

Introduction to building in Second Life

In this tutorial you will be creating a robot using basic building skills (you may do something quite different if you would prefer to be more creative) *Please note that if you are using a Mac to use Command+Click for right click.*

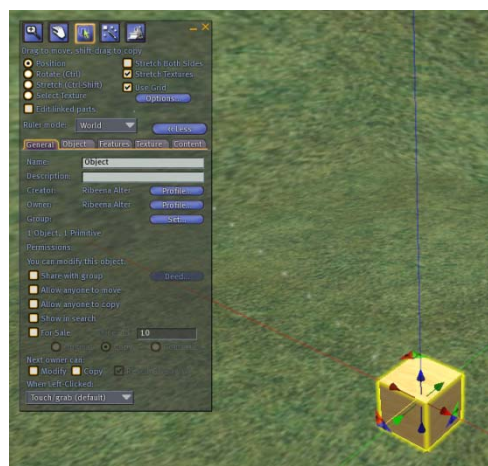
Creating the Robot

You should have now completed the introduction to Second Life practical, and understand the very basics of building. Some key points to remember;

- Hold down *Alt* while using your left mouse button to shift, zoom and rotate your camera focus.
- Hold down *Alt+Ctrl* to rotate your camera vertically.
- Use the mouse's *scroll* to zoom.
- Ensure you are working in a sandbox, or the DIM designated area – otherwise you will not be able to build.
- To start either *right click* the ground and select “Create” from the pie menu or press “b” on the keyboard
- The *Red, Blue* and *Green* arrows are ‘handles’ to move object, *left click* and hold to move an object.
- Holding *Ctrl* will allow you to rotate an object.
- Holding *Ctrl+Shift* will allow you to resize objects.
- Holding *shift* while selecting objects will allow you to select multiple objects. You can also deselect an object by *left clicking* it again while holding *shift*.
- Holding *shift* while using a moving handle will create a duplicate of that object. Also you can use *Ctrl+D*.

Let's get started

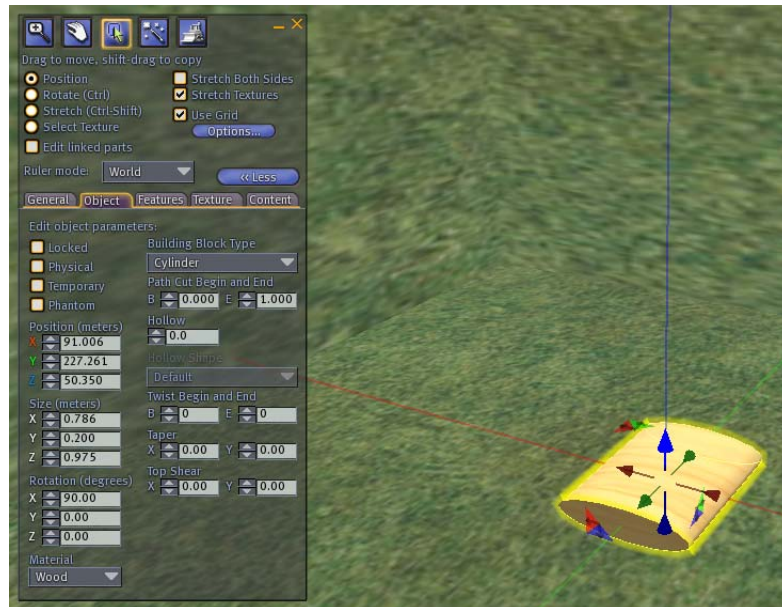
Once you've navigated yourself to an appropriate area to start building, bring up the build menu (*b*), and click the ground to create a cube;



You will need to get yourself well acquainted with this window. The top four buttons are “*zoom, move, edit, create, landscape*”. Because we can use the *Alt* and *Ctrl* key shortcuts for moving our camera, the first tool we won't use. The ‘*move*’ is designed for interacting with objects that have physics associated with them, not for development. ‘*Edit*’ is the key area we will be using. ‘*Create*’ will allow you to create new objects if you choose not to use duplication or the pie menu. And finally ‘*Landscaping*’ is not overly useful unless you own land, allowing you to deform the land.

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Since we have our lovely default cube we will start by making it a cylinder;



Selecting the object tab will bring up various options for changing our object. In this case from the '*Building Block Type*', select the drop down and change it to *cylinder*. Now you can use the handles, *Ctrl* and *Shift* to rotate and resize the cylinder to look like above, or alternatively enter the following value into the X, Y, and Z text fields;

Size: **X:** 0.8 **Y:** 0.2 **Z:** 0.975

Rotation: **X:** 90.0 **Y:** 0.0 **Z:** 0.0

If your cylinder doesn't look the same it may just be the camera angle. Make sure that the values under size and rotation are similar. Position will be different as you won't make your robot exactly where this one was made.

The next step is to create another cube above the cylinder. Do this which ever way you feel comfortable. We will then adjust the value in the build window;

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In this case you want to set up the size first. Keep all the rotation at zero.

Size: **X:** 0.5 **Y:** 0.7 **Z:** 0.2

Now you will also need to change the taper on the box;

Taper: **X:** 0.6 **Y:** 0.3

And using your handles ensure it is centred to the cylinder, and just inside of it.

