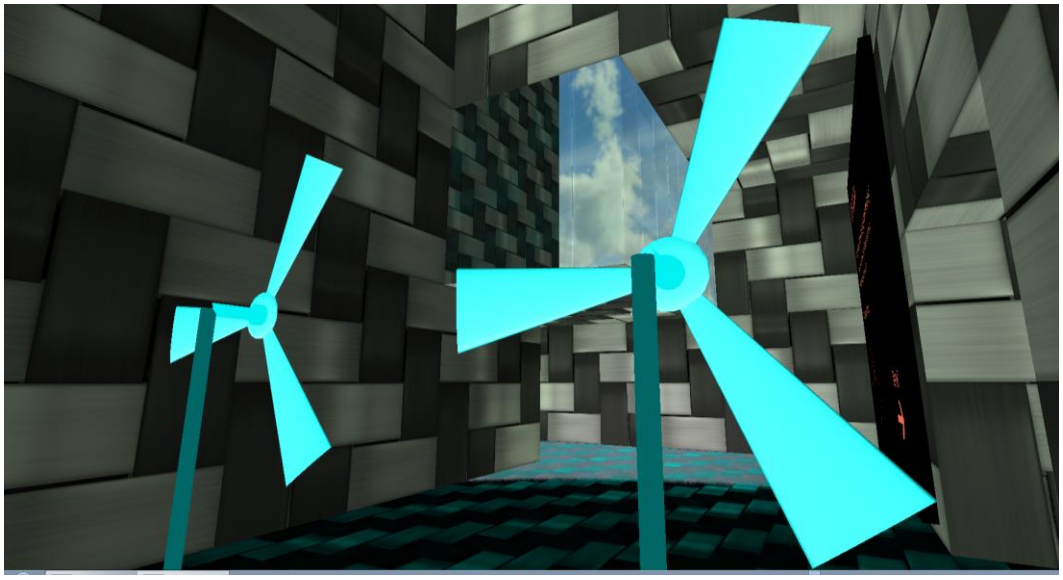
G53GRA Coursework Report



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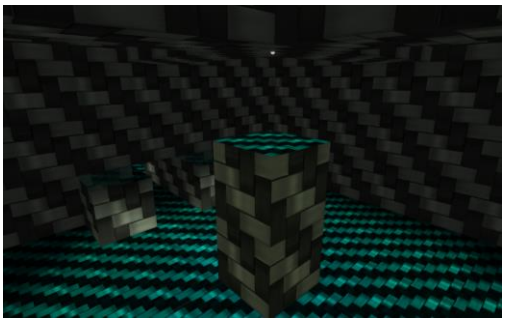
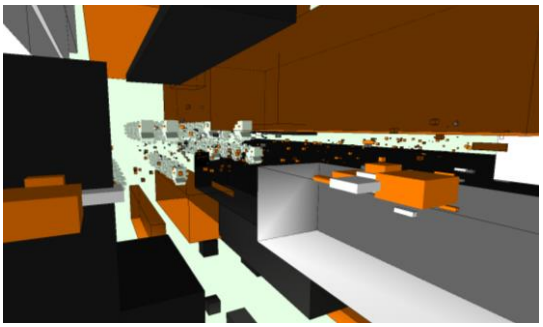
Introduction

This coursework requires us to draw a theme scene with openGL. In this scenario we need to draw or create our own objects and other related things. In this report, I will follow the requirements in the Coursework Specification to introduce what I have produced and the points that meet the requirements.

• Displays a virtual scene with three or more different 3D objects (3D modelling / hierarchical modelling);

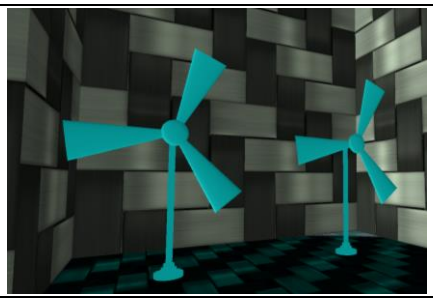
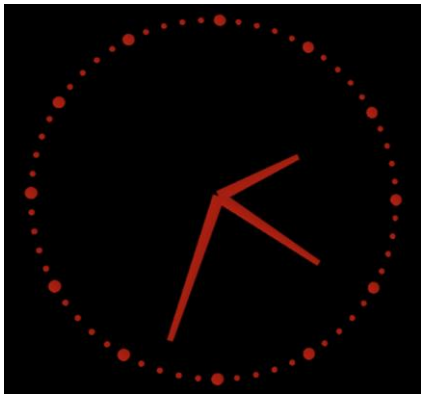
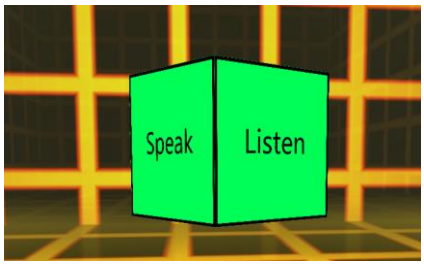
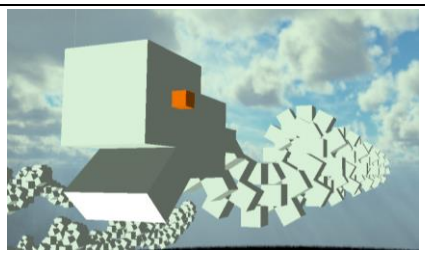
In this coursework, I draw a basic scene with 9 different types of objects.

