

Computer Graphics: Assignment 2

Nihal Singh - 150040015, Arunabh Ghosh - 150070006

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1 The Box

1.1 Model of the box

The model of the box we have created has two components - Base Box and Lid. Base box is modelled as a cube with five sides and the lid is modelled as a rectangle.

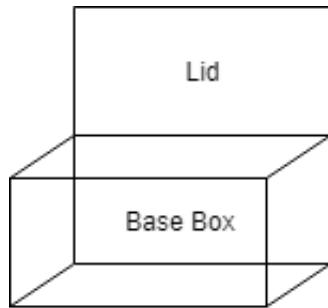


Figure 1: Box Model

The hierarchical model of the box is as follows -

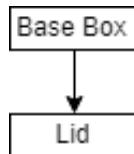


Figure 2: Hierarchical model of the box

1.2 Keys used to control the box

- Press 1 to select the music box
- After pressing 1, Press B to select the base box
- After pressing 1, Press L to select the lid

1.3 Actual box

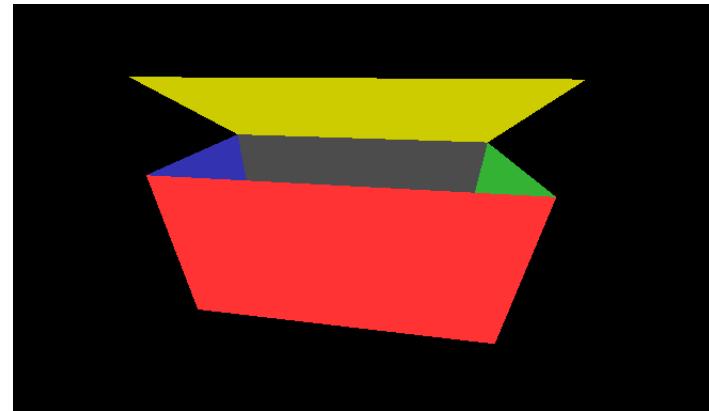


Figure 3: This is what the box looks like

2 The Human

2.1 Model of the human

The model of the human we created is shown below -

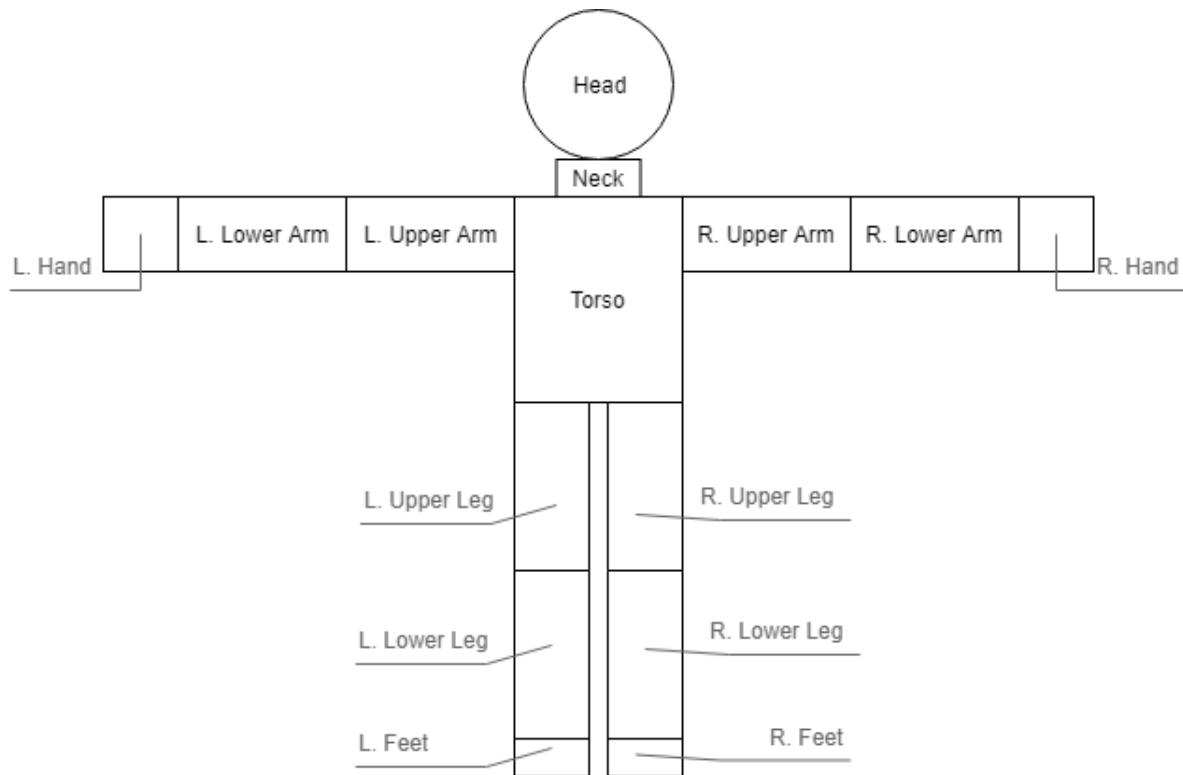


Figure 4: Human model

The hierarchical model of the box is as follows -

