Ramp Follower Robot- III

RAMP FOLLOWER ROBOT 3

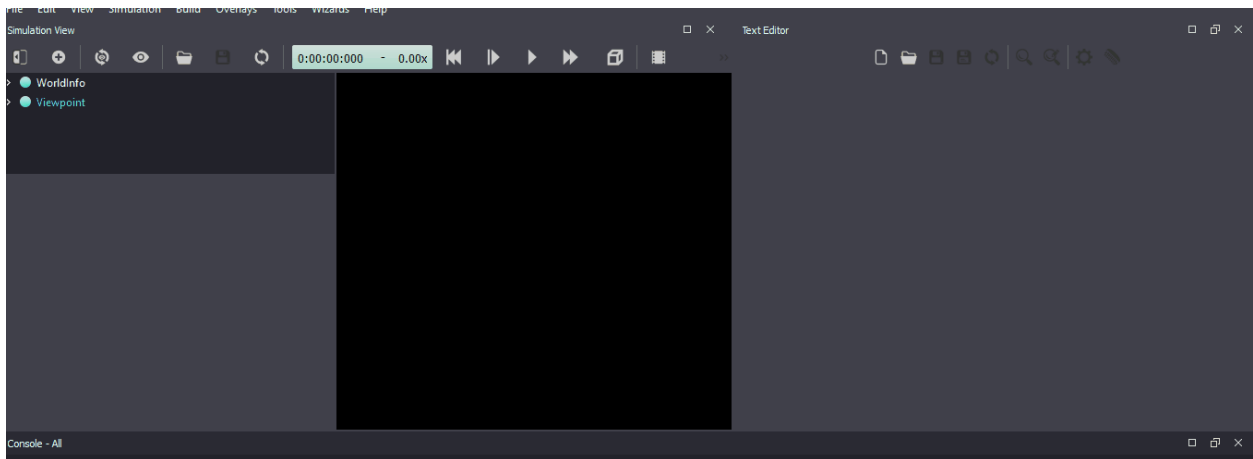## What is our GOAL for this CLASS?

In this class, we designed the face of the follower Robot. We installed distance sensors in the eyes of Robot to track the distance of the Follower. We designed a happy face for the Robot.

What did we ACHIEVE in the class TODAY?

- We designed the left and right eye.

- We installed Distance Sensors.

- We designed the happy face of the Robot.

How did we DO the activities?

1. **Open the Follower Ramp file.**

https://s3-whjr-curriculum-uploads.whjr.online/efe2e800-1c83-4d97-bc8d-14fd8a3288cf.gif

2. **Teams related to Webots:**

   Distance Sensors: Distance sensors sense distance from the object i.e Ramp.

