ArachnoTherapy VR Test Cases

Code Testing

Module: **Spider Behavior**

Classes: *AbstractSpider and all child classes*

Step	Test Stage	Expected Results	Actual Results	Status (Pass/Fail)	Notes
1	Check BasicSpiders behaviour	Idle or move after 5s	Idle or move after 5s	Pass	All anticipated behaviour observed during testing period
2	Check IntermediateSpiders behaviour	Idle, move or jump after 4.5s	Idle, move or jump after 4.5s	Pass	All anticipated behaviour observed during testing period
3	Check ComplexSpiders behaviour	Idle, move, jump, attack after 4s	Idle, move, jump, attack after 4s	Pass	All anticipated behaviour observed during testing period
4	Check ExtremeSpiders behaviour	Move, jump, attack after 3.5s	Move, jump, attack after 3.5s	Pass	All anticipated behaviour observed during testing period
5	Check Idle transition	Loop animation	Loop animation	Pass	Transitions loop as expected
6	Check Move transition	Loop animation	Loop animation	Pass	Transitions loop as expected
7	Check Jump transition	Loop animation	Loop animation	Pass	Transitions loop as expected
8	Check Attack transition	Loop animation	Loop animation	Pass	Transitions loop as expected
9	Check BasicSpiders collisions	Run from everything	Run from everything	Pass	Collision behaves as expected
10	Check BasicSpiders collisions	Run from player	Run from player	Pass	Collision behaves as expected
11	Check BasicSpiders collisions	Direction change on wall collision	Direction change on wall collision	Pass	Collision behaves as expected
12	Check IntermediateSpiders collisions	Do nothing to BasicSpiders	Do nothing to BasicSpiders	Pass	Collision behaves as expected
13	Check IntermediateSpiders collisions	Do nothing to IntermediateSpiders	Do nothing to IntermediateSpiders	Pass	Collision behaves as expected
14	Check IntermediateSpiders collisions	Run from ComplexSpiders	Run from ComplexSpiders	Pass	Collision behaves as expected
15	Check IntermediateSpiders collisions	Run from ExtremeSpiders	Run from ExtremeSpiders	Pass	Collision behaves as expected
16	Check IntermediateSpiders collisions	Run or do nothing from player	Run or do nothing from player	Pass	Collision behaves as expected
17	Check IntermediateSpiders collisions	Direction change on wall collision	Direction change on wall collision	Pass	Collision behaves as expected
18	Check ComplexSpiders collisions	Attack BasicSpiders	Attack BasicSpiders	Pass	Collision behaves as expected
19	Check ComplexSpiders collisions	Attack IntermediateSpiders	Attack IntermediateSpiders	Pass	Collision behaves as expected
20	Check ComplexSpiders collisions	Run from ComplexSpiders	Run from ComplexSpiders	Pass	Collision behaves as expected
21	Check ComplexSpiders collisions	Run from ExtremeSpiders	Run from ExtremeSpiders	Pass	Collision behaves as expected
22	Check ComplexSpiders collisions	Run, do nothing, jump, attack player	Run, do nothing, jump, attack player	Pass	Collision behaves as expected
23	Check ComplexSpiders collisions	Direction change on wall collision	Direction change on wall collision	Pass	Collision behaves as expected
24	Check ExtremeSpiders collisions	Attack everything	Attack everything	Pass	Collision behaves as expected
25	Check ExtremeSpiders collisions	Attack player	Attack player	Pass	Collision behaves as expected
26	Check ExtremeSpiders collisions	Direction change on wall collision	Direction change on wall collision	Pass	Collision behaves as expected

Module: **Oculus Controller Input & Object Manipulation**

Classes: *Movement, Controller, Grabber, AbstractGrabbable and all child classes, AbstractButton and all child classes*

