COSC490 SPRING 2011 FINAL GROUP PROJECT

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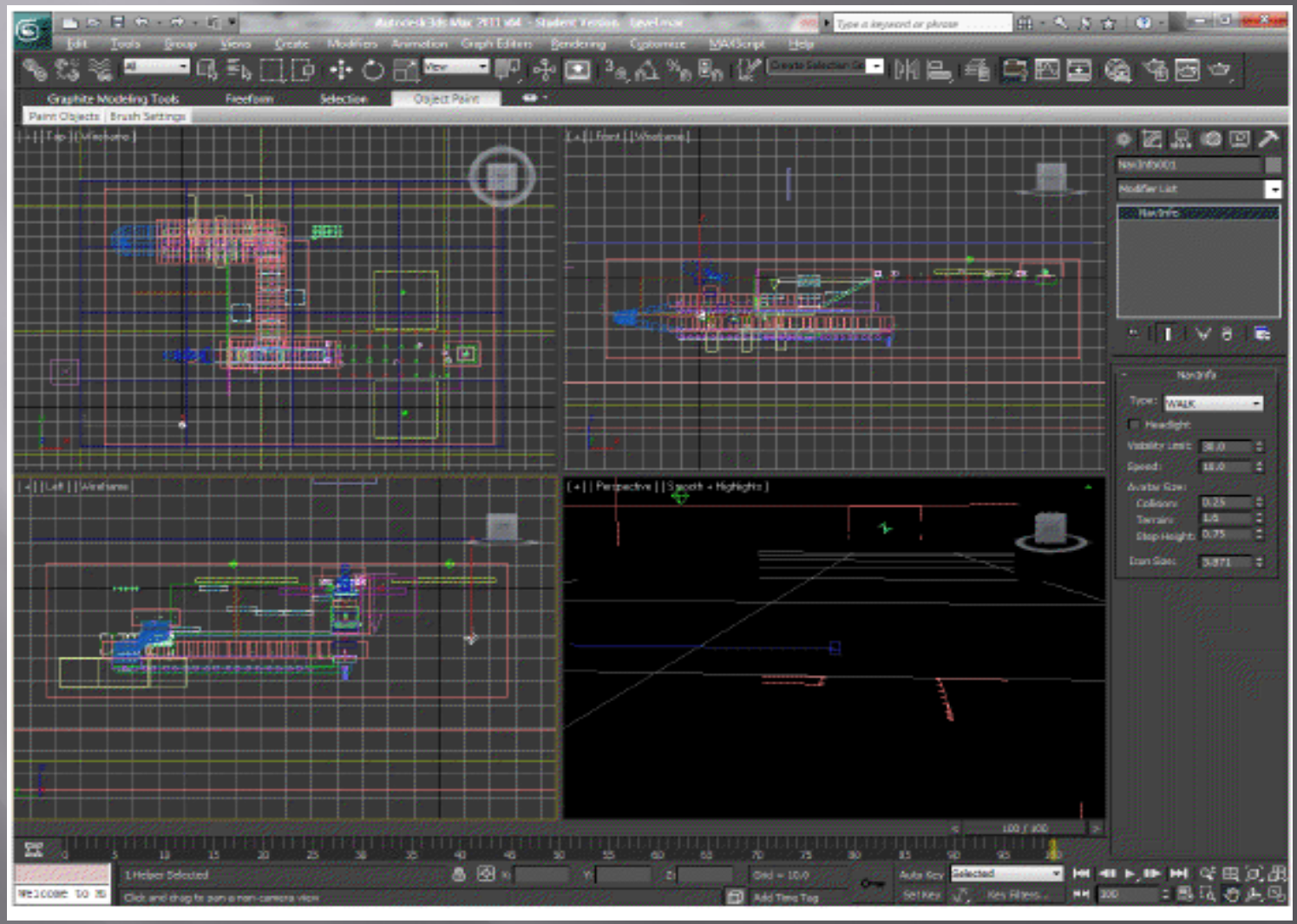
3-Level Obstacle Course/Maze

- Each member will design a separate level.
- First person view (third person impractical: Explained later)
- The end of one level will link to the next via anchor node.

