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Test Plan, Test Design Specifications and Test Cases
Version 1

CENG 408
Innovative System Design and Development II

Non-Euclidean Game Engine

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1. INTRODUCTION

1.1 Version Control

Version No	Description of Changes	Date
1.0	First Version	April 16, 2021

1.2 Overview

Assets for Non-Euclidean Game Engine will be tested to see if they are running as planned and written in SRS and SDD.

1.3 Scope

This document includes test plan, test design specifications and detailed test cases that will be used in testing non-Euclidean Game Engine.

2. FEATURES TO BE TESTED

This section lists and gives a brief description of all the major features to be tested. For each major feature there will be a Test Design Specification added at the end of this document.

2.1 Player Movement (PM)

Player movement is the basic concept of controlling an object to traverse game world. Player movement will be tested to see if there are any unintended controls to fix them.

2.2 Environment Interaction (EI)

Environment interaction testing will be done to see if player can interact with objects in the game world to move/pick up objects, open/close doors, pulling levers etc.

2.3 Portal (PT)

Portal teleports players from one place to another with or without them knowing it while also shrinking/expanding them if wanted. Portal testing will be done to see if portal can seamlessly teleport players, shrinks/expands as intended etc.

3. ITEM PASS/FAIL CRITERIA

3.1 Exit Criteria

- 100% of the test cases are executed
- 95% of the test cases passed
- All High and Medium Priority test cases passed

4. REFERENCES

- [1] Non-Euclidean Game Engine - Software Requirements Specification, April 9, 2021
- [2] Non-Euclidean Game Engine - Software Design Description, April 9, 2021

5. TEST DESIGN SPECIFICATIONS

5.1 Player Movement (PM)

5.1.1 Sub features to be tested

5.1.1.1 Movement (PM.M)

Player can move around the scene by walking/sprinting.

5.1.1.2 Jumping (PM.J)

Player can jump.

5.1.1.3 Camera Control (PM.CC)

Player can turn and look around the scene.

5.1.2 Test Cases

Here list all the related test cases for this feature

TC ID	Requirements	Priority	Scenario Description
PM.M.01	3.2.4	H	Press “w” button to move forward.
PM.M.02	3.2.4	H	Press “a” button to move left.
PM.M.03	3.2.4	H	Press “d” button to move right.
PM.M.04	3.2.4	H	Press “s” button to move backwards.
PM.M.05	3.2.4	H	Press “shift” and “w” buttons to sprint.
PM.J.01	3.2.4	H	Press “space” button to jump.
PM.CC.01	3.2.4	H	Move mouse to turn around.

5.2 Environment Interaction (EI)

5.2.1 Sub features to be tested

5.2.1.1 Interact (EI.I)

Use a button to interact with object to perform specified action. Open/close for doors, on/off for buttons etc.

5.2.1.2 Pick Up (EI.PU)

Pick up an object in the game world and move it.

5.2.2 Test Cases

Here list all the related test cases for this feature

TC ID	Requirements	Priority	Scenario Description
EI.I.01	3.2.4	H	Press “E” button to interact with object.
EI.PU.01	3.2.4	H	Press “F” button to pick up the object.
EI.PU.02	3.2.4	H	Move forward after picking up the object.
EI.PU.03	3.2.4	H	Press “F” while holding the object to drop the object.

5.3 Portal (PT)

5.3.1 Sub features to be tested

5.3.1.1 Seamless Portal (PT.SP)

Portal can replicate its connected portal’s view.

5.3.1.2 Teleport (PT.T)

Portal can teleport player to its determined destination.

5.3.1.3 Shrink/Expand (PT.SE)

Portal can shrink/expand player if wanted.

5.3.2 Test Cases

Here list all the related test cases for this feature

TC ID	Requirements	Priority	Scenario Description
PT.SP.01	3.2.1	H	Place portal and look through it.
PT.T.01	3.2.1	H	Place portals and go through them as player.
PT.SE.01	3.2.1	H	Place two portals with different sizes and go back and forth.