Step	Test Stage	Expected Results	Actual Results	Status (Pass/Fail)	Notes
1	Check left joystick vertical translation	Remains constant	Remains constant	Pass	Left joystick behaves as expected
2	Check left joystick hori. translation	Player can move and unable to pass through walls or tall objects	Player can move and unable to pass through walls or tall objects	Pass	Left joystick behaves as expected
3	Check left joystick	All movement stops if user releases joystick	All movement stops if user releases joystick	Pass	Left joystick behaves as expected
4	Grabbable object manipulation	Grabbable objects can be grabbed	Grabbable objects can be grabbed	Pass	Grabbed objects behave as expected
5	Grabbable object manipulation	Grabbed objects are mapped to correct hand	Grabbed objects are mapped to correct hand	Pass	Grabbed objects behave as expected
6	Grabbable object manipulation	Thrown objects would travel at realistic translational and rotational velocities	Thrown objects would travel at realistic translational and rotational velocities	Pass	Thrown objects behave as expected
7	Button object manipulation	Button objects can only be "pressed" if the trigger is pressed on either controller	button objects can only be "pressed" if the trigger is pressed on either controller	Pass	Button objects behave as expected
8	Button object manipulation	Button objects would move to their pressed position after being interacted with	Button objects would move to their pressed position after being interacted with	Pass	Button objects behave as expected
9	Button object manipulation	Button objects would return to their unpressed position when the user released the trigger	Button objects would return to their unpressed position when the user released the trigger	Pass	Button objects behave as expected

Module: **Door Physics**

Classes: *Handle, HandleProxy*

Step	Test Stage	Expected Results	Actual Results	Status (Pass/Fail)	Notes
1	Door logic	Doors could neither be translated nor rotated along the pitch and roll axes	Doors could neither be translated nor rotated along the pitch and roll axes	Pass	Door behaves as intended
2	Door logic	Collisions between the player's head and the door would not affect the player's position	Collisions between the player's head and the door would not affect the player's position	Pass	Door behaves as intended
3	Door logic	Doors would not continue to rotate if its handle was released by the player	Doors would not continue to rotate if its handle was released by the player	Pass	Door behaves as intended
4	Door logic	The angle of a door, with the closed rotation treated as 0 degrees, could not exceed 135 degrees	The angle of a door, with the closed rotation treated as 0 degrees, could not exceed 135 degrees	Pass	Door behaves as intended
5	Handle logic	The visible handle would not snap to the user's hand position as other grabbable objects do	The visible handle would not snap to the user's hand position as other grabbable objects do	Pass	Handle behaves as intended
6	Handle logic	The visible handle would follow the position of the invisible "grab box handle" within the door's existing rotational constraints	The visible handle would follow the position of the invisible "grab box handle" within the door's existing rotational constraints	Pass	Handle behaves as intended

Module: **Button Events**

Classes: *AbstractButtonEvent and all child classes, AbstractButton and all child classes*

Step	Test Stage	Expected Results	Actual Results	Status (Pass/Fail)	Notes
1	Audio button events	Audio would play if a Button object with an associated AudioButtonEvent reference was interacted with	Audio would play if a Button object with an associated AudioButtonEvent reference was interacted with	Pass	Audio button behaves as intended
2	Audio button events	Audio would not loop	Audio would not loop	Pass	Audio button behaves as intended
3	Text button events	A Text element's visibility would be toggled if a Button object with an associated TextButtonEvent reference was interacted with	A Text element's visibility would be toggled if a Button object with an associated TextButtonEvent reference was interacted with	Pass	Text button behaves as intended
4	Video button events	A video would begin playing if a Button object with an associated VideoButtonEvent was interacted with for the first time	A video would begin playing if a Button object with an associated VideoButtonEvent was interacted with for the first time	Pass	Video button behaves as intended
5	Video button events	Subsequent interactions with the same Button object would toggle the play status of the Video	Subsequent interactions with the same Button object would toggle the play status of the Video	Pass	Video button behaves as intended
6	Video button events	Videos would loop	Videos would loop	Pass	Video button behaves as intended

Module: **Spider Creation Interface**

Classes: *SpiderCreatorModel, SpiderCreatorSingleton, SpiderAmountController, SpiderDiversityController, SpiderIntensityController, SingleCreationController, SingleDeletionController, MassCreationController, MassDeletionController, DefaultState*