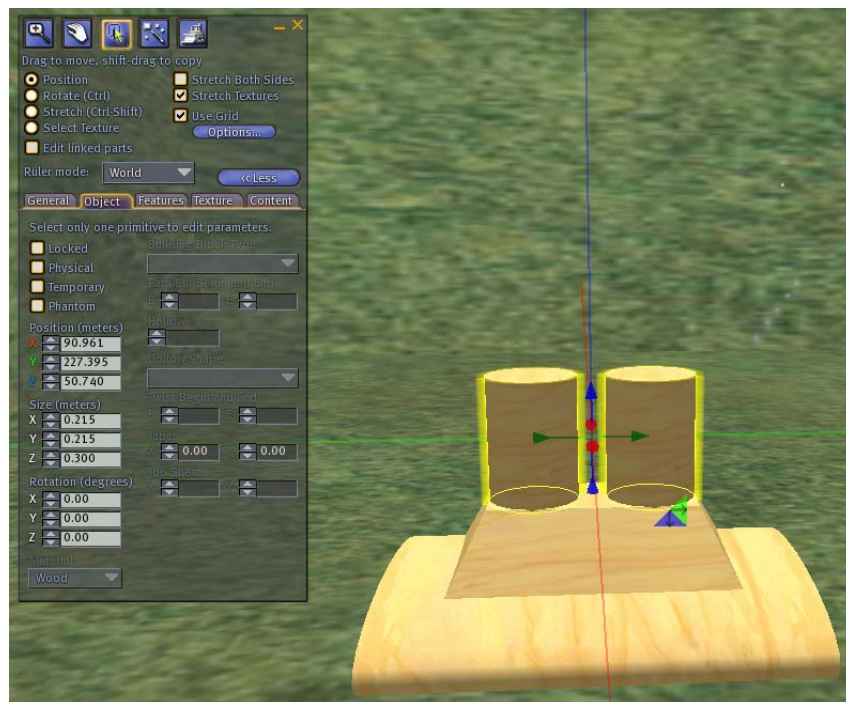
Now that we have the roller foot of the robot we will make some legs out of cylinders. To start create a new cylinder. This time set up the size and rotation values like such;

Size: **X:** 0.215 **Y:** 0.215 **Z:** 0.3

Rotation: **X:** 0.0 **Y:** 0.0 **Z:** 0.0

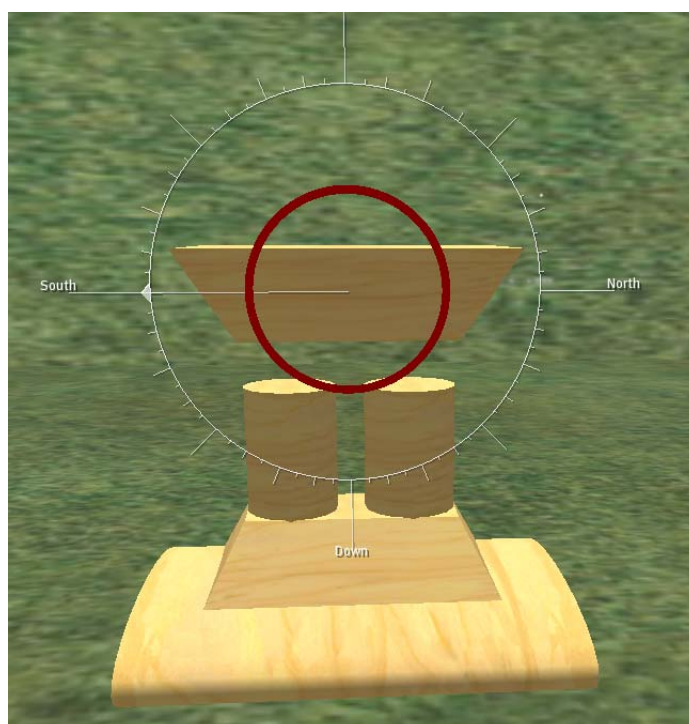
Now position the 'leg' to one side of our tapered box, and hold down *shift* while moving the object to get a duplicate for the other side of the box.

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- *If your cylinders aren't slightly inside the box; select one cylinder, then hold down shift and select the second one. Now use the moving handles as usual.*

Now to create the base of the torso for our robot we will create a duplicate of the tapered box. Select it, and then holding onto the *Blue (Z axis) handle*, hold *shift* and move the object above the two cylinders we just made. Holding down *control* we can now rotate;



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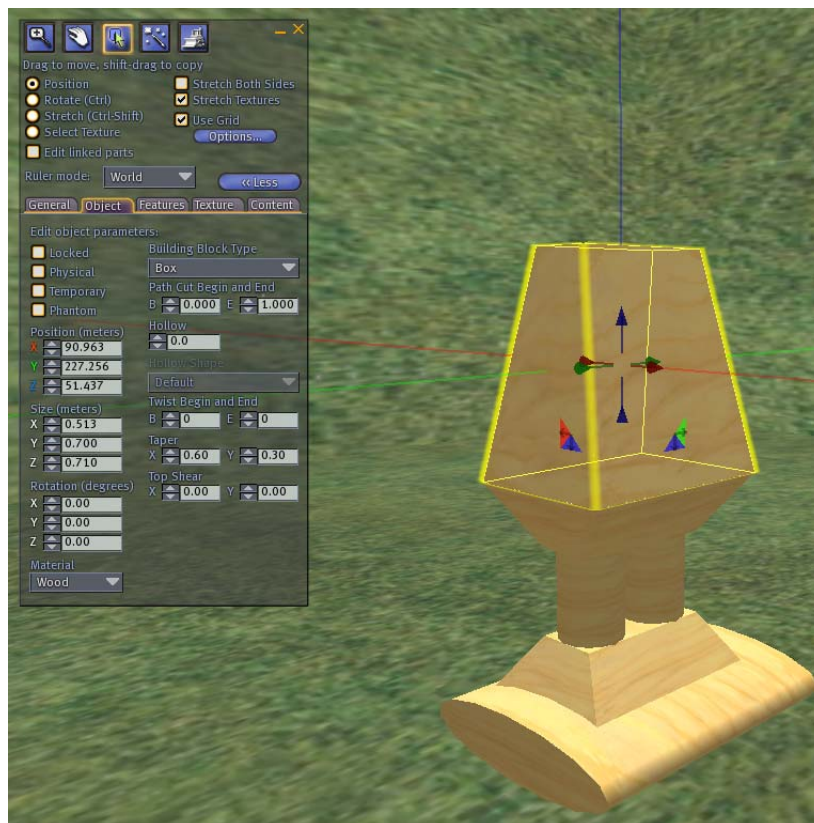
If the default options have grid set up you will see a circle while holding *Alt* and the mouse button. Going outside of the circle with your mouse will allow you to snap to the particular direction. In this case to the south will upturn our box.

