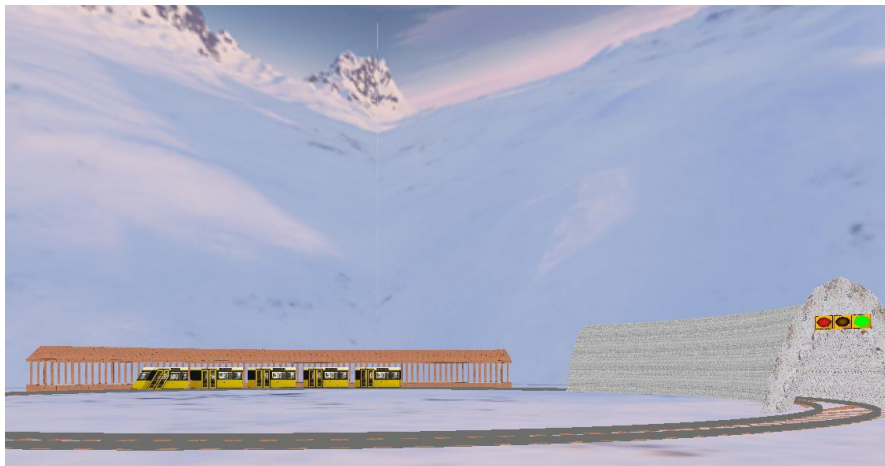# "Snow Mountain Train" Report

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Description

It's a train going through the mountains, it's winter, and there's snow everywhere. The train stops briefly at the station on each lap and travels through tunnels as it travels. Players can control their position and look in all directions, and can also use the cab view or the station view.

Build Commands

```
$ g++ -o RailwayWorld RailwayWorld.cpp -lGL -lGLU -lglut
$ ./RailwayWorld
```
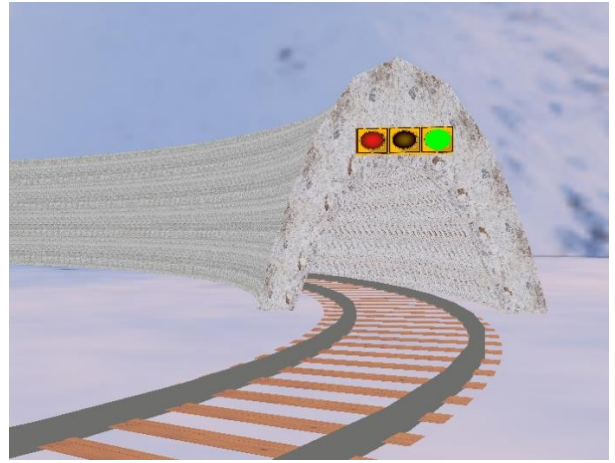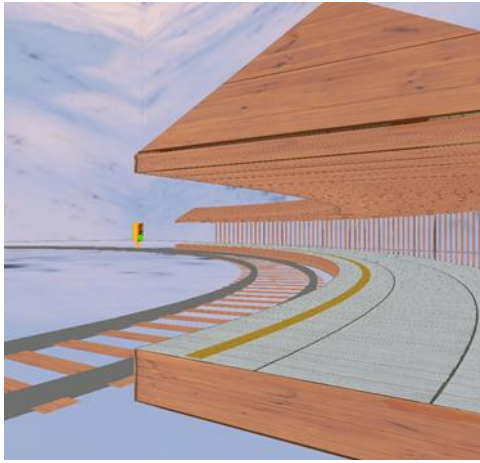
Control Functions

Up Arrow	Move camera forward in the current direction
Down Arrow	Move camera backward in the current direction
Left Arrow	Change the current direction towards left by a certain angle
Right Arrow	Change the current direction towards right by a certain angle
Page-Up	look up
Page-Down	look down
F12	Switch between 3 camera modes

Extra Feature

- **Model Enhancements**

  - Railroad ties, stations, tunnels, lights, trains, etc. are all textured.

- The entire scene is in a skybox, and no matter how the player moves the camera, it's impossible to leave the box.
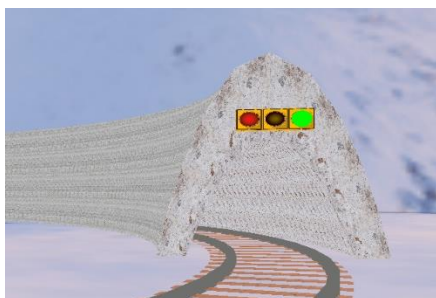

■ **Scene enhancements**

- The station has a signal light that changes from green to yellow to red when the train enters the station, and red to green when it leaves the station.

- There is also a similar signal light at the entrance of the tunnel, which is currently steady green. In the future, if this track is used in both directions, it will be possible to use this signal light.

- **Camera enhancements**

"**F12**" can change camera mode

- The first mode is the movable mode, which is similar to CS games. The arrow keys control the movement forward and backward and turn left and right, and the page turning keys control the head up and down. (In the skybox, it doesn't make sense to move the camera height down, so I set the page keys to look up and down, rather than a change in camera height, so that the player can look up to the top of the skybox.)

- The second mode is the train cab view, which moves with the train cab, always looking forward.

- The last is the train station view, in front of the train station, always looking at the train, whether or not the train is moving.