Project Hellknöw

Group 3
Henrik Sandström
Jonas Lindmark
Carl-Fredrik Sundlöf
Tim Hao Li

Section 6

Description: Players should behave in the same way as a movable object when interacting with other movable objects or players.
Reference to the Requirements Document: 4.1.1.1 Changes in movement.
Description of the inputs: A game instance with two players and atleast one movable object. The object needs to have the same ingame weight as the player. Position and collission speed.
Description of the expected output: A change in movement speed and direction should be observed. This change should be the same whether or not two players interact or one player and a movable object.
Step by step procedure:

1. Place a movable object in a predefined position on a horizontal surface.
2. Have one player collide with this object at a specified speed.
3. Note by how much the movable object moved as an effect of the collision.
4. Place one player at the exact same predefined position as the movable object.
5. Have the other player collide with the first player at the same specified speed as before.
6. Note the first players change in movement and compare to the change of the movable object. If they're equal the test is a success, otherwise it has failed.

Description: Physical laws should hold in regard of momentum when two movable objects or players collide.
Reference to the Requirements Document: 4.1.1.2 Interaction.
Description of the inputs: Two movable objects with known weights on a known surface. Together with initial speed.
Description of the expected output: The objects will have the same weight as before but new speed values after their collission.
Step by step procedure:

1. Calculate total momentum before the test using physics formulae P = mv.
2. Have the two objects collide and note the new speeds and directions.
3. Calculate the new momentum and compare to the initial. If equal the test is a success otherwise the test has failed.

Description: All moving objects and players shall be subject to friction.
Reference to the Requirements Document: 4.1.1.3 Frictional force
Description of the inputs: A moving object on top of a surface which is known to have friction.
Description of the expected output: After some time the moving object should have stopped.
Step by step procedure:

1. Set the object in motion on the surface.
2. Observe its change in speed until the object has stopped.
3. If the object does indeed stop within an accepted amount of time and has not been subject to any other external force the test is a success otherwise it has failed.

Description: All objects with a non-zero weight must eventually hit the ground.
Reference to the Requirements Document: 4.1.1.4 Gravitational force
Description of the inputs: An object with a positive non-zero weight placed in the air some arbitrary distance above ground level.
Description of the expected output: The object should be stationary on the ground.
Step by step procedure:

1. Observe the object in the air.
2. Observe the change in speed and its direction.

3. If the object has moved downwards and is now stationary on the ground the test is a success otherwise it has failed.

Description: A stationary object should be able to obstruct a players path.
Reference to the Requirements Document: 4.1.2.1 There will be obstacles in the game preventing the player to move in certain directions.
Description of the inputs: A non-movable object should be placed on surface and a player should be in the game instance.
Description of the expected output: The initial position of the object should not have changed. The player should not have been able to move through the object.
Step by step procedure:

1. Place a non-movable object on a surface and note its position.
2. Have a player try to walk through the object.
3. If the player could not and the initial position of the object has not changed the test is a success otherwise it has failed.

Description: Different obstacles will have different properties.
Reference to the Requirements Document: 4.1.2.2 Different obstacles have different properties.
Description of the inputs: A game instance with one player and one of each type of obstacle.
Description of the expected output: The defined effect of each obstacle should happen when the player interacts with them.
Step by step procedure:

1. Have the player interact with each obstacle on the course and note the effects.
2. Compare these effects with the expected effects and see if they're equal, if they are the test is a success otherwise it has failed.

Description: When the game starts the player(s) should have been assigned two weapons.

Reference to the Requirements Document: 4.1.3.1 Assigned weapons

Description of the inputs: Nothing.

Description of the expected output: A game instance where the players have in their possession two different weapons.

Step by step procedure:

1. Start up a game instance.
2. Try to change weapons using the predefined keys on the players.
3. Check wheter each player in the game instance has two weapons. If they do the test is a success otherwise it has failed.

Description: All weapons must have a cool down preventing them to be fired instantaneously repeatedly.

Reference to the Requirements Document: 4.1.3.2 Cool down.

Description of the inputs: A game instance with a player and an equipped weapon. A specified cool down for the equipped weapon.

Description of the expected output: Nothing.

Step by step procedure:

1. Have the player repeatedly try to fire his weapon.
2. Note the time between the fired shots.
3. Compare this time with the specified cool down for the equipped weapon. If they are equal the test is a success otherwise it has failed.

Description: Test if gravity affects bullets

Reference to the Requirements Document: 4.1.3.3 Gravity affect bullets

Description of the inputs: Pressing the left mouse button to shoot.

Description of the expected output: The bullet is not affected by gravity.

Step by step procedure:

1. Press left mouse button to start shooting.
2. The bullets leave from the weapon and travel across the screen.
3. If the bullets are affected by gravity, i.e. they are slowly decreasing towards the ground, then the test has failed. Otherwise the test is successful.

Description: Test if the avatar is able to move horizontally.

Reference to the Requirements Document: 4.1.4.1 Move horizontally

Description of the inputs: Press either the a key or the d key to move horizontally.

Description of the expected output: The avatar moves horizontal across the screen.

Step by step procedure:

1. Press either the a key or the d key.
2. The avatar reacts to the pressed key.
3. If the avatar moves horizontal in any direction the test is successful, otherwise the test has failed.

Description: Test if the avatar is able to jump

Reference to the Requirements Document: 4.1.4.2 Jump

Description of the inputs: Pressing the space bar to jump.

Description of the expected output: The avatar moves up into the air.

Step by step procedure:

1. The avatar is standing on flat ground.
2. Press the space bar.
3. The avatar reacts to the pressed key.
4. If the avatar moves upwards into the air the test is successful, otherwise the test has failed.