The basic scene includes two sub-scenes:

	
Basic Building In-room Scene (without theme)	Different dimension space war

The most basic class that composes these two Scenes is the Stage.class. It has one special method to implement the way to draw the room. This drawing method is like the method that the lab uses to draw the tree. But it has been modified which is more suitable for drawing the room.

The basic nine objects are:

Name	Screenshot	Introduction
Fan		**User -controllable** Press ‘O’ to switch on, ‘P’ to switch off Reflective material
Screen		**Animation** It will show different texts over time.
Clock		**Animation** It will show the recent time.
Human Box		**User -controllable** The face shown with the change of indication will change
Tunnel Snake		**User -controllable** Press ’z’ to move forward with angle
Others		Auxiliary decoration, see detail in the Demo

• Has some animated objects (animation);

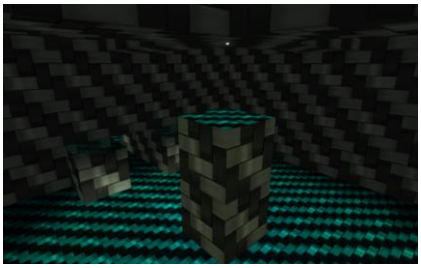
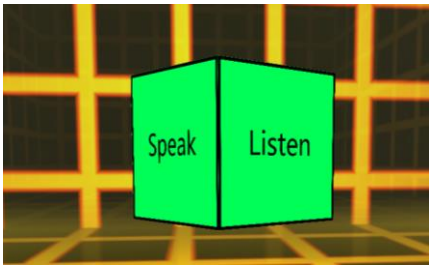
As the table shown above, there are two animated objects in this project

• Looks realistic (lighting and texturing);

Lighting:

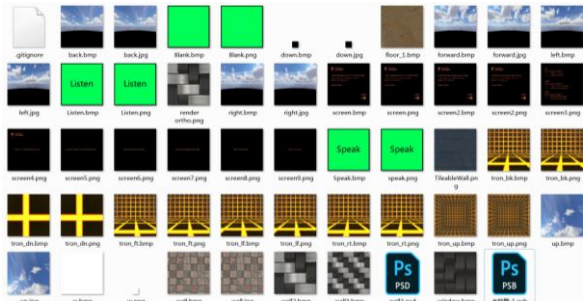
This project has two different light sources

One is in the Light Object. The other is in the Human Box Object. These two have their own default lighting indices. And in Light Object, this class also has a function called ***lightChoose()***, which can allocate the related light index (eg. 0->GL_LIGHT0), which can be found in the code Light.class.

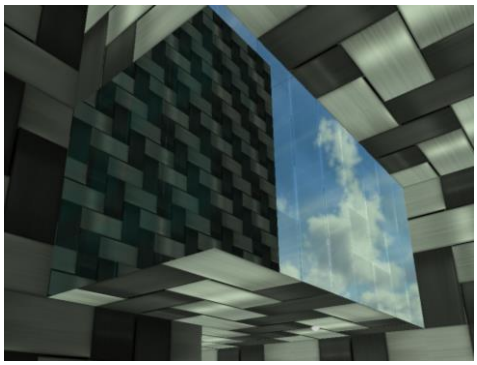
	
Light	Human Box

Texture:

The skybox, the walls of the first scene and some objects use the texture. Most of the textures are from www.opengameart.org.

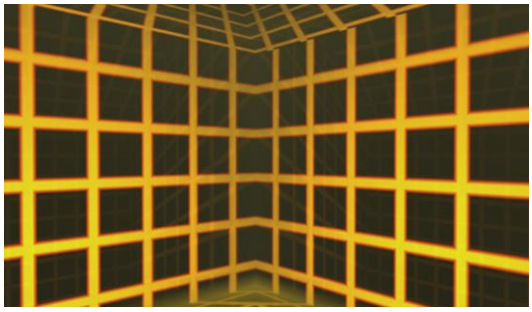


One thing that needs to point out is that in this Engine, transparency image is not supported. But there is an exception that if using a 32-bit bmp image. It will has this feature.



• Is set in a thematic, appropriate environment, e.g. with a skybox:

There are still two kinds of sky box which are used for scene switching.

• Allows user control, e.g. for viewing (keyboard and mouse input):

Key	Function
e	Human Box turn face
1	Human Box turn face
2	Human Box turn face
3	Human Box turn face
w,s,a,d	moving
9,0	Switch on/off the room light
o,p	Switch on/off the fan
k,l	Switch on/off the natural light
x	“Destroy” all objects
z	“Move” Tunnel Snake