Step	Test Stage	Expected Results	Actual Results	Status (Pass/Fail)	Notes
1	Spider amount	User-controlled minimum amount of spiders could not decrease below 0	User-controlled minimum amount of spiders could not decrease below 0	Pass	Spider amount works as intended
2	Spider amount	User-controlled maximum amount of spiders could not exceed 20	User-controlled maximum amount of spiders could not exceed 20	Pass	Spider amount works as intended
3	Spider diversity	The diversity would be set to Common House Spider by default	The diversity would be set to Common House Spider by default	Pass	Spider diversity works as intended
4	Spider diversity	Only one diversity setting could ever be active at a given time	Only one diversity setting could ever be active at a given time	Pass	Spider diversity works as intended
5	Spider intensity	The intensity would be set to Low by default	The intensity would be set to Low by default	Pass	Spider intensity works as intended
6	Spider intensity	Only one intensity setting could ever be active at a given time	Only one intensity setting could ever be active at a given time	Pass	Spider intensity works as intended
7	Spider creation	The correct spider(s) would be created based on the user-specified diversity and intensity settings (i.e. Basic Tarantula, Complex Common House Spider, Intermediate Wolf Spider, Random Extreme Spider, Random Tarantula, etc.)	The correct spider(s) would be created based on the user-specified diversity and intensity settings (i.e. Basic Tarantula, Complex Common House Spider, Intermediate Wolf Spider, Random Extreme Spider, Random Tarantula, etc.)	Pass	Spider creation works as intended

8	Spider creation	The Add One Spider button would always create one spider if the number of existing spiders was less than the user-controlled maximum amount	The Add One Spider button would always create one spider if the number of existing spiders was less than the user-controlled maximum amount	Pass	Spider creation works as intended
9	Spider creation	The Add One Spider button would not create a spider if the number of existing spiders was equal to the user-controlled maximum amount	The Add One Spider button would not create a spider if the number of existing spiders was equal to the user-controlled maximum amount	Pass	Spider creation works as intended
10	Spider creation	The Add All Spiders button would continue creating spiders until the user-specified maximum amount was reached	The Add All Spiders button would continue creating spiders until the user-specified maximum amount was reached	Pass	Spider creation works as intended
11	Spider creation	The Add One Spider button would not create any spiders if the number of existing spiders was equal to the user-controlled maximum amount	The Add One Spider button would not create any spiders if the number of existing spiders was equal to the user-controlled maximum amount	Pass	Spider creation works as intended
12	Spider deletion	The Remove One Spider button would always remove one spider if the number of existing spiders was greater than 0	The Remove One Spider button would always remove one spider if the number of existing spiders was greater than 0	Pass	Spider deletion works as intended
13	Spider deletion	The Remove One Spider button would do nothing if no spiders were present	The Remove One Spider button would do nothing if no spiders were present	Pass	Spider deletion works as intended
14	Spider deletion	The Remove All Spiders button would always remove all spiders	The Remove All Spiders button would always remove all spiders	Pass	Spider deletion works as intended

Module: **Conditional Room Display**

Classes: *RoomActivator, RoomColliderArea*

Step	Test Stage	Expected Results	Actual Results	Status (Pass/Fail)	Notes
1	Player presence in each room	Each room would be aware of whether or not the player was inside of it	Each room would be aware of whether or not the player was inside of it	Pass	
2	Player presence in each room	Each room could communicate its player status to a central RoomActivator object	Each room could communicate its player status to a central RoomActivator object	Pass	
3	Room visibility	Only the room in which the player was currently located, and any rooms adjacent to said room, would be visible at any given time	Only the room in which the player was currently located, and any rooms adjacent to said room, would be visible at any given time	Pass	

Module: **Preliminary Therapist Character Audio**

Classes: *No backend scripting (AudioSource settings in Unity project)*

Step	Test Stage	Expected Results	Actual Results	Status (Pass/Fail)	Notes
1	Introduction audio	Preliminary introduction audio would play on awake (i.e. when the application was launched)	Preliminary introduction audio would play on awake (i.e. when the application was launched)	Pass	

Module: **Spider Haptics**

Classes: *HapticGenerator, HapticReceiver*

Step	Test Stage	Expected Results	Actual Results	Status (Pass/Fail)	Notes
1	Haptic feedback generation	Each spider type would be initialized with specific amplitude and frequency values	Each spider type would be initialized with specific amplitude and frequency values	Pass	
2	Haptic feedback execution	A vibration function (with amplitude and frequency dictated by the spider type) would be applied to the controller that “touched” a spider object	A vibration function (with amplitude and frequency dictated by the spider type) would be applied to the controller that “touched” a spider object	Pass	
3	Haptic feedback execution	The vibration would cease when the user’s virtual hand lost contact with the spider	The vibration would cease when the user’s virtual hand lost contact with the spider	Pass	
4	Haptic feedback execution	If the user’s virtual hand remained on the spider, then the vibration would automatically cease after 1.5 seconds	If the user’s virtual hand remained on the spider, then the vibration would automatically cease after 1.5 seconds	Pass	

