SPATIAL ORCHESTRA

Indoor audio positioning project

Agreement between **Newtoy Ltd** (Registered in England 6294990) herein referred to as the "**Company**" of 159a Coppermill Lane, London E17 7HD, UK

and **Can Ince** of _____ herein referred to as the "**Contractor**" regarding work for the Spatial Orchestra project (or the same project under a different name) herein referred to as the '**Work**'.

THE WORK

Pozyx system communicating with Unity/Sound Engine via Wi-Fi. Unity parses incoming data in realtime for audio parameters.

Charting Unity trigger boxes and using the current code for 'heard by player' and 'heard by others'.

The position data and current code data is used to trigger/control synthdefs in SuperCollider. As the players move through the space wearing the Pozyx tags on their head and turning left or right on the X axis, sound will diffuse depending on the location and distance between the objects to sound spatialised, holophonic, binaural 3D sound.

Players will be hearing it on their dedicated wireless headphones, which will receive the audio from the Hub Computer. For an auditorium presentation, there will be an Invisible Player controlled real-time within the Unity's graphical interface, which will show a runtime graphical representation of the players positions. As it navigates, the output related with the movement will be configured and outputted via a multichannel system.

The specific requirements for the project for now are described in **OUTCOMES and APPENDIX 1.**

Phases	Description of Work	Duration
Phase 1	Creating a working platform that matches the requirements described in Outcomes and in APPENDIX 1 a GUI Bespoke hardware assignable to any sound	**15th July 2017 – 5th Nov 2017** 16 weeks

	parameters. Providing assistance to the Company with all troubleshooting and guidance as required. Attending rehearsals as necessary and meetings. Attending scratch performance	
Phase 2	Scratch performance in London on the 5th Nov 2017 Fixing any bugs and issues raised after the scratch performance. Algomech Festival, Sheffield 11th-12th Nov 2017 Fixing any bugs and issues raised after the scratch performance.	3 weeks 5th Nov 2017 – 26th Nov 2017

OUTCOMES

1. A GUI on Unity (or a different platform if discussed) that allows:
    - to create Rooms according to floorplans
    - to sketch TriggerZones
    - to assign start positions for each Player.
    - to create still and moving sound objects with binaural functions. and affect their 3D sound settings such as distance and rolloff.
2. A GUI of audio interface made on Supercollider that will:
    - allow to add a sound file or parameter to each player for their ears only.

- allow to add audio files to the 'player sound heard' and a 'heard by others' sound functions from Unity.
- Use 'player sound heard' and a 'heard by others' sound functions from the TriggerZones as open data parameters for further synth developments in Supercollider to allow for non-audiofile type sound triggering.
- A simple routing interface which will use the Supercollider audio engine to route the audio output of Invisible Player, the 'player sound heard' and 'heard by others' sound functions from Unity to a soundcard for multichannel playback.
- allow to control the volume of every sound element.
- to assign crossfade times for triggers entering and leaving.
- when leaving a trigger zone assign 'end sound' or 'continue sound and stop when receive another trigger' or
- choosing 'loop' sounds or 'not loop'
- ensure that all requirements written in **Appendix 1** are met.

3. Runtime GUI showing the floorplan of the room with sketched TriggerZones and realtime position of players.

4. The Runtime GUI will show the InvisiblePlayer and allow it to be dragged realtime using a mouse to different positions on the floorplan.

PAYMENT

The Company will pay the Contractor a total of £5000 by the end of the project. The fee schedule is as such:

First payment of £1000 within 14 days upon the return of this signed contract with an invoice.

Second payment of £3000 upon completion of Phase 1 within 14 days upon the receipt of an invoice

Third payment of £1000 upon completion of Phase 2 within 14 days upon the receipt of an invoice

COMMUNICATION

1. Both parties will endeavour to respond to queries as soon as they are received and but no longer than one week after they have been sent, unless prior notice has been given that they are unable to do so.

2. The Contractor will email a notification if there is a problem achieving the task to the set deadline, as soon as this is clear to him.

3. There will be free communication based on honesty and motivated by the joint effort and understanding of getting the project done on time and to the best quality.

4. As necessary both parties will be available for meetings, in Skype or in person.

DISCRETION

The CONTRACTOR agrees to not disclose the concept, idea, interface, or any part of said Project to a third party unless agreed by the COMPANY in writing beforehand.

INTELLECTUAL PROPERTY RIGHTS AND ASSIGNMENT

The CONTRACTOR will assign ownership and hereby does assign ownership of the Work to the COMPANY, including all derivative works therefrom, throughout the world, including but not limited to all rights of copyrights, the right to grant and/or license any part of all of these rights to third parties, and all rights to the title of the Work.

The CONTRACTOR hereby acknowledges and agrees that the Work shall be, to the extent permitted by law, deemed to be a work for hire, with the copyright automatically vesting in the COMPANY. To the extent that the Work is not a work for hire, the CONTRACTOR hereby waives any and all "moral rights" in such writings and works and agrees to assign, and hereby does assign, to the COMPANY all of the CONTRACTOR's right, title, and interest, including copyright, in the Work.

CANCELLATION

If there is a significant delay in delivering the Phases, or if there is lack of communication between the parties then the COMPANY reserves the right to withdraw from the agreement to seek other ways to progress with the project without owing to pay the remaining fee according to above schedule.

AGREEMENT

I agree to all of the above:

_____ _____

Can Ince, the Contractor Date

_____ _____

Joel Cahen on behalf of Newtoy Ltd Date

APPENDIX 1

This are the sound layers that are mixed into each player headphones:

1. Their own sound - omni - Sound that is created from their movement
2. Their own sound -omni- Sound that is created when still
3. Other players sound - 3D - inc head panning
4. Environment sound - trigger zones - stereo
5. Objects/props - 3D sound
6. Interaction sounds with objects or players

Audience:. Through a multichannel setup in the same space or different space. Chosen by the sound mixer.

1. The sound that the invisible player hears which can be situated anywhere in the game.
2. What each player hears.