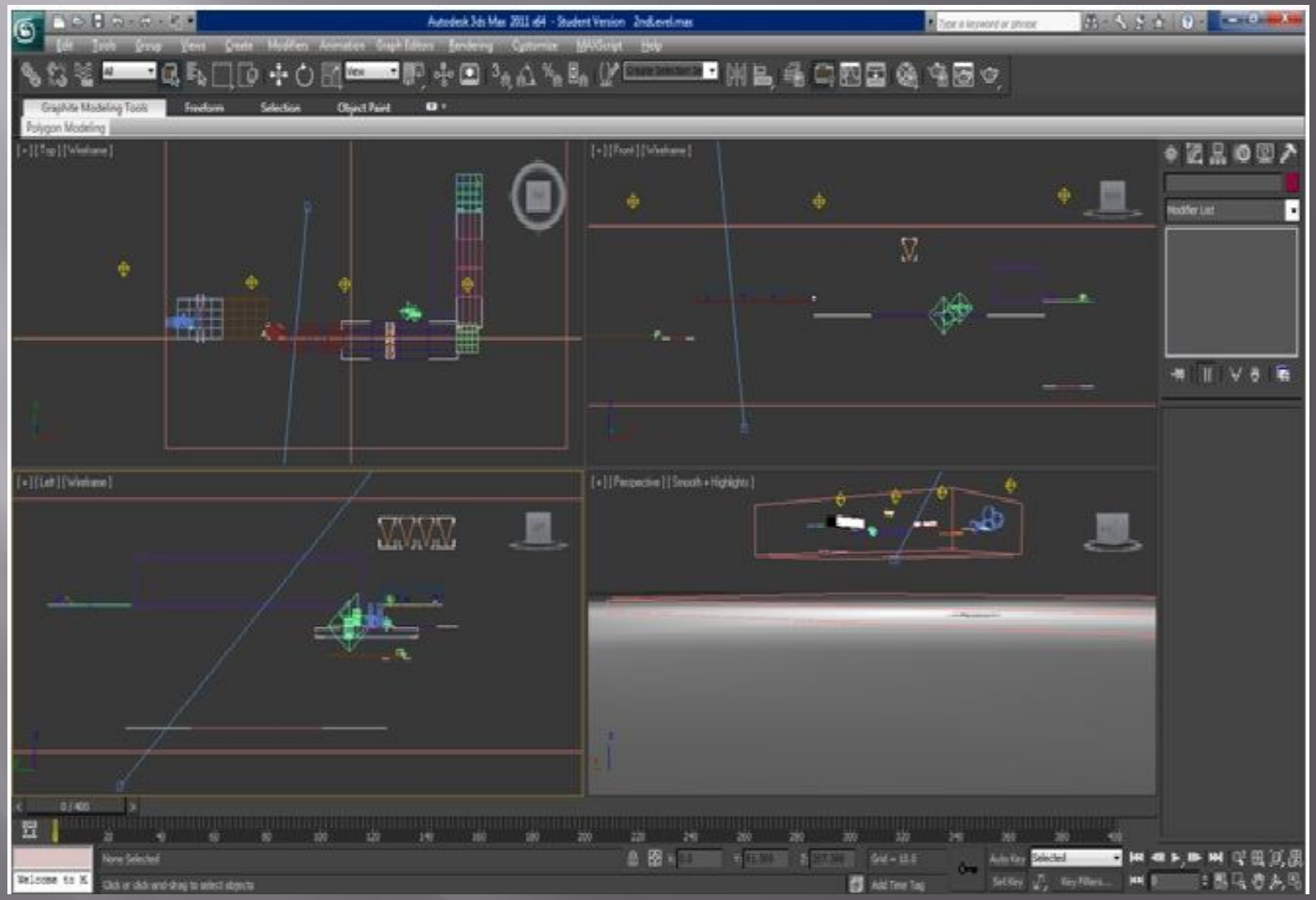
Modeling

- Character modeling with Biped in 3Ds Max. (problems in VRML)
- Moving obstacles – (moving boxes that would knock the character off path)
- Various cliffs / Narrow Passages – (problems in VRML)
- Obvious Sensor nodes – (make clickable objects ‘pop out’ / look obvious)

