

The overarching theme of the new soundtracks is “Intuitive immersion” The guiding philosophy is to enhance the player’s immersive experience by translating visual information into intuitive cues that seamlessly blend with the game’s soundscape. New auditory elements are designed to intuitively convey critical gameplay information, supplementing visual elements and making the game more accessible. Each sonification decision is motivated by the need to minimize cognitive load, maintain thematic consistency, and maximize the consistency of the game’s design.

- **Distance to the jellyfish**
 - Sonification: Implement a dynamic volume control of a buzzing sound that increases in intensity as the player nears the jellyfish and decreases when moving away. This can be implemented by calculating distance between the player and jellyfish. When it’s inside a threshold value, there can be a boolean parameter to turn on and off the sound of jelly fish. The volume gets increased when the distance parameter decreases.
 - Motivation: Visually impaired players can gauge their distance from the jellyfish. This method uses a non-intrusive, naturally aussociative audio cue that aligns with the human perceptual tendency that recognizes loudness with closeness.
- **Player status when immobilized**
 - Sonification: Trigger a distinct shockwave sound upon collision with the jellyfish to indicate the player has been immobilized. This can be implemented by calculating overlapping area between the jellyfish and the player. If the distance between two objects is smaller than the sum of their sizes, they’re overlapping.
 - Motivation: The shockwave sound immediately indicates the player’s incapacitated state so visually impaired players can recognize.
- **Gaining scores by popping a bubble**
 - Sonification: A rewarding ‘pop’ sound effect plays when a bubble is burst. This can be implemented by using the overlap-check method.
 - Motivation: Visually impaired users should be able to know they scored when popping a bubble.
- **Which answer the player has picked**
 - Sonification: Sequential beeping sounds will occur upon selection, with the number of beeps corresponding to the answer’s position in the agreement scale. The first answer object beeps once, the second objet beeps twice, and so on. This can be implemented by calculating the overlap-check method.
 - Motivation: Sequential auditory cues provide clear and simple feedback, providing an approachable means for visually impaired players to comprehend what answer they’ll be recording.
- **Status when the chosen answer’s recorded**
 - Sonification: A melodic piano chord signals the recording of an aswer. This can be once again implemented with the overlap-check method.
 - Motivation: The use of a melodic element ties the completion of an action to auditory feedback, enhacing the cognitive mapping of game mechanics.
- **Question**
 - Sonification: A voice track will narrate the new question, playing shortly after an answer is recorded. This can be implemented by playing the sound track approximately about 2 seconds later after recording an answer.
 - Motivation: Providing the questions in audio from not only aids visually impaired players but also allows sighted players to process the change without shifting focus. The delay ensures the previous action’s sound cue does not overlap with the question, adhering to principles of clear auditory scene design.
- **Current location of the player**
 - Sonification: Water sound plays when the player is close to the answer objects. This can be implemented by a boolean value that triggers when the player’s above the middle line.
 - Motivation: Visually impaired users might need assistance in locating their characters. These assistant sound cues could provide hints where their characters are.