Module: **Room Condition Logic**

Classes: *RoomController, RoomParameterGrabbable, ChildButton, TransitionButton*

Step	Test Stage	Expected Results	Actual Results	Status (Pass/Fail)	Notes
1	Transition button logic	Door would be locked on awake	Door would be locked on awake	Pass	
2	Transition button logic	Button press would cause all room conditions to be checked	Button press would cause all room conditions to be checked	Pass	
3	Transition button logic	Door would not unlock on button press if any tasks were unfulfilled	Door would not unlock on button press if any tasks were unfulfilled	Pass	
4	Transition button logic	Door would unlock on button press if all tasks had been fulfilled	Door would unlock on button press if all tasks had been fulfilled	Pass	
5	Transition button logic	Window glass would remain tinted if any tasks were unfulfilled	Window glass would remain tinted if any tasks were unfulfilled	Pass	
6	Transition button logic	Window glass would become fully transparent if all tasks had been fulfilled	Window glass would become fully transparent if all tasks had been fulfilled	Pass	
7	Room task fulfillment	Picking up a room parameter grabbable would update the room controller's list of Boolean conditions	Picking up a room parameter grabbable would update the room controller's list of Boolean conditions	Pass	
8	Room task fulfillment	Pressing a room parameter button would update the room controller's list of Boolean conditions	Pressing a room parameter button would update the room controller's list of Boolean conditions	Pass	
9	Therapist character audio	The "Room X transition" clip would play if a transition button was pressed and all tasks were fulfilled	The "Room X transition" clip would play if a transition button was pressed and all tasks were fulfilled	Pass	

Module: **Highlight Required Interactables on Hover**

Classes: *RoomParameterGrabbable, Grabber*

Step	Test Stage	Expected Results	Actual Results	Status (Pass/Fail)	Notes
1	Applying the highlight material	Yellow highlight material would be applied on hand hover	Yellow highlight material would be applied on hand hover	Pass	
2	Removing the highlight material	The room parameter grabbable's initial material would be re-applied on termination of hover	The room parameter grabbable's initial material would be re-applied on termination of hover	Pass	
3	Removing the highlight material	The room parameter grabbable's initial material would be re-applied on grab	The room parameter grabbable's initial material would be re-applied on grab	Pass	

Module: **Exclusive Spawner for Each Spider**

Classes: *MassCreationController, SpiderCreatorModel*

Step	Test Stage	Expected Results	Actual Results	Status (Pass/Fail)	Notes
1	Initialization	All SpiderCreatorModel objects required a list of 20 spawners	All SpiderCreatorModel objects required a list of 20 spawners	Pass	
2					
3	Execution	The Add All Spiders Button would create no more than one spider per spawner for any added amount between 2 and 20	The Add All Spiders Button would create no more than one spider per spawner for any added amount between 2 and 20	Pass	
4					

Module: **Revamped Interactable Highlight Logic**

Classes: *Grabber, AbstractButton and all child classes, AbstractGrabbable and all child classes*

Step	Test Stage	Expected Results	Actual Results	Status (Pass/Fail)	Notes
1	Optional grabbable objects	Yellow highlight material applied to object on hand hover	Yellow highlight material applied to object on hand hover	Pass	
2	Optional grabbable objects	Object's initial material re-applied on grab or termination of hover	Object's initial material re-applied on grab or termination of hover	Pass	
3	Room parameter grabbables	Yellow highlight material replaced by pink highlight material	Yellow highlight material replaced by pink highlight material	Pass	

4	Button objects	Blue highlight material applied to object on hand hover	Blue highlight material applied to object on hand hover	Pass	
5	Button objects	Object's initial material re-applied on press or termination of hover	Object's initial material re-applied on press or termination of hover	Pass	