Screenshots



Screenshots



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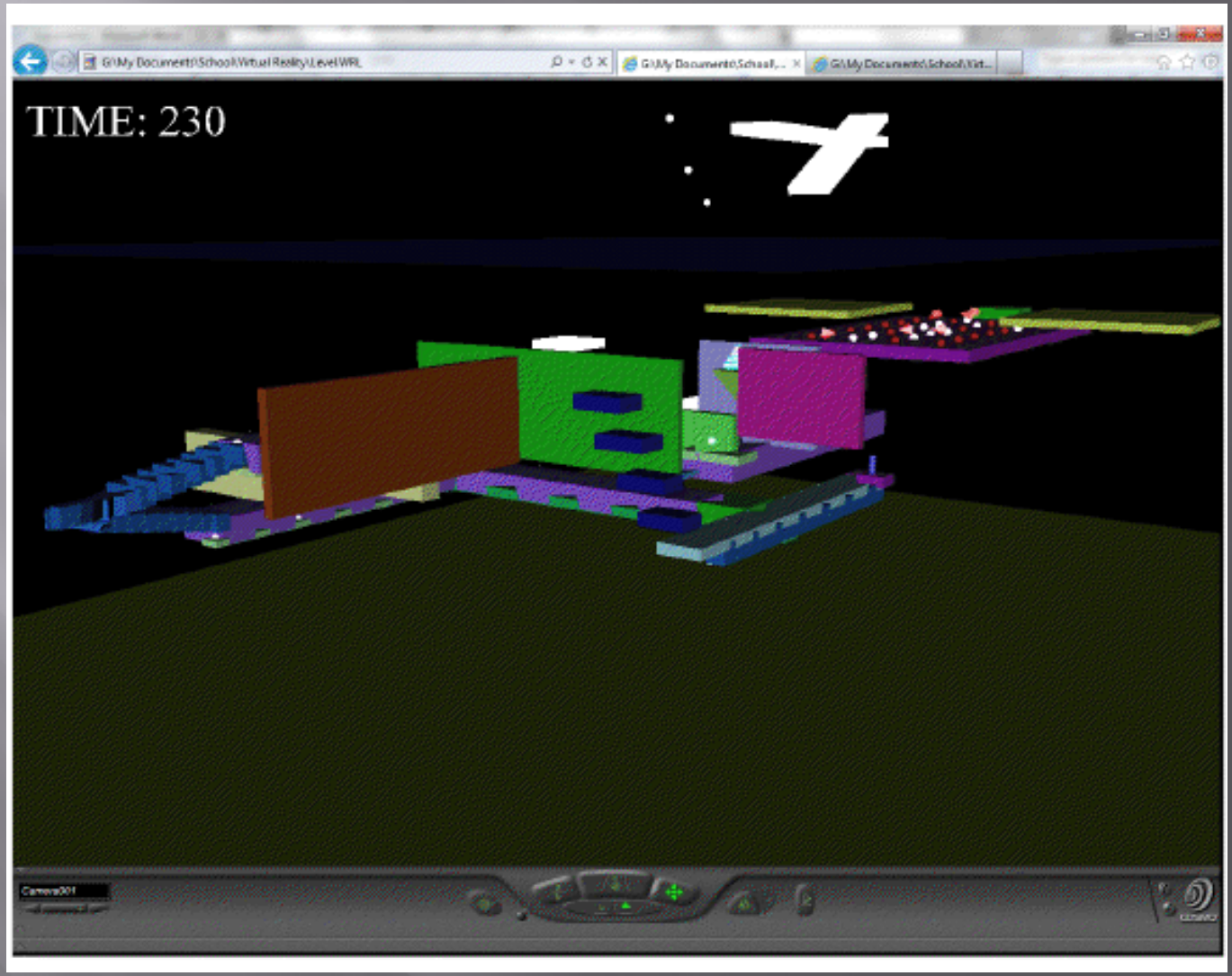

