

ACTIVITY 2.1 HUMAN-COMPUTER INTERACTION

Design an interface that uses the properties of sound in an effective way requires a very careful consideration of how audio can be managed in order to improve the user experience, the communication and the interaction between the human and the computer.

Now we are going to explain several ideas that manage sound in different ways:

1. Audio-Based Feedback for Accessibility:

These are interfaces used for visually impaired or multi-tasking environments. Non-visual audio cues, such as confirmation sounds for successful actions, different tones for errors, or background hums to indicate the status of the interface. The variations in pitch, rhythm and tempo are used to communicate the different information and the emotions that it wants to generate in the user. An example could be speech readers for blind people. And the property used in order to implement it, are pitch, tone and rhythm for distinctiveness.

2. Music-Driven Controls:

These are creative tools, music-making software and DJ apps, where controls and interactions could be music-driven. This allows users to manipulate audio through interfaces that seems like playing music. On the other hand, gestures can change the rhythm or tempo, and certain interactions could have musical responses. The properties that we may use to implement this are real-time manipulation of rhythm, melody or tempo taking into account the input.

3. Ambient Sound Awareness:

These are productivity apps, wellness or focus-enhancing environments. Ambient sound awareness are background soundscapes that change dynamically based on user activity or time of day, an example of this is increasing the intensity of focus sounds when the user is most active or emitting calm sounds while needing relaxation. Soundscapes are able to shift according to the user preferences or external conditions, for example weather or light. The properties used when implementing it is environmental sound layering, modulation of intensity, or rhythm based on time or events.

4. Interactive Sound Design for Data Visualization:

It consists of data analysis tools, scientific research or educational platforms. In this case instead of visual charts, sound represents an increase in pitch or tempo. When the data became more complex, the data patterns were represented with layered sounds. The property used is sonification, which consists on using audio cues to represent numerical or graphical data.