

The Complete Guide to Blender Graphics

Supplement-05

NavMesh

NavMesh (Navigation Mesh) creates a path for an object to follow when seeking a target in the **Blender Game Engine**. The path is automatically constructed on a surface.

To demonstrate have a **UV Sphere** object in the **3D window** traverse a simple maze constructed from a **Plane**. The UV Sphere will seek a **Cube** target object.

In the 3D window add a Plane and scale up. In **Edit mode**, subdivide four times, then in **Face Select** mode, select faces and extrude upwards forming the maze shown in Figure 5.1. Place the maze in **Object mode**.

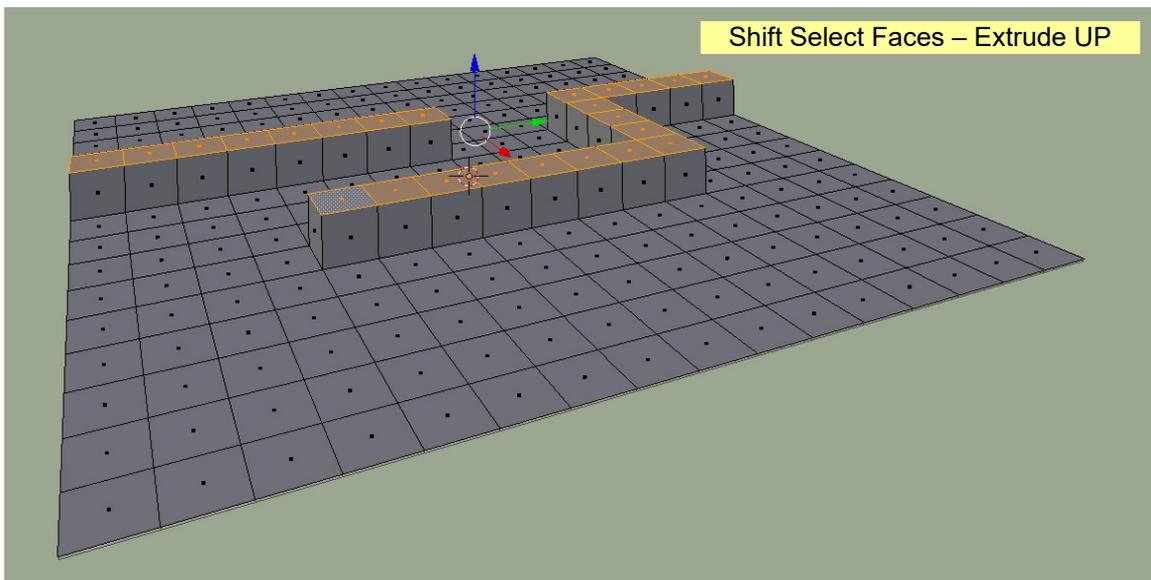


Figure 5.1

Scale the default Cube down by 0.50 and park it in the position shown. Add a UV Sphere object, scale down 0.50 and park it on the opposite side of the maze (Figure 5.2).