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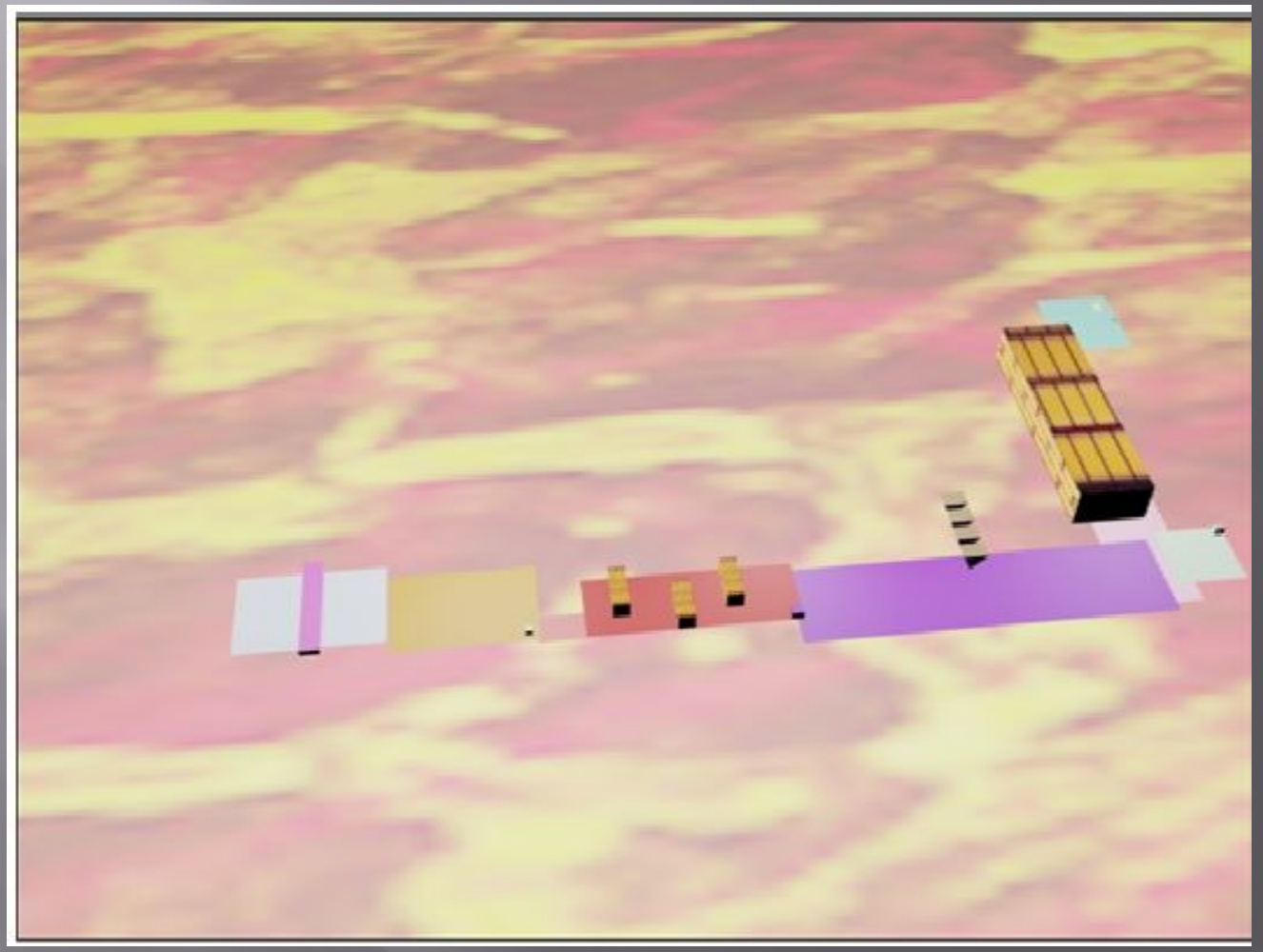