- *If you do not see the circle and have grid disabled, enable it using “Tools → Snap to Grid” from the tool menu, or quickly access it using the ‘G’ key.*
- *This also works for moving and resizing, snapping to metres.*

Move the base of the torso so it is slightly intersecting the cylinder legs. Now to create an upper torso, copying the ‘feet box’ and moving it along the Blue axis to above the bottom torso box. Resize it;

Size: **X:** 0.5 **Y:** 0.7 **Z:** 0.71

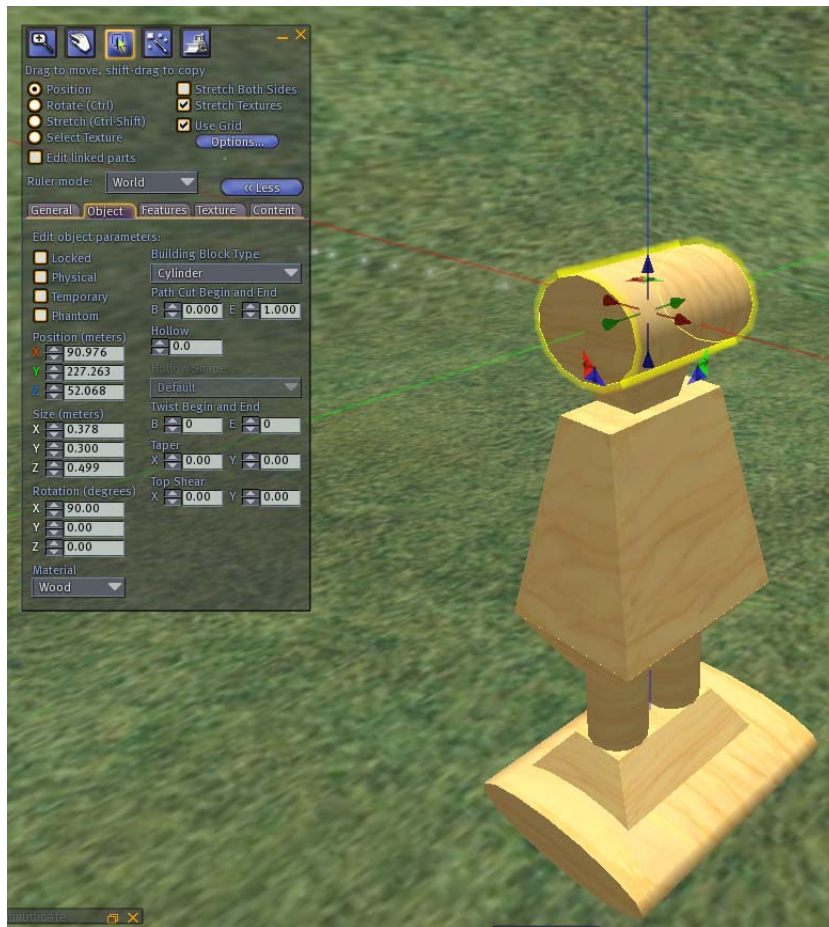
It should look like;



- *Now do remember if you don't like the look of this robot, feel free to very loosely follow this tutorial, but ensure that you are comfortable using all the different functions of the building window.*

Create a small neck, using whatever you would like. The robot seen in this tutorial uses a small thin box with a negative Y taper. Now on top of the neck create a cylinder, using your grid rotate it so it is sideways and resize it to look like;

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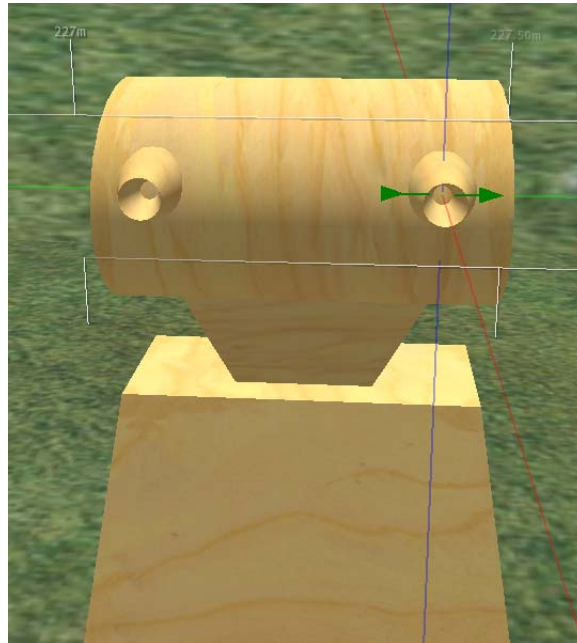