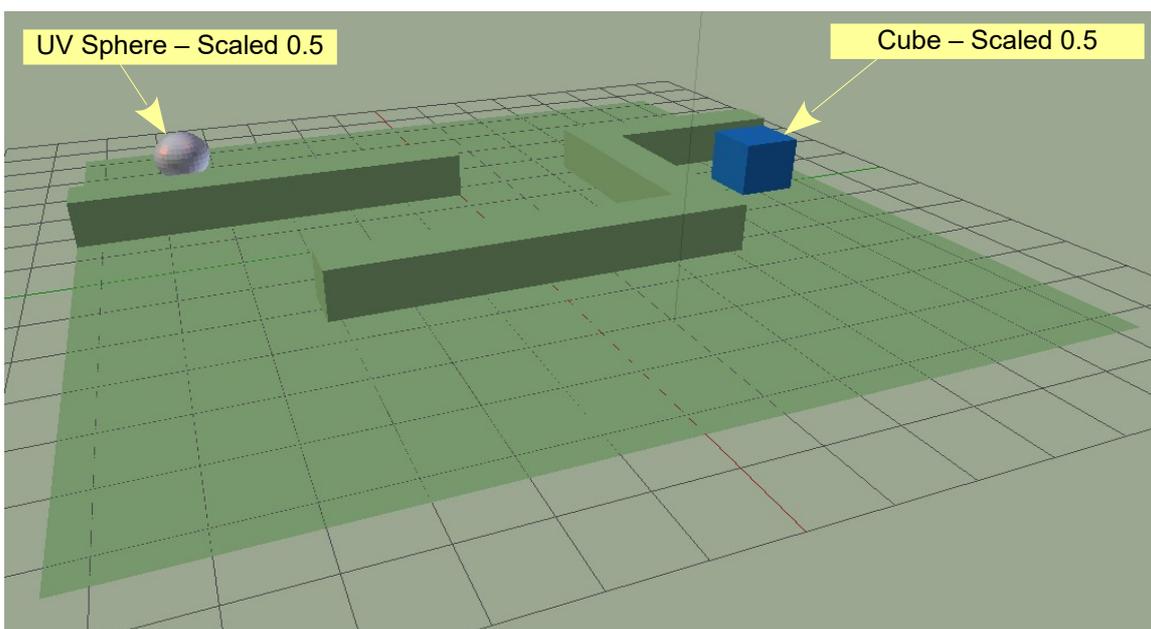


Figure 5.2

Make sure you are in Blender Game mode.

Add Material Color to the objects.

Select the UV Sphere. Change the **Timeline window** to the **Logic Editor window** and enter the **Logic Blocks** as shown in Figure 5.3.

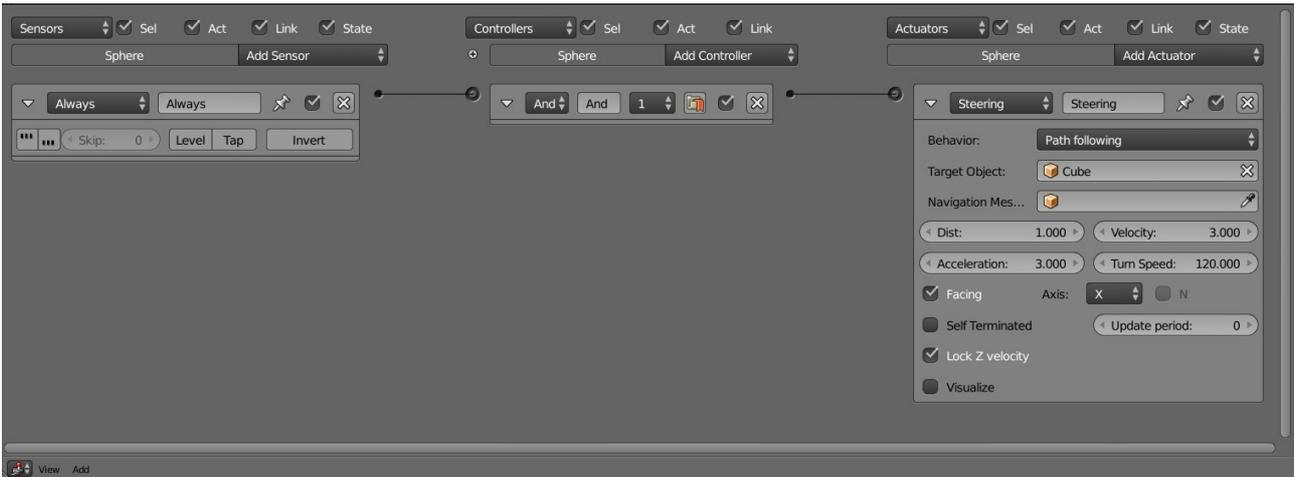


Figure 5.3

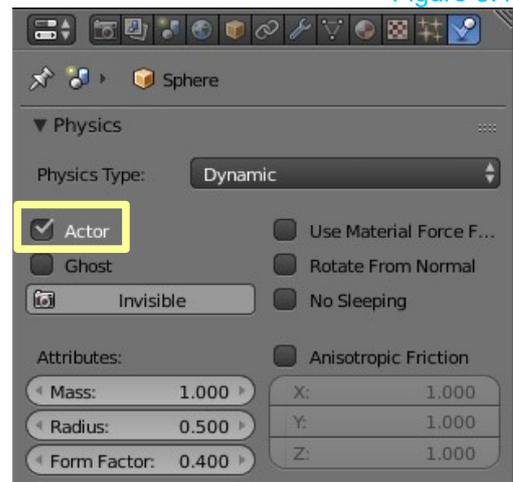
In the **Steering Actuator** logic block, change the **Behaviour** to **Path Following** and set the **Target Object** to **Cube**. The **Navigation Mesh** parameter will be entered after the path has been generated.