3. Procedure for Right Eye

   1. Click on **HingeJoint**(Last Hingejoint from the Bottom)

   2. Click on **+**

   3. Select **Base nodes**

   4. Click **Base nodes drop down**

      a. Select **DistanceSensor**

      b. Click **Add**

      c. **Parameters**

         i. Set **translation 0.042, 0.02, 0.063**

         ii. Set **rotation 0, 0, -1, -0.499**

         iii. **Set name " ds0"**

d. Double Click **on children**

   i. Select **Transform** under Base nodes

   ii. Click **Add**

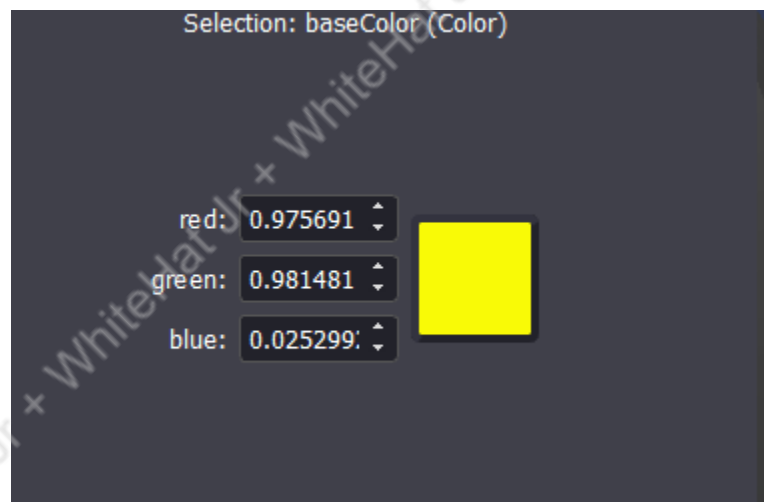   iii. Write the name of DEF function **"SENSOR"**
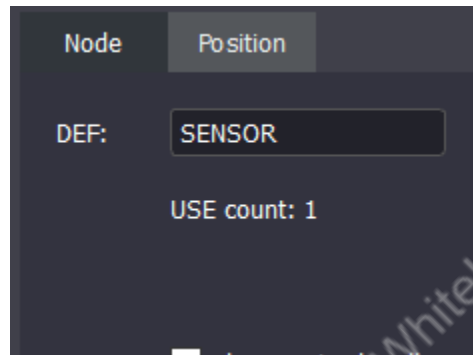
   iv. Set **rotation** as per below values
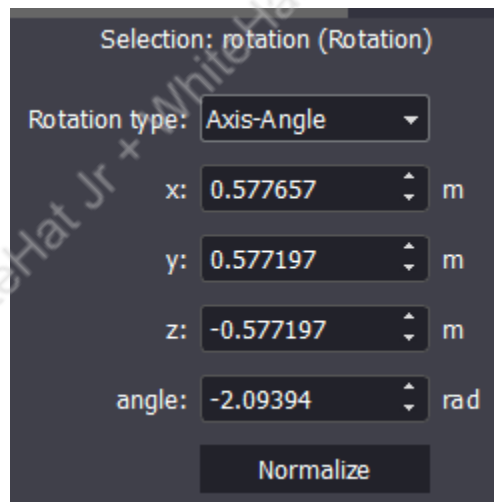
   v. Double Click on **children under DEF SENSOR TRANSFORM**

vi. **Select** Shape **under** Base nodes

vii. Click **Add**

viii. Double click on drop down of **Shape**

1. Double Click on **Appearance**

2. **Select PBR Appearance**

3. **Click Add**
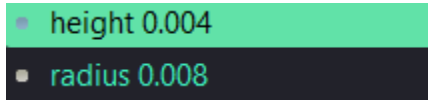
4. **Set base color 0.97 , 0.98, 0.025(Yellow color)**

Note : Color can be selected from ColourBox too as per student wish.If not then use the mentioned one.

5. **Set Roughness 1**

6. **Set metalness 0**

7. Under **Appearance** there is **Geometry Null.** Double Click on **geometry Null**

8. Select **Cylinder under Base nodes**
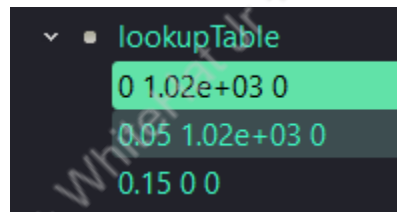
9. Click **Add**

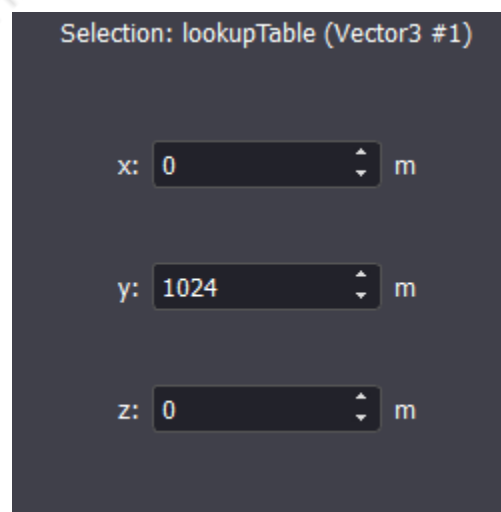   **a.** Set **Height 0.004**

   b. Set **Radius 0.008**

10. **Go to lookup Table**

Now we want to show rays from a distance sensor while moving. For that we need to fix positional values.You will see two options under the lookup table but we need three different x,y,z values for three positions.Click on Ist and enter the following values.