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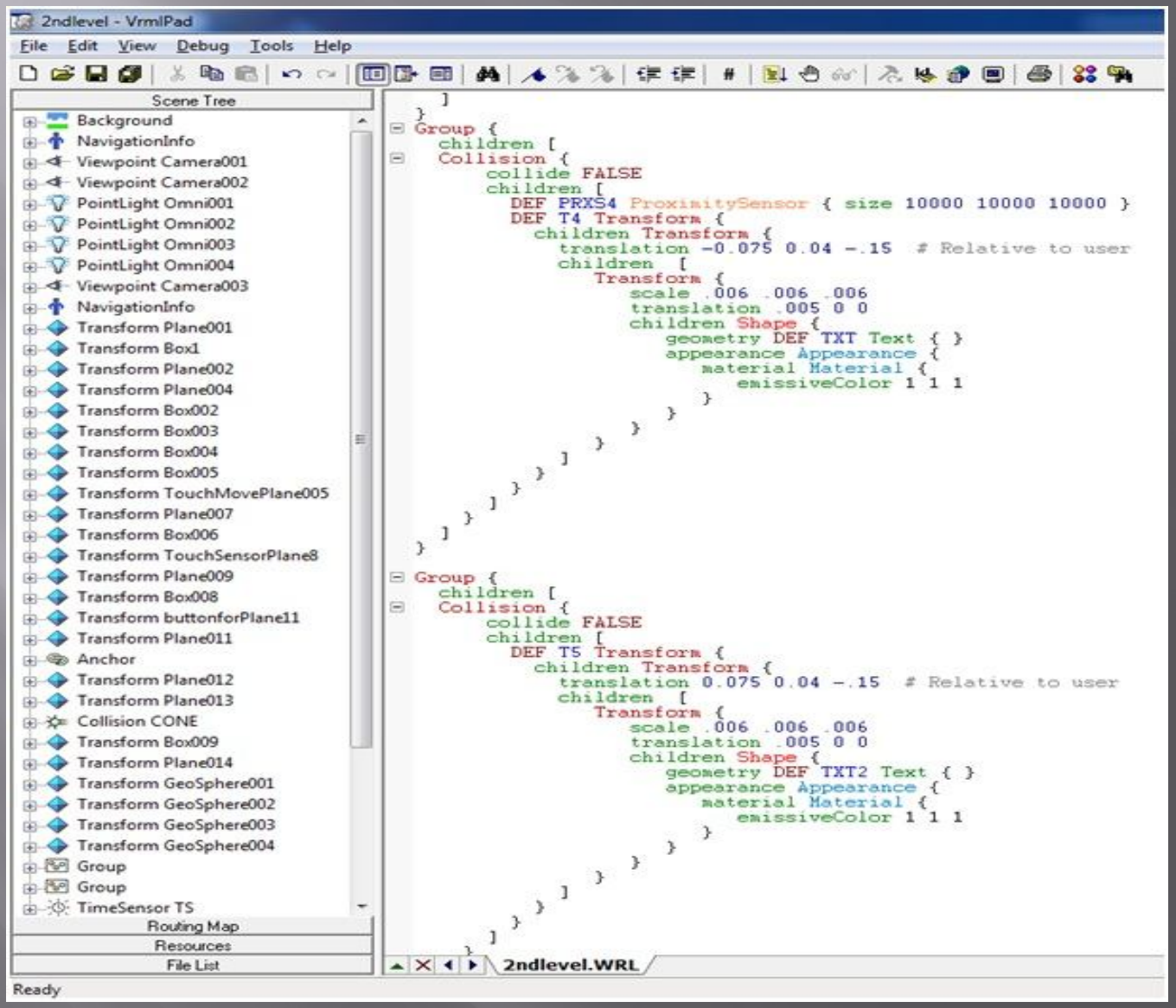