Description: Test if the avatar is able to crouch.

Reference to the Requirements Document: 4.1.4.3 Crouch

Description of the inputs: Pressing the a or the d key to move horizontally and the s key to crouch.

Description of the expected output: The avatar crouches.

Step by step procedure:

1. The avatar is standing on flat ground.
2. Move the avatar horizontally and take notice of the speed which the avatar is moving with.
3. Press the s key.
4. The avatar reacts to the pressed key.
5. If the avatar crouches the first part of the test is successful, otherwise the first part of the test has failed.
6. Move the avatar horizontally.
7. If the speed which the avatar moves with has decreased, compared with the speed the avatar moved with in step 2, the test is successful. Otherwise the test has failed.

Description: Test if the avatar is able to climb ladders.

Reference to the Requirements Document: 4.1.4.4 Climb ladders

Description of the inputs: Pressing the w key to move upwards a ladder and the s key to move downwards on the ladder.

Description of the expected output: The avatar moves vertically upwards and downwards on the ladder.

Step by step procedure:

1. Move to avatar so that it stands beneath the ladder.
2. Press the w key to move upwards on the ladder.
3. Stop moving the avatar when he reaches the top of the ladder.
4. Press the s key to move the player downward.
5. If the avatar made it to the top of the ladder and down again the test is

successful otherwise it failed.

Description: Test so that the avatar is not able to pass through objects
Reference to the Requirements Document: 4.1.4.5 Pass through objects.
Description of the inputs: Pressing either the a key or the d key to move the avatar horizontally.
Description of the expected output: The avatar is not able to pass through the object.
Step by step procedure:

1. Move the avatar so that it is standing in front of a movable object, e.g. a crate.
2. Press either the a key or the d key so that the avatar moves in the direction of the crate.
3. If the avatar is not able to pass through the object the test is successful, otherwise it has failed.

Description: To be able to explore the map and find his/her adversary, the player needs to change his line of sight and thus chaining his field of view
Reference to the Requirements Document: 4.1.4.6 Changing line of sight
Description of the inputs: mouse navigation
Description of the expected output: player successfully changes its line of sight
Step by step procedure:

1. Start a singleplayer session
2. Use the mouse to navigate the line of sight of the avatar
3. Check if the line of sight changes according to the position of the mouse cursor

Description: The player must be able to use all weapons assigned to him for the game to be functional.
Reference to the Requirements Document: 4.1.4.7 Use assigned weapons

Description of the inputs: keyboard input and mouse left button
Description of the expected output: player successfully uses each of its weapons
Step by step procedure:

1. Start a singleplayer session
2. Use the q button to switch between weapons
3. Press the left button on the mouse and see if each of them fires properly

Description: The player must be able to switch between weapons
Reference to the Requirements Document: 4.1.4.8 Switch weapons
Description of the inputs: q button on the keyboard
Description of the expected output: player successfully switches from one weapon to another
Step by step procedure:

1. start a singleplayer session
2. Use the q button to switch between weapons
3. See if it successfully loads the other weapon when q button is pressed.

Description: A player must lose health points when hit by movable objects.
Reference to the Requirements Document: 4.1.4.9 Lose health points
Description of the inputs: mouse button and control buttons on the keyboard
Description of the expected output: player successfully lose health points when hit by a moving object
Step by step procedure:

1. Start a multiplayer session
2. One player throws an moving object by using the mouse button and other keys on the keyboard
3. Place the other player on the path of the moving object

4. See if the player loses health when hit by the object

Description: A player must lose health points when hit by weapon's effects
Reference to the Requirements Document: 4.1.4.9 Losing health points when hit by a weapon
Description of the inputs: mouse button and control buttons on the keyboard
Description of the expected output: player successfully lose health points when hit by an effect
Step by step procedure:

1. Start a multiplayer session
2. One player fires a weapon by using the mouse button and other keys on the keyboard
3. Place the other player on the path of the effects of the weapon
4. See if the player loses health when hit by the effects

Description: The players must be able to know if connectivity is the fault if their program breaks up.
Reference to the Requirements Document: 4.1.5.1 Upon loss of connection during a game players will be notified.
Description of the inputs: none
Description of the expected output: a notification stating that connections has been lost
Step by step procedure:

1. Start a multiplayer session
2. Disconnect the network (depending on what sort of connection you use. If
   1) wireless, then turn off the wireless function
   2) Ethernet, pull off the wire
   3) Internet, disconnect the connection physically or by software)
3. See if a notification shows up

Description: The minimum requirements to run the game shall be a computer with Windows XP, 1.6 GHz processor, 512 MB RAM and a graphic card that supports OpenGL (Open Graphics Library)
Reference to the Requirements Document: 4.2.1.1 Minimum requirements
Description of the inputs: none
Description of the expected output: The game successfully runs
Step by step procedure:

1. Run the game on a computer with the specification described
2. See if everything runs smoothly

Description: The size of the game shall not be greater than 100 MB.
Reference to the Requirements Document: 4.2.1.2 Size of the game
Description of the inputs: none
Description of the expected output: size of the game being less than 100 MB.
Step by step procedure:

1. Fully install the game on a computer
2. Check the size of the game on the hard drive
3. The size should not exceed 100 MB.

Description: The game shall update the frames with a frequency of at least 20 frames per second
Reference to the Requirements Document: 4.2.1.3 Frame rate
Description of the inputs: none
Description of the expected output: The frame rate is right
Step by step procedure:

1. Start a game session
2. Use Framerate Tester implemented by our group to show the frame rate of the game
3. It shall be the number specified above.