

## Fall Back Game

This is a fall back project with a few implements to make it more interesting to test. I started from a project downloaded from github (as it is in the external file). And then wrote a makefile and made some adjustments to make it work in my Mac without building a VS project.

Firstly, a list of elements as required:

- a. a snowman cartoon model which can interact with the robot
- b. a robot that can move around this building, and see the surrounding environment.
- c. a table, two chairs, and a TV in the living room
- d. my Mac has problem rendering mirrors even by the sample code, tried another way to represent mirror, still get weird result. But I leave it there in the first room. Hopefully other machine can result better.
- e. two lights are located in each room omitting different colors. And there is also a flash light go with the robot
- f. a bump mapped cube appears at the ending
- g. the robot can look and move around the rooms. mouse is used to change view direction, keyboard( "w a s d" ) is used to change position
- h. if the robot go through the wall, the action will be undo, and there will be a warning sound. However the sound can not be omitted at the mean time when the action happens.
- i. we can see what the robot sees by default, and we can press "h" to switch to the head-above camera.
- j. in the room with surveillance camera, the table, door, wall, TV, and the robot is captured, and can be viewed in the TV.
- k. a candle in the living room, and there are fire(using particles) and light emitted by it.
- l. in the last room, the widow is covered by a colored glass, and can see the first room from a distance.
- m. there are models of light if you look up to the roof.
- n. there is a separate surveillance camera filming the blue room
- o. there is a carousel outside the window and can interact with the robot
- p. there is a ghost who will show up right in front of the the robot
- q. there will be a projection change of the walls in the freak-out stage
- r. there is a moving hands clock in the last room
- s. there is animation of doors and windows opening and closing
- t. there is a key only appears under certain conditions

Secondly, a list of functions:

- a. mouse can control the view to look around.
- b. press "f" to switch on or off the flash light.
- c. press "h" to switch from the two cameras.
- d. press "m" to move the carousel outside the house.
- e. press "w" to move forward, when moving while looking around, it is set to keep moving; press "w" again to stop moving forward.
- f. press "w" to move forward, when moving while looking around, it is set to keep moving; press "w" again to stop moving forward.
- g. press "w" to move forward, when moving while looking around, it is set to keep moving; press "w" again to stop moving forward.
- h. press "w" to move forward, when moving while looking around, it is set to keep moving; press "w" again to stop moving forward.
- i. press "q" or "esc" to quit.
- j. press "e" to interact with other items, such as opening doors & windows, or picking up the key.
- k. press "0" to switch the mode between textured and wireframe.
- l. press "n" to start over.

Lastly, the way to test it:

Command `./main` to run it.

Look around in the first red room using mouse. See through the window to find a carousel and other parts of this house. Press `"m"` to give the carousel a push. Using `"w a s d"` to move near the door. Press `"e"` to open it.

Find your way in the dark corridor. Press `"f"` to switch the flash on or off. Press `"0"` to see everything in wireframe in case loosing your way.

Look around in the second blue room. There is a surveillance camera at the corner of the roof. And the TV on the table is showing what the surveillance camera sees.

After another corridor, arrived at the third blue room. There is a clock which has moving hands. Move near to the window and press `"e"` to open it. See through a colored window, you can find there is a snowman looking at you in the first room. Since the door is locked anyway, go all the way back to check that snowman out.

A ghost will show up to scare you in the corridor. Be prepared.

Arrived at the first red room. Wall begins to change scales and no snowman is here. While there is a key on the floor. Press `"e"` to pick it up. Go all the way back to open that locked door.

The snowman will show up to run after you in the corridor. Be prepared.

In the third room, press `"e"` to open the iron door. Another room shows up with a cake inside! Go over there finding out it is a track. If the view point is to the up, you can see how you fall into the infinite skybox perfectly. After a while, the world is nothing left but a turing-around bump-mapped cube.

The End.