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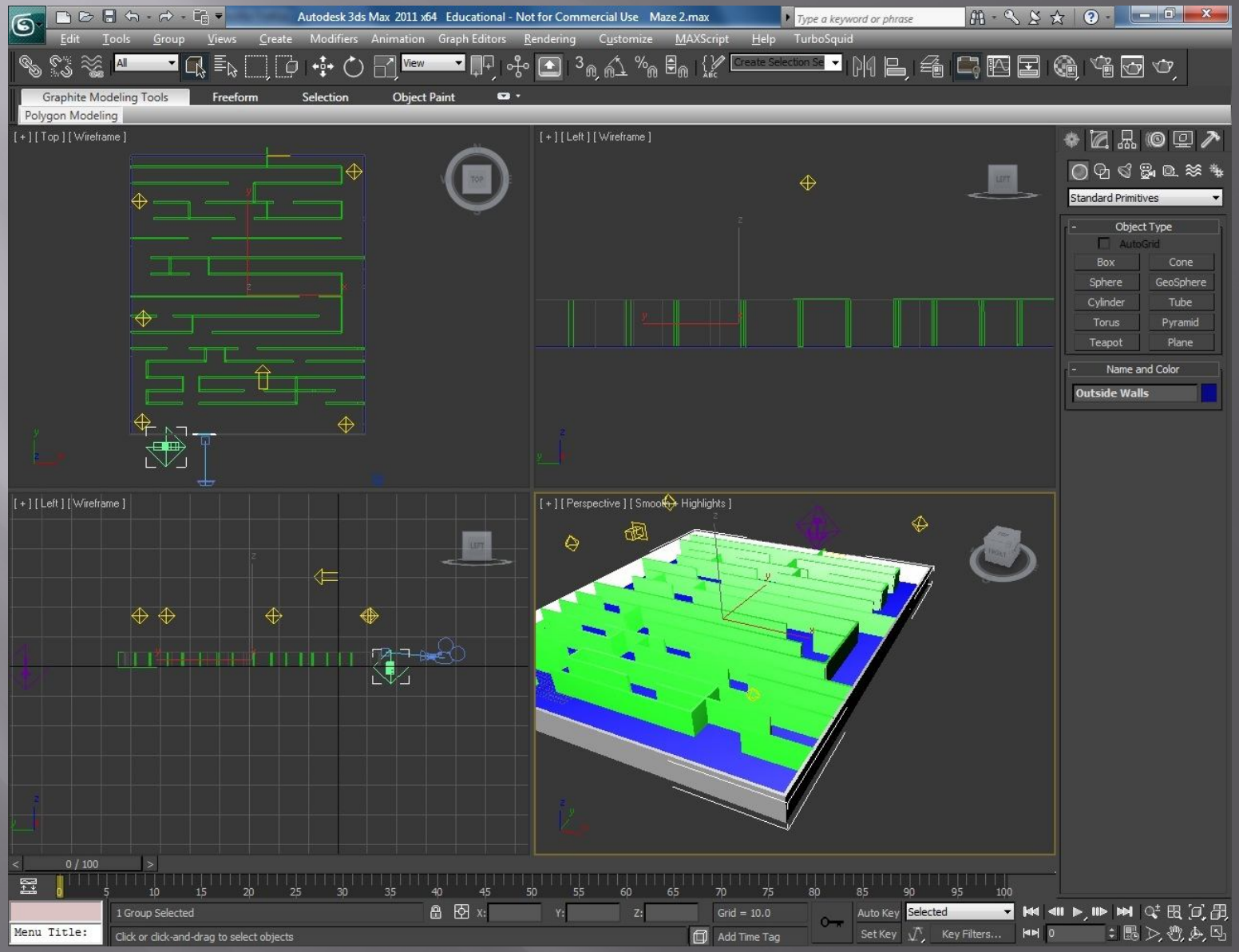