Size: **X:** 0.378 **Y:** 0.3 **Z:** 0.5

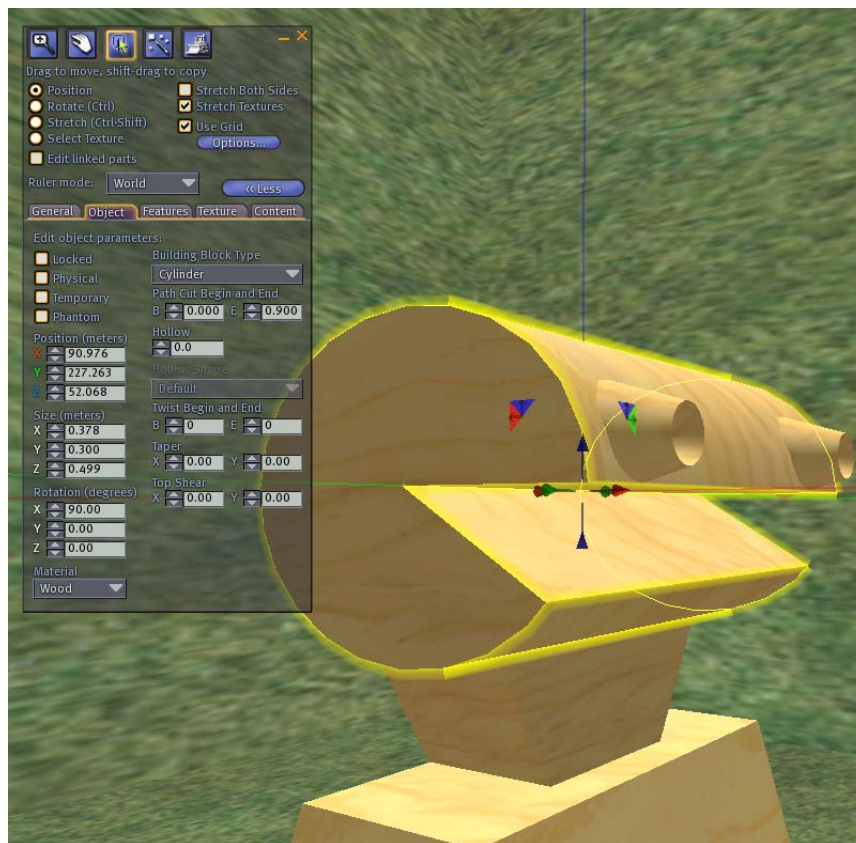
Rotation: **X:** 90.0 **Y:** 0.0 **Z:** 0.0

Now to create some small eyes. Create a very small 'ring' primitives and ensure that it is intersecting the head. If you lock to the grid while moving the ring, you may find it easier to duplicate it to the opposite site as the other eye. You should have a result resembling;

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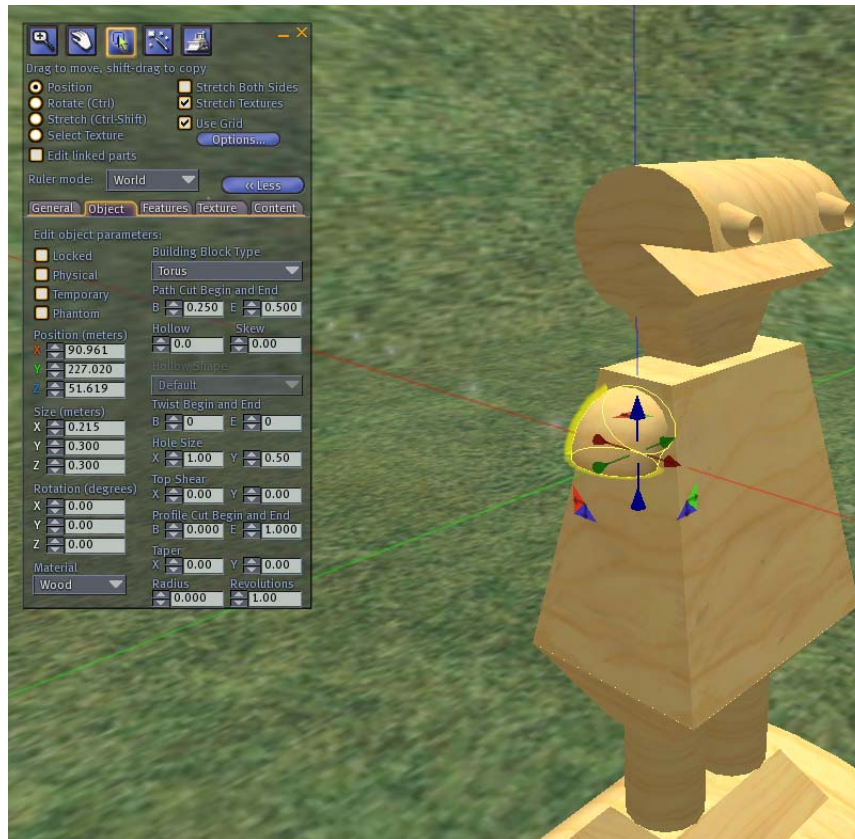
Let's give our robot an open mouth. Select the head cylinder by itself - we are going to use the path cut to cut in a mouth.



