# Project 3

The objective of project 3 was to learn to create a 3D object with some animation.

## Story

In project 3 I designed a truck that can be used to do surveillance or collect maps (futuristic version of Google’s mapping car). The truck goes around a block of houses. Two cameras hover over the truck. Once the truck stops they go in opposite directions to collect data from the city. The truck again moves around the block. It then stops for the second time. This time, the cameras that finished collecting data come back and report the data to the device equipped inside the truck.

## Construction

The truck is made up of two cubes joined together. The truck constructing method **generateBoxIndexedArrayTruck** uses 16 vertices to create the truck. This method is defined in ObjectGenerator class. Similarly methods to generate the cameras and the buildings are also defined in the ObjectGenerator class. A camera object is constructed using a pyramid over a cube. The pyramid uses 13 vertices. The buildings are created using cube creation method.

This project externalizes various data. The window properties are stored in an external file called window.config. It contains basic window properties such as width, height and title. This file is read using the Configuration class. The attributes are set in WinMain function. Similarly the graphics data for each object is stored in a file called graphics.dat. It contains information such as width, depth, height and color values for each object created in the scene.

There are three classes that determine the animation for the graphics objects in the scene. The truck uses FourPointPatrolBehavior class for the block traversing animation. The cameras respectively use FourPointLoadUnloadBehaviorBackward and FourPointLoadUnloadBehaviorForward classes for their animation. These classes set up behavior in which the objects move forward following the object with FourPointPatrolBehavior,, but when that object stops they move in different directions. These objects come to their original position, once the truck stops for the second time.

## Source Code

The project is uploaded to git clone [https://nepalp@bitbucket.org/nepalp/game-programming-lab.git under Project3](https://nepalp@bitbucket.org/nepalp/game-programming-lab.git%20under%20Project3) directory.

## Output Screenshot