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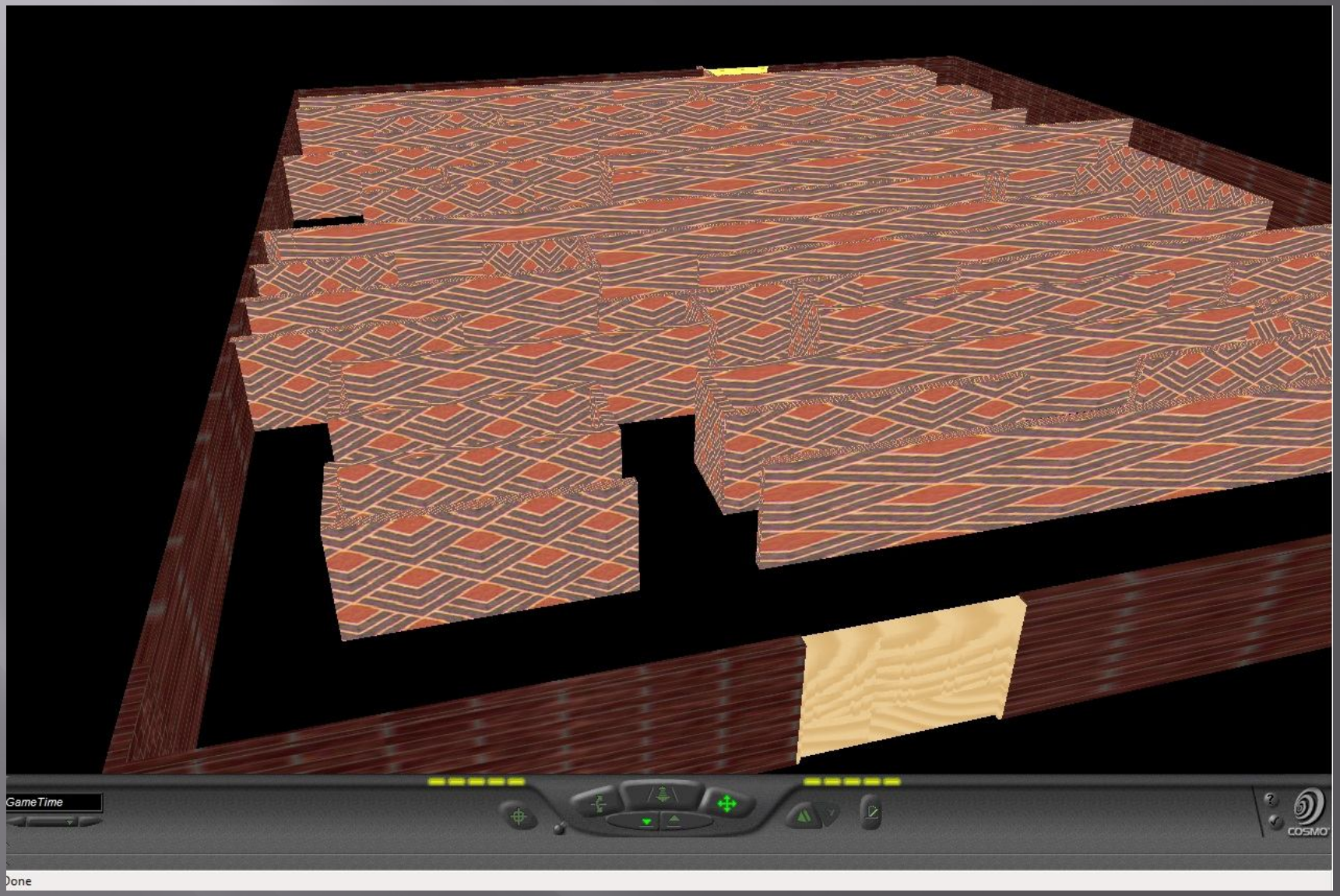