In this case the '*Path Cut Begin and End*' '*E*' (End) value was changed from 1.0 to 0.9. Experiment with the values to open the mouth whichever way you want.

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Onto the arms! Now we are going to use a torus. Create a torus primitive to the side of your robot and use these values;



Size: **X:** 0.215 **Y:** 0.3 **Z:** 0.3

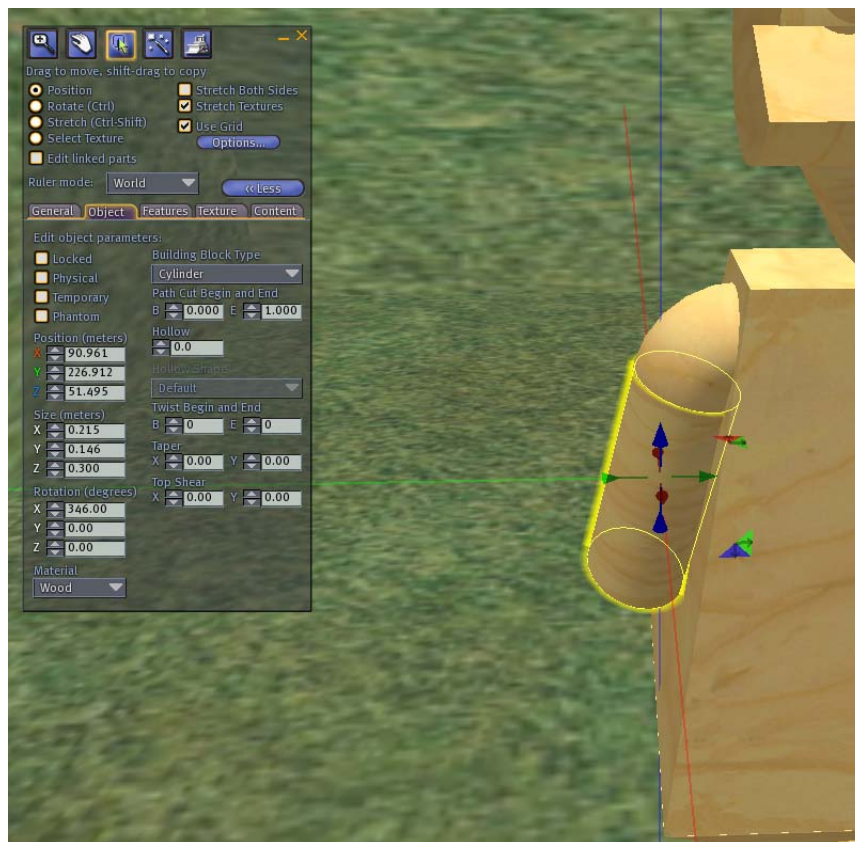
Rotation: **X:** 0.0 **Y:** 0.0 **Z:** 0.0

Path Cut: **Begin:** 0.25 **End:** 0.5

Hole Size: **X:** 1.0 **Y:** 0.5

Now create a cylinder coming out of the torus segment to extend the arm;

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Use these values to make it the same size as the torus;

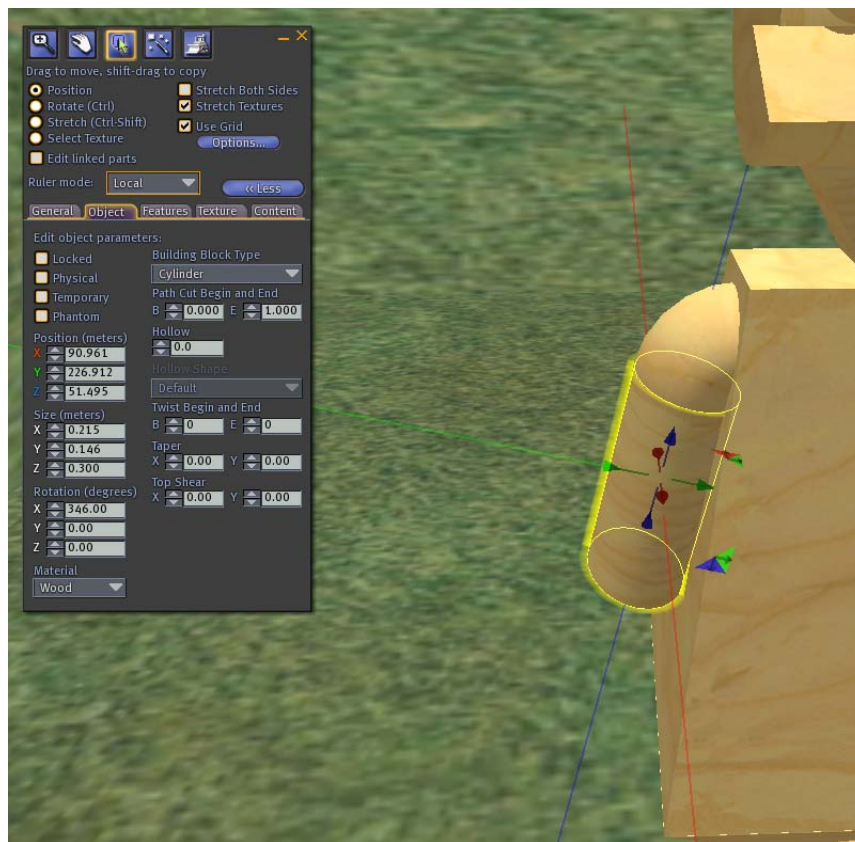
Size: **X:** 0.215 **Y:** 0.15 **Z:** 0.3

Rotation: **X:** 345.0 **Y:** 0.0 **Z:** 0.0

Again, ensure it is intersecting the shoulder torus segment. Now as opposed to Duplicating the cylinder to try to create the hand and require a lot of moving to get it beneath, we will change the '*Ruler mode*', found above the object tabs.