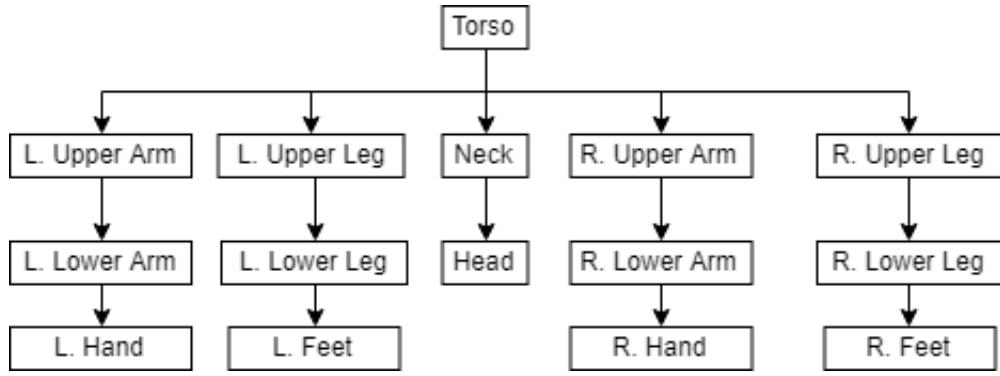


Figure 5: Human hierarchical model

2.2 Keys used to control the human

- Press 2 to select the human
- After pressing 2, Press T to control the torso
- After pressing 2, Press Y to control the left upper arm
- After pressing 2, Press U to control the left lower arm
- After pressing 2, Press I to control the right upper arm
- After pressing 2, Press O to control the right lower arm
- After pressing 2, Press G to control the left upper leg
- After pressing 2, Press H to control the left lower leg
- After pressing 2, Press J to control the right upper leg
- After pressing 2, Press K to control the right lower leg
- After pressing 2, Press Z to control the left hand
- After pressing 2, Press X to control the right hand
- After pressing 2, Press C to control the left feet
- After pressing 2, Press V to control the right feet
- After pressing 2, Press N to control the neck
- After pressing 2, Press M to control the head