Sensors

```
DEF ProxSensor001 Transform {
  translation 305.9 162.5 -76.15
  children [
      DEF Prox1 ProximitySensor {
        enabled TRUE
        center 0 70.22 0
        size 800 140.4 500
      }
  ]
}
DEF ProxSensor002 Transform {
  translation 118.9 0.005 187.3
  children [
      DEF Prox2 ProximitySensor {
        enabled TRUE
        center 0 18.23 0
        size 2225 36.47 1532
      }
  ]
}
```

More about Sensors

```
ROUTE PRXS4.orientation_changed TO T5.set_rotation
ROUTE PRXS4.position_changed TO T5.set_translation

ROUTE TouchSensor002-SENSOR.touchTime TO SCORE.Trigger
ROUTE TouchSensor003-SENSOR.touchTime TO SCORE.Trigger
ROUTE TouchSensor004-SENSOR.touchTime TO SCORE.Trigger
ROUTE TouchSensorforBox1-SENSOR.touchTime TO SCORE.Trigger
ROUTE TouchSensorforPlane5-SENSOR.touchTime TO SCORE.Trigger
ROUTE TouchSensorforPlane8-SENSOR.touchTime TO SCORE.Trigger
ROUTE TouchSensor005-SENSOR.touchTime TO SCORE.Trigger
ROUTE TouchSensor006-SENSOR.touchTime TO SCORE.Trigger
ROUTE SCORE.Score TO TXT2.set_string

ROUTE TS2.cycleTime TO CHECKCAMERA1.Trigger # triggers the camera1 script e
ROUTE CHECKCAMERA1.ResetCamera TO Camera001.set_bind # makes camera1 the ac

ROUTE CONE.collideTime TO DEATHTOUCH.CollisionTime # send the collide time
ROUTE DEATHTOUCH.ResetCamera TO Camera003.set_bind #send the script output
ROUTE Prox1.isActive TO Camera001.set_bind
ROUTE Prox2.isActive TO Camera003.set_bind
ROUTE TouchSensorforBox1-SENSOR.touchTime TO Box1-TIMER.startTime
ROUTE TouchSensorforPlane5-SENSOR.touchTime TO Plane012-TIMER.startTime
ROUTE TouchSensorforPlane5-SENSOR.touchTime TO spikes-TIMER.startTime
ROUTE TouchSensorforPlane8-SENSOR.touchTime TO Plane013-TIMER.startTime
ROUTE TouchSensorforPlane8-SENSOR.touchTime TO Box009-TIMER.startTime
ROUTE TouchSensor002-SENSOR.touchTime TO Plane011-TIMER.startTime
```

Lights

- Omni-directional lights.
- Emissive lights from objects

Goals/Objectives

- Collision Detection with objects
- Falling / restarting level (dying)
- Manipulating light sources
- Character Movement (jumping, crouching, etc.) (DNC)
- Crowds with simple behavior that need to be avoided.
- Teleporters. Objects that transport the player to a new location when interacted with. (DNC)

Why VR?

- For an interactive game / maze VR is the perfect format to give the best experience for the user.
- More visual stimulation as opposed to text-based games.
- Feels more ”rewarding”

Problems in VRML

- Collision Detection Physics not perfect & difficult to implement
- Physics: Moving platform with character on it doesn't function properly
- Clipping issue with the way that the objects are rendered when there is no light source.
- Timing / Scoring had to be created with objects / scripting to orient to the player(unnecessary processing, could affect performance in larger program)

Problems in VRML (cont.)

- Player death – Unable to implement in Max, only possible with scripting / camera manipulation in VRML
- No shadows in VRML!

Remaining problems

- Character implementation (skin / animation / movement)
- Improved character control / movement
- Physics / interaction

Hardware/Software used

- Intel Core 2 Quad 2.40 GHz 8GB
- Windows 7 Enterprise
- 3D Studio Max
- VrmlPad

Sources

- www.lighthouse3d.com/vrml/tutorial/index.shtml
- http://www.cs.bowiestate.edu/~sharad/vrlab/research.html (previous projects/research)
- Google Images (for textures)