’ve placed, just with audio feedback from the editor and hopefully very minimal input from myself. Does that all make sense?”

*Confirm understanding with tester.*

“Alright. So, whenever you’re ready, could you share your computer screen with me and launch the prototype application? I’ll also need to hear the audio from your computer if that’s possible. There’s a set of tutorial instructions built in, so that should explain the general control scheme. You can turn that off in application settings panel when you’re happy with it. Just a heads up, since it’s an early prototype, so some bugs pretty much guaranteed. Also, as you’re playing around with the application, could I ask that you think out loud with everything you’re doing? So, essentially, just narrate everything you’re thinking. Otherwise, I’m just going to give you each task one at a time and then sit here quietly while you complete it, but if you get stuck or confused just let me know and I will help as best I can.”

**Script – Session Tasks**

**Performance to measure:**

Speed at which the user can add, remove, and modify entities in the scene once introduced to the application, using key accessibility features (entity descriptions, control scheme, menu navigation). Additionally, the number of times the user can complete these tasks without assistance from the researcher.

**User tasks:**

1. Open the entity creation menu and a new entity of your choice to the scene. *(Testing new features: Panel navigation; button audio feedback).*
2. While in the viewport panel, move this entity to a place of your choosing. *(Testing new features: entity transform 3D audio feedback; entity transform keyboard controls).*
3. Navigate to the scene hierarchy panel. Using the entity multiselect mode and description features, select different entities and find out where your new object is. Does it collide with anything it shouldn’t? *(Testing new features: scene descriptions).*
4. Navigate back to the viewport panel. Find the entity you just added and duplicate it. Can you move it to a place that does not overlap the player?
5. Select any entity. Then navigate to properties panel and change any property of your choice. Could be scale, color, or rigid body type. You can also add or remove a component.
6. When you are happy, navigate to the viewport toolbar panel and press the ‘PLAY’ button. The editor will start simulating gameplay. Are you able to make the player jump to one of the new platforms you added?
7. When you are done playtesting your scene, navigate back to the viewport toolbar panel and press the ‘STOP’ button. Then navigate to the application settings panel and press either the ‘SAVE SCENE’ or ‘SAVE SCENE AS’ buttons to save your work to a file.

**Script – Post-Session Questions and Debrief**

**Post-testing debrief:**

“That’s it for all the formal tasks. You’re free to close the application now if you want. Can I ask you some questions about the prototype and your experience with it?”

**Post-testing questions:**

1. How did you find the process of navigating the menus? Was the audio feedback here helpful or unhelpful, and why?
2. How did you find the process of adding entities and manipulating their properties? Do you feel the editor provided you appropriate feedback to understand what you were doing?
3. What are your thoughts on specific features, like the pitch shifted audio when moving entities? What about the descriptions of entity relationships?
4. How did you find playing through the demo level you created? Did the player interact with your scene the way you expected?
5. What are your thoughts on this project overall? Would you say your experience has been a positive or negative one?
6. Is there anything you would change or add to this project? What would you suggest and why?
7. Are there any other comments you’d like to make?

**Closing statements:**

“That’s everything I wanted to do today. Thanks so much for taking the time out of your day to do this. Also, you’re free to keep the copy of the prototype and keep playing around with it or building a scene if you’d like, but this is totally optional. If you’d like to try and build something with it, could you save the scene like I showed you and then upload that file to the Google Drive before the 9th of May? Again, this is totally optional, you don’t have to do this part, but if you choose to, then I can include it as a bonus piece in my research.”