Using the drop down change it from '*World*' to '*Local*';

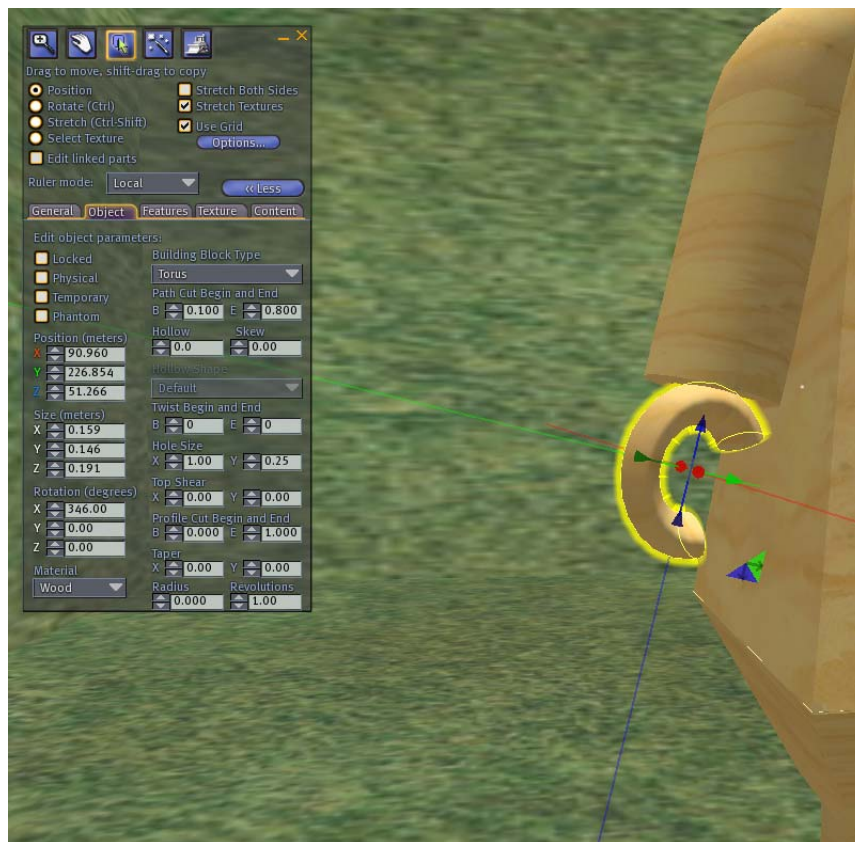
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Notice how the handles are now rotated to that of the cylinder. Now if we duplicate the cylinder along the Blue axis, we will be extending onto the end of the arm.

After creating another cylinder, change its primitive type to Torus. Resize it using the blue sizing-handle, and change the values to make it look like;

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Size: **X:** 0.15 **Y:** 0.15 **Z:** 0.2

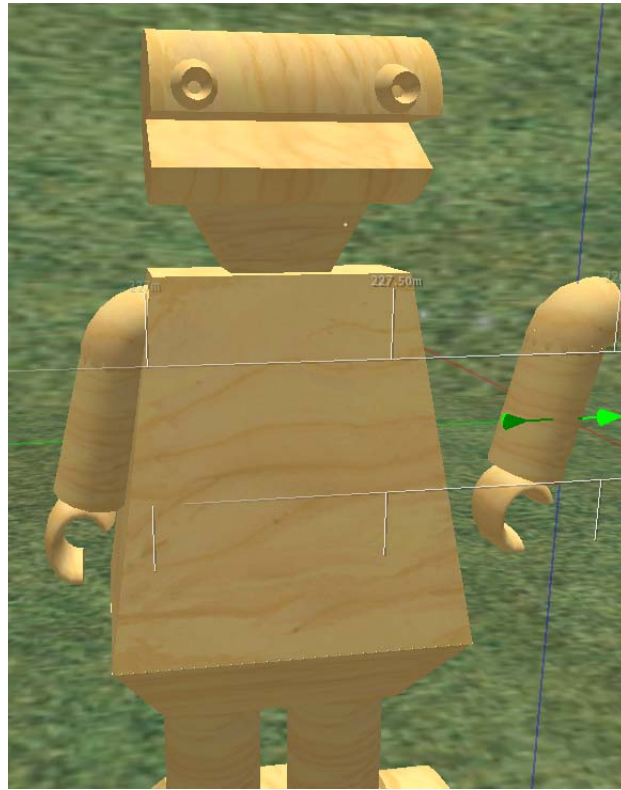
Rotation: **X:** 345.0 **Y:** 0.0 **Z:** 0.0

Path Cut: **Begin:** 0.1 **End:** 0.8

Hole Size: **X:** 1.0 **Y:** 0.25

Almost done, Change your ruler mode back to '*World*', select the hand, arm and shoulder and duplicate them;

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Move your camera so it is looking down on the robot, and rotate the arm along the Blue axis and use the snapping. Now move the arm in and you should have a completed model.