Module: **Extra Room Condition Logic**

Classes: *RoomController, TransitionButton*

Step	Test Stage	Expected Results	Actual Results	Status (Pass/Fail)	Notes
1	Permanent transition button colour char	Base material colour would change from red to green on button press if all room conditions had been fulfilled	Base material colour would change from red to green on button press if all room conditions had been fulfilled	Pass	
2	Therapist character audio	The "incomplete room" audio clip would play if a transition button was pressed and tasks were unfulfilled	The "incomplete room" audio clip would play if a transition button was pressed and tasks were unfulfilled	Pass	

Module: **Room 3 Educational Info**

Classes: *AudioButtonEvent*

Step	Test Stage	Expected Results	Actual Results	Status (Pass/Fail)	Notes
1	Toggleable audio parameter	AudioButtonEvents could be specified as having toggleable audio or not	AudioButtonEvents could be specified as having toggleable audio or not	Pass	
2	Random audio selection	AudioButtonEvents with toggleable audio would randomly select a clip from a pre-constructed array before playing any audio	AudioButtonEvents with toggleable audio would randomly select a clip from a pre-constructed array before playing any audio	Pass	

Module: **Room 0 Auditory Instruction Sequence**

Classes: *ManyToOneAudioSource, PlayAudioOnDelay, PlayAudioOnDisplacement, PlayAudioOnHeadCollision, AudioAndVideoButtonEvent, ActivateObjectRenderer*

Step	Test Stage	Expected Results	Actual Results	Status (Pass/Fail)	Notes
1	Introductory audio clip	Audio would play on awake	Audio would play on awake	Pass	
2	Introductory audio clip	Audio would not loop	Audio would not loop	Pass	
3	Controller audio clip	Audio would play after a specified delay time	Audio would play after a specified delay time	Pass	
4	Controller audio clip	Audio would not loop	Audio would not loop	Pass	
5	Object interaction audio clip	Audio would play upon the first collision between player head and field surrounding bulletin board	Audio would play upon the first collision between player head and field surrounding bulletin board	Pass	
6	Object interaction audio clip	Audio would not loop	Audio would not loop	Pass	
7	Object interaction audio clip	Audio would not play upon any future collisions between the aforementioned objects	Audio would not play upon any future collisions between the aforementioned objects	Pass	
8	Video preview audio clip	Audio would play upon the player grabbing a piece of paper from the bulletin board for the first time	Audio would play upon the player grabbing a piece of paper from the bulletin board for the first time	Pass	
9	Video preview audio clip	Audio would not loop	Audio would not loop	Pass	
10	Video preview audio clip	Audio would not play upon the player grabbing additional objects	Audio would not play upon the player grabbing additional objects	Pass	
11	Diaphragmatic breathing video & audio	Audio and video would play upon button press	Audio and video would play upon button press	Pass	
12	Diaphragmatic breathing video & audio	Further button presses would toggle video play status, but not affect audio	Further button presses would toggle video play status, but not affect audio	Pass	
13	Diaphragmatic breathing video & audio	Video would loop, but audio would not	Video would loop, but audio would not	Pass	
14	Diaphragmatic breathing screen	Screen object would appear upon playing of video preview audio clip	Screen object would appear upon playing of video preview audio clip	Pass	
15	Room 0 transition button	Button and text panel would appear upon completion of diaphragmatic breathing audio playthrough	Button and text panel would appear upon completion of diaphragmatic breathing audio playthrough	Pass	

Module: **Button Press to FInish Play Session**

Classes: *FinishButton*

Step	Test Stage	Expected Results	Actual Results	Status (Pass/Fail)	Notes
1	Finish Button	Play session stops when button is hit during play session in Unity Editor	Play session stops when button is hit during play session in Unity Editor	Pass	
2	Finish Button	Application is exited when button is hit during play session in built application	Application is exited when button is hit during play session in built application	Pass	

Module:	**New Passive Jar Mechanics**
Classes:	*UpdateRoomConditionsOnCollision*

Step	Test Stage	Expected Results	Actual Results	Status (Pass/Fail)	Notes
1	Jar Mechanic	Spider does not constantly “collide” with the event trigger space and change direction	Spider does not constantly “collide” with the event trigger space and change direction	Pass	
2	Jar Mechanic	Room condition is fulfilled upon “collision” with the player’s head	Spider does not constantly “collide” with the event trigger space and change direction	Pass	