2.3 Actual human

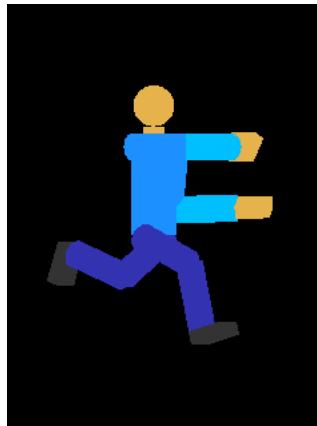


Figure 6: This is what the human looks like

3 R2-D2

3.1 Model of R2-D2

The hierarchical model of the R2-D2 is as follows -

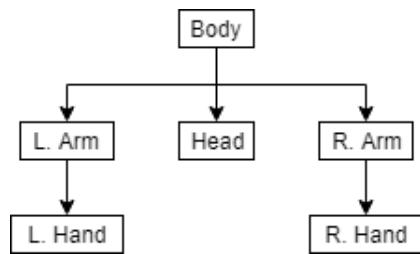


Figure 7: R2-D2 hierarchical model

The model we have tried to replicate is shown as follows -



Figure 8: Reference R2-D2 model

3.2 Keys used to control the R2-D2

- Press 3 to select R2-D2
- After pressing 3, Press T to select the body of R2-D2
- After pressing 3, Press Y to select the left arm of R2-D2
- After pressing 3, Press U to select the left hand of R2-D2
- After pressing 3, Press I to select the right arm of R2-D2
- After pressing 3, Press O to select the right hand of R2-D2
- After pressing 3, Press H to select the head of R2-D2

3.3 Actual R2-D2



Figure 9: This is what the R2-D2 looks like

4 Keys to rotate each joint

After selecting the particular part, press the following keys to apply the transformation. Note that certain transformations may be restricted for some joints if they are unnatural.

- Press Left arrow key to decrease the Y coordinate
- Press Right arrow key to increase the Y coordinate
- Press Up arrow key to decrease the X coordinate
- Press Down arrow key to increase the X coordinate
- Press Page Up key to decrease the Z coordinate
- Press Page Down key to increase the Z coordinate

4.1 Camera transforms

Press the following keys to change the view angle

- Press A to decrease the camera Y coordinate
- Press D to increase the camera Y coordinate
- Press W to decrease the camera X coordinate
- Press S to increase the camera X coordinate
- Press Q to decrease the camera Z coordinate
- Press E to increase the camera Z coordinate

5 The final picture

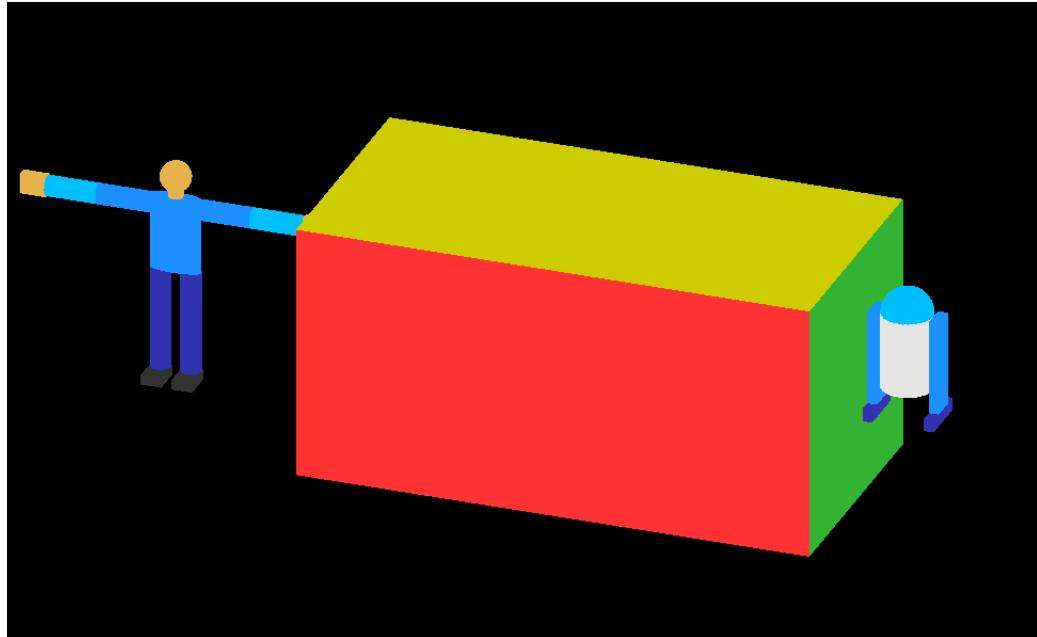


Figure 10: How all three look side by side

References

- [1] *R2-D2 model*

The R2-D2 model drawn in the assignment is inspired by the one found in this [article](#).

- [2] *Prof. Parag Chaudhuri's Tutorials*

Tutorial 07 for hierarchical model. Tutorial 05 for ellipsoid. The tutorials can be found [here](#).

- [3] *Cylinder*

The methodology for drawing a cylinder can be found [here](#).