Figure 5.4

Every object in the Game Engine requires Physics to be applied. When in Blender Game mode Game Physics is automatically set. By default, everything is set to **Physics Type: Static**. Select the sphere and change the Physics Type to **Dynamic**. Note that the **Actor** button is automatically checked (Figure 5.4).

The Cube and the Plane remain **Static**.

With the UV Sphere selected, in the **Properties window, Physics buttons, Physics tab**, reduce the **Attributes: Radius** to 0.500 (this makes the **Collision Bounds** spherical volume the same as the diameter of the sphere).



Select the maze (Plane). In the **Properties window, Scene buttons, Navigation mesh tab** (only displays in Blender Game mode), click on **Build navigation mesh**.

You will immediately see a multi colored pattern displayed on the surface of the plane. **Note:** You are using all default values in the Navigation mesh tab (Figure 5.5).

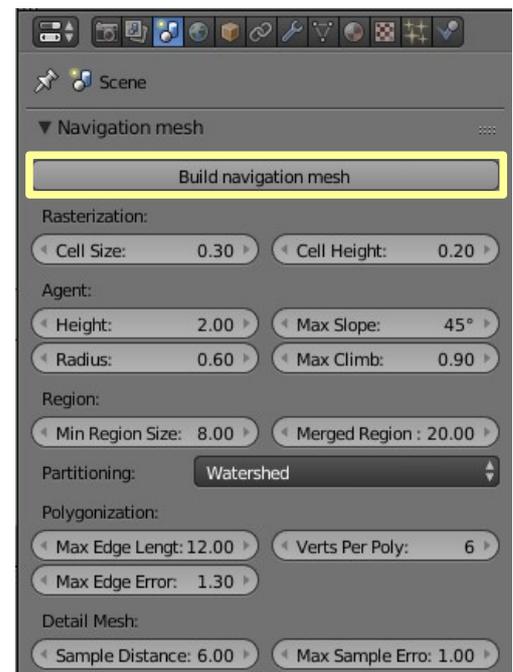


Figure 5.5

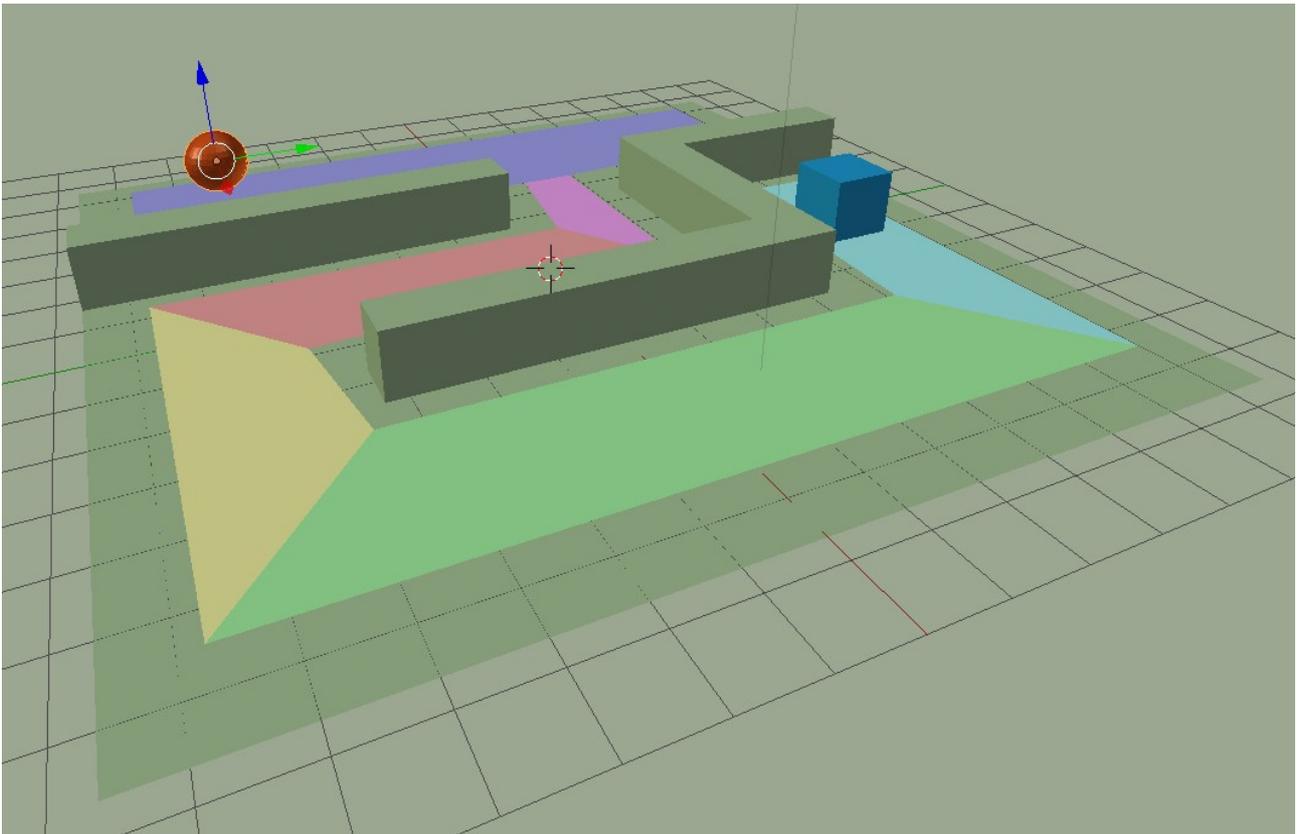


Figure 5.6

The colored pattern is a **Navigation Path (NavMesh)** which is a new mesh superimposed on the plane. It may be selected and deselected like any other mesh object. In **Edit mode** you can modify its shape by selecting vertices, edges or faces. For the time being leave the shape as generated.

With the **NavMesh** generated go back to the **Logic Block** entries for the sphere and in the **Steering Actuator** enter “navmesh” in the **Navigation Mesh** panel.

With the mouse cursor in the 3D window press the **P** key for **Play** and see the sphere traverse the maze and find the Cube (Figure 5.7).

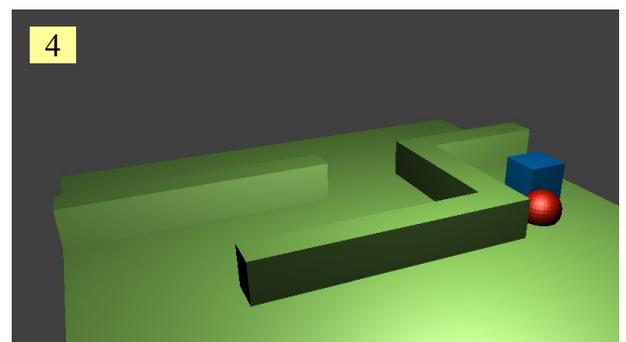
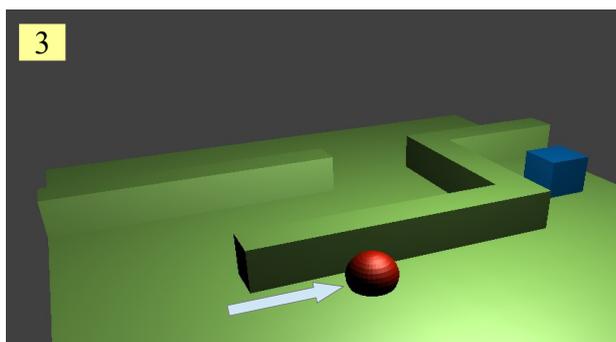
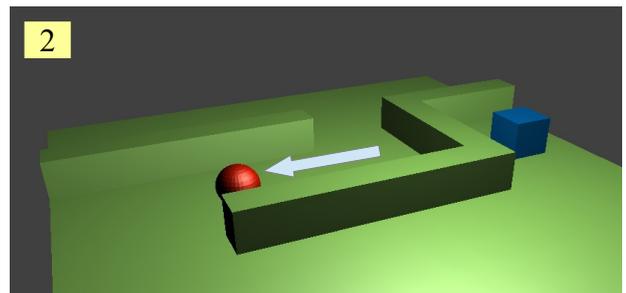
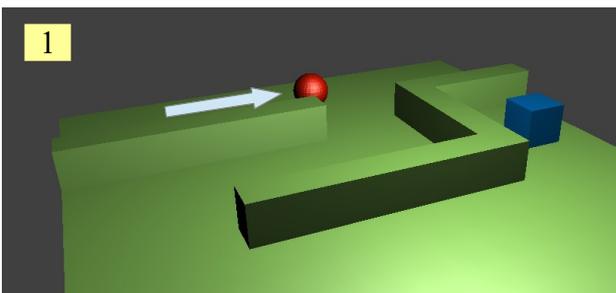


Figure 5.7