Simulator User Manual

Startup note: Upon startup of this simulation, the simulation will automatically start to play the initial setup mode via JSON input. All the corresponding toggles and sliders (and their corresponding sonification) will be triggered automatically. Pressing the 'w' key will switch the JSON stream to the Work Mode simulation JSON file. Pressing the 'b' key will switch the JSON stream to the Break Mode simulation JSON file. These JSON simulate reasonable input that users would provide to the system in real life. Situations that can technically be manipulated via the user but are not part of the intended designed use of the simulator are not considered in this implementation.

After the JSON streams finish their demonstration, the user is free to trigger the JSON streams again or manipulate the program via the GUI.

Screen:
The GUI of this simulator is divided into 4 parts: Mode Selection, Initial Setup Mode, Work Mode, and Break Mode. Each of these modes have their corresponding controls that allow for manipulation of various variables. Debug statements are printed to the console for manual input review.

Mode selection:
Press any of the buttons to change which mode is currently active in the simulator.

Initial Setup Mode:
Two toggles are available for the user to press that signify user presence in the chair and whether the user would like to allow tracking of their body for sonification. The sliders in this mode adjust angles and time and can be set as the user pleases. However, its intended use is to play a sonification if the user's body parts are not in the acceptable range of angles and stops when the user reaches the acceptable range. Then, the timer automatically increases until it hits 3 seconds. This applies to all 3 angles that are measured. The sonification that plays is 3 sine waves, each corresponding to a specific angle being measured, and the sound amplitude tells the user how far away the user is from being in the acceptable range for that angle. Silence of the sine wave indicates that the body part is in the acceptable range of angles.

Work Mode:
One toggle is available for the user to press that signifies whether the user would like to allow tracking of their body for sonification. The user presence toggle in Initial Setup Mode must also be toggled on for sonification to be provided in this mode. The sliders and sonification scheme in this mode work the same as in Initial Setup Mode. However, in this mode, to trigger sonification, a timer must reach 5 minutes (because the user must be in an inappropriate angle for at least 5 minutes for correction sonification to kick into play).

Break Mode:

Break Mode contains 3 toggles, one toggle for toggling Break Mode in general, and the other two toggles for toggling specific reminders that the user wishes to be reminded for. The sliders in this mode can also be moved as the user pleases. The intended use of the stand up reminder slider is to send a TTS message telling the user to take a break after the timer slider touches 45 minutes. The stretch reminder slider goes up to 30 minutes, and when the slider reaches this point, a looping music sample plays, and the horizontal and vertical neck angle sliders change the room size reverb and damping of the sound sample signal, respectively. Once the user slides to either 0 or 180 degrees twice (both for horizontal and vertical neck angle sliders), the stretch reminder slider resets back to 0 minutes.