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Now before we dance round and cheer that our creation is finished we need to link it together. Before taking this step ensure that “*Tools → Select Only My Objects*” is on (should have an *X* to the left of it).

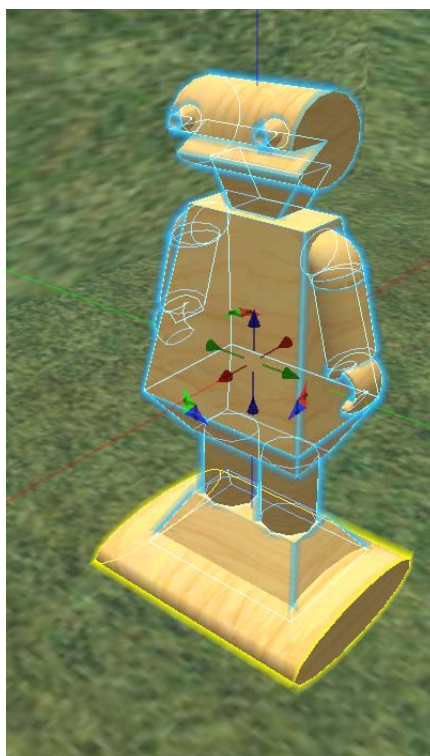
Hold down your mouse button and drag a box around the whole robot;

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Using *shift*, deselect the roller at the bottom of the robot and select it again. This means that this is the last object you select, which will be the parent object of all the objects when it is linked.

Link the objects using *Ctrl+L*. You will now see the parent object with yellow around it, and its children with blue;



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Now before we go any further, under the 'General Tab', give your robot a name so you can find it easily in your inventory later.

On this tab we would also change the 'Next owner can' to include modify and copy if we were going to give it to someone else in our group, so that they could adjust it. But for now this should just be for your own use. You can also change these properties when the object is in your inventory by right clicking it and selecting properties.

Texturing the Robot

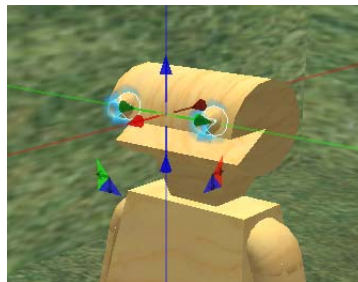
Now that you have an exciting wooden robot, it might be worth adding some textures to make it a little more believable.

Now because our Robot is linked, when we select it we select all the objects. We could unlink the object using *Ctrl+Shift+L*, but it is much better to select "*Edit Linked Parts*" checkbox. Now we can select individual parts of the object and adjust them.

Let's start by giving the Robot some beaming red eyes.

- ***Please note, the following screenshots were taken using the release candidate of Second Life Viewer, so some visuals, such as Glow, may not be available to the default client.***

Select the two rings we used for eyes;



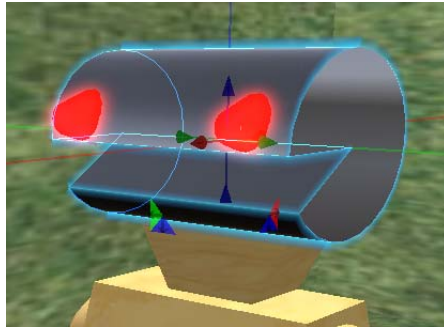
Now select the texture tab and click on the wood texture. This will bring up the texture browser, but because we just want these to glow red, we'll select "Blank" below the image preview, and press ok. Next check the 'Full Bright' checkbox, this will stop the object from shading so that it is a nice solid colour. Finally click the colour box (which should be white) and change it to red.



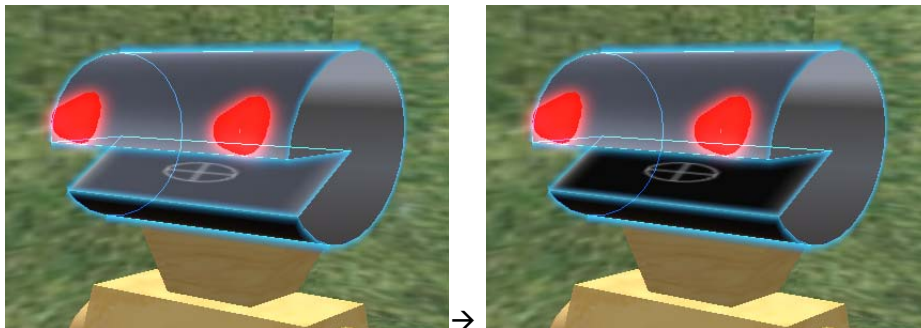
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This version includes glow, to make the objects look lit which may not work or be available in your client.