Ist Value:

2nd Value:

3rd Value:

If the third value is not there you can copy the second row and just click on paste.
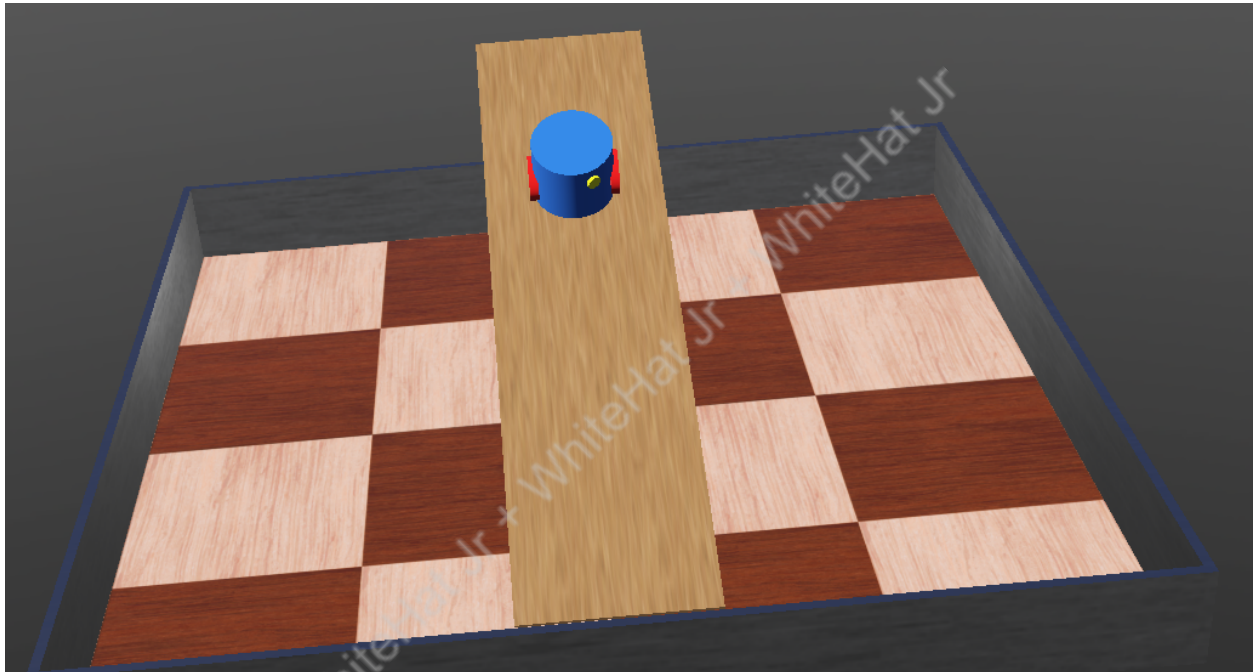
11. Set **number of rays** : 2

12. Set **Aperture**

13. Save the simulation.

You will see a yellow eye on the right side. Distance sensor is used in Robot Eye's.

4. **Procedure for left Eye**

Let's change some translational and Rotational settings to set the eye and distance

sensor

1. Go to the Distance sensor ds1

2. Click on Drop Down Distance Sensor ds1

Note: You will see right eye, but as this is left eye we need to change the name.

3. Go to the name option and write "ds1

name "ds1"