6. Detailed Test Cases

6.1 PM.M.01

TC_ID	PM.M.01
Purpose	Player should move forward.
Requirements	3.2.4
Priority	High
Estimated Time Needed	10 seconds
Dependency	-
Setup	Start game environment.
Procedure	[A01] Press “w”.
	[V01] Observe that player moves forward.
Cleanup	-

6.2 PM.M.02

TC_ID	PM.M.02
Purpose	Player should move left.
Requirements	3.2.4
Priority	High
Estimated Time Needed	10 seconds
Dependency	-
Setup	Start game environment.
Procedure	[A01] Press “a”.
	[V01] Observe that player moves left.
Cleanup	-

6.3 PM.M.03

TC_ID	PM.M.03
Purpose	Player should move right.
Requirements	3.2.4
Priority	High
Estimated Time Needed	10 seconds
Dependency	-
Setup	Start game environment.
Procedure	[A01] Press “d”.
	[V01] Observe that player moves right.
Cleanup	-

6.4 PM.M.04

TC_ID	PM.M.04
Purpose	Player should move backwards.
Requirements	3.2.4
Priority	High
Estimated Time Needed	10 seconds
Dependency	-
Setup	Start game environment.
Procedure	[A01] Press “d”.
	[V01] Observe that player moves backwards.
Cleanup	-

6.5 PM.M.05

TC_ID	PM.M.05
Purpose	Player should sprint.
Requirements	3.2.4
Priority	High
Estimated Time Needed	10 seconds
Dependency	PM.M.01
Setup	Start game environment.
Procedure	[A01] Press “w” and “shift” at the same time.
	[V01] Observe that player sprints forward.
Cleanup	-

6.6 PM.J.01

TC_ID	PM.J.01
Purpose	Player should jump.
Requirements	3.2.4
Priority	High
Estimated Time Needed	10 seconds
Dependency	
Setup	Start game environment.
Procedure	[A01] Press “space”.
	[V01] Observe that player jumps.
Cleanup	-

6.7 PM.CC.01

TC_ID	PM.CC.01
Purpose	Player should turn around.
Requirements	3.2.4
Priority	High
Estimated Time Needed	10 seconds
Dependency	
Setup	Start game environment.
Procedure	[A01] Move mouse in different directions.
	[V01] Observe players view area changes.
Cleanup	-

6.8 EI.I.01

TC_ID	EI.I.01
Purpose	Player should interact with the object.
Requirements	3.2.4
Priority	High
Estimated Time Needed	1 minute
Dependency	
Setup	Add an interactable object to game world and start game environment.
Procedure	[A01] Press “E”.
	[V01] Observe that player interacts with the object in the intended way.
Cleanup	-

6.9 EI.PU.01

TC_ID	EI.PU.01
Purpose	Player should pick up the object.
Requirements	3.2.4
Priority	High
Estimated Time Needed	3 Minute
Dependency	
Setup	Add a pickable object to game world and start game environment.
Procedure	[A01] Press “F”.
	[V01] Observe that player picks up the object.
Cleanup	-

6.10 EI.PU.02

TC_ID	EI.PU.02
Purpose	Player should move the object.
Requirements	3.2.4
Priority	High
Estimated Time Needed	3 minutes
Dependency	PM.M.01
Setup	Add a pickable object to game world, start game environment and pick it up
Procedure	[A01] Press “w”.
	[V01] Observe that player moves the object.
Cleanup	-

6.11 EI.PU.03

TC_ID	EI.PU.03
Purpose	Player should pick up the object.
Requirements	3.2.4
Priority	High
Estimated Time Needed	3 minutes
Dependency	-
Setup	Add a pickable object to game world, start game environment and pick it up.
Procedure	[A01] Press “F”.
	[V01] Observe that player drops the object.
Cleanup	-

6.12 PT.SP.01

TC_ID	PT.SP.01
Purpose	Player should see through the portal.
Requirements	3.2.1
Priority	High
Estimated Time Needed	5 minutes
Dependency	-
Setup	-
Procedure	[A01] Place two portals at different places.
	[A02] Connect them from inspector.
	[A03] Start game environment.
	[A04] Look through portal.
	[V01] Observe that player can see the view of the connected portal.
Cleanup	-

6.13 PT.T.01

TC_ID	PT.T.01
Purpose	Player should teleport back and forth through portals.
Requirements	3.2.1
Priority	High
Estimated Time Needed	5 minutes
Dependency	PM.M
Setup	-
Procedure	[A01] Place two portals at different places.
	[A02] Connect them from inspector.
	[A03] Start game environment.
	[A04] Go through portal.
	[V01] Observe that player teleports to the connected portal.
Cleanup	-

6.14 PT.SE.01

TC_ID	PT.SE.01
Purpose	Player should shrink or expand according the size differences of connected portals.
Requirements	3.2.1
Priority	High
Estimated Time Needed	5 minutes
Dependency	PM.M, PT.T.01
Setup	-
Procedure	[A01] Place two portals at different places with different sizes.
	[A02] Connect them from inspector.
	[A03] Start game environment.
	[A04] Go through the smaller portal.
	[A04] Go back through the bigger portal.
	[V01] Observe that when player goes through the smaller portal it expands and when it goes through the bigger portal it shrinks.
Cleanup	-