Select the head, this time apply a metal texture to it. This robot uses the texture found underneath “Library → Textures → Misc Textures → Gray Metal Scratched”. From the drop down set the shininess to ‘High’. It should look something like;

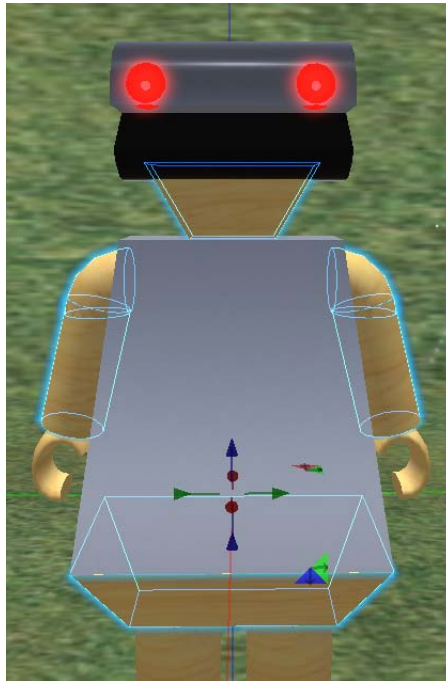


The inside of the mouth looks a little funny. What would look better is if those two flat faces were different. If you select “Select Texture”, in the radio buttons it will allow us to select individual ‘faces’, this is indicated by a white circle cross arrow and white edges on the face selected. Like all other selection you can use *shift* as well to select multiple faces. Select the two inside faces and darken the colour.



Turn of face select mode by choosing position from the radio buttons instead. Now select the torso, go to change the texture, but this time instead of finding it in the library, click the eyedropper tool and click the head to automatically set it to the same texture. Now set shininess to high, and it should look the same.

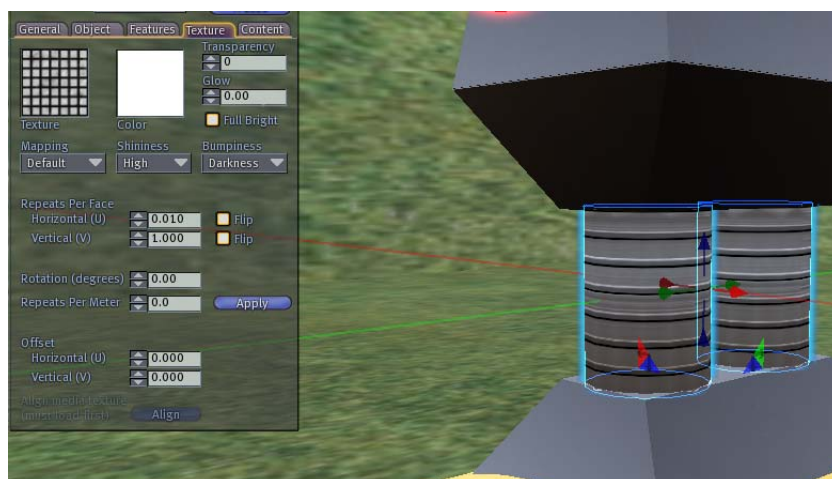
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Select the neck, shoulders, arms, bottom of the torso, and feet box and set it to the same texture using the eyedropper. Likewise this example robot has hands the same as the eyes by using the eyedropper tool to select the same tint colour.

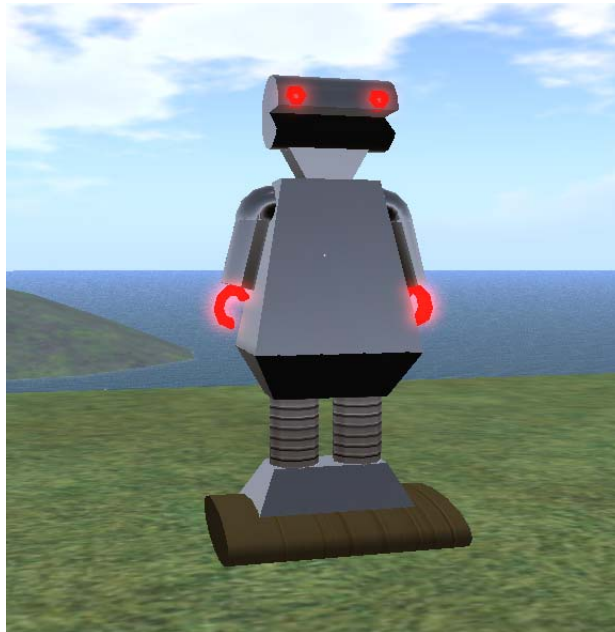
Now we are going to create a ridges look to the legs. Because you do not currently have linden (or you may) we'll do some creative work using the existing textures in the library. Select both the legs, set them to them to High Shininess, change the texture to 'Steel Plate' found in the 'Misc Textures' folder.

What, this looks wrong... we want stripes not a grid! Well if you change the 'Repeats per face', 'Horizontal' from 1.0 to 0.01, it will only use one hundredth of the texture to cover the object, so now a small portion of the texture is stretched over it, creating stripes. Change the 'Bumpiness' to 'Darkness', and now it looks as if there are ridges in the legs;



The final step is putting some marks on the tread. For the final robot seen in this tutorial the default wood texture was stretched the same as above, and a brown colour was applied. Have a play and try to produce the tread you want.

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There you have your completed robot. You should now be confident enough to play with all the primitive settings and experiment with textures. Right click and choose 'take' to save it to your inventory.

Always remember to clean up!

You may, or not, have realised that you can save money on texture by putting multiple things on one texture and then cropping the texture by using the 'Repeats per face', this is a great way to get more for less, but will not work if you want your texture to repeat. So think about how you can include multiple things on one texture, or how you can adjust existing textures to resemble your needs.

Think creatively!

What to do now?

- Edit the robot to make it your own by changing the textures, adding knobs and dials, or anything else you like.
- Consider creating your own textures – you need to keep the dimensions to a combination of width and height being one of these values; 32, 64, 128, 256, 512, 1024. If you save the image as a transparent PNG it will also retain transparency data. To upload or preview an image choose "File → Upload image".
- Start modelling furniture or other assets for your hut