4. Set translation settings:

5. Set Rotation

6. Double click on **children** under **DistanceSensor ds1**

7. Instead of Base nodes we will use pre -defined function which we made while

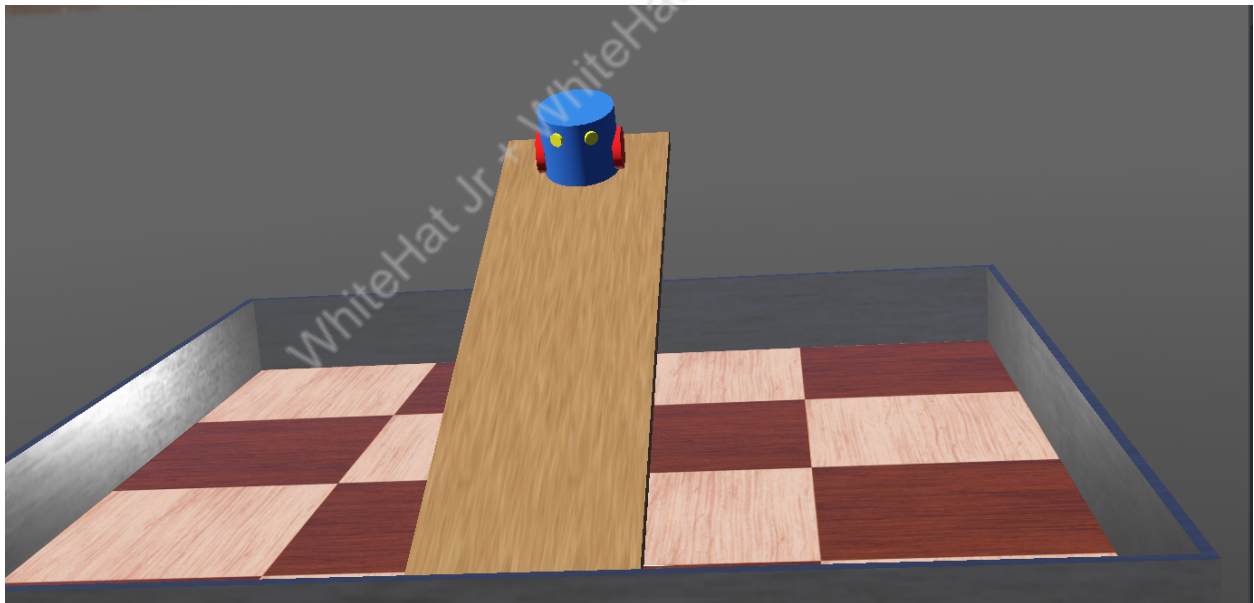right eye .elect**S on Use and click on drop down and** Select **SENSOR**

(Transform)
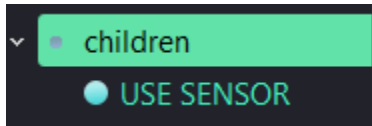
8. Click on **Add**

9. Translational and Rotational Step setting will remain same
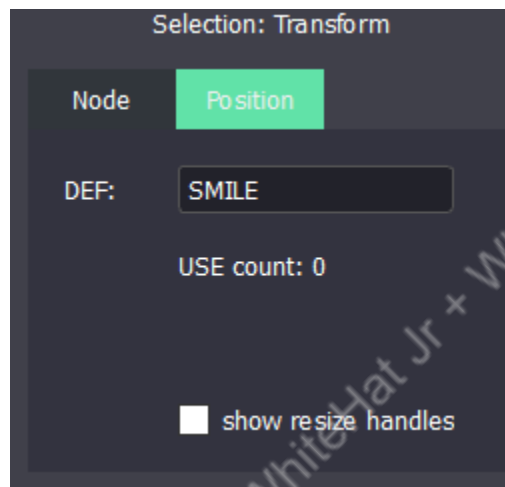

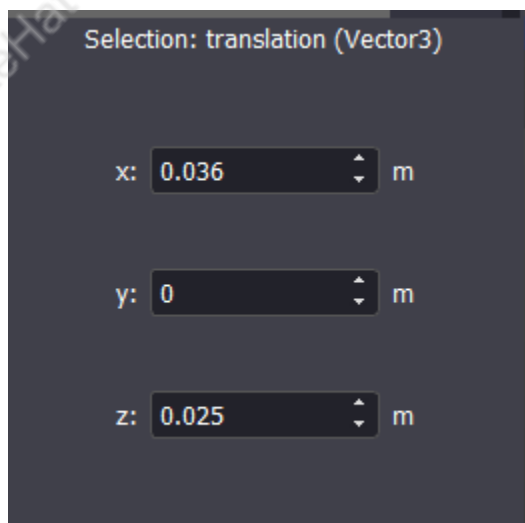Save the simulation.

5. **Procedure for Smile**

    1. Click on **DistanceSensor ds1**(Last **DistanceSensor ds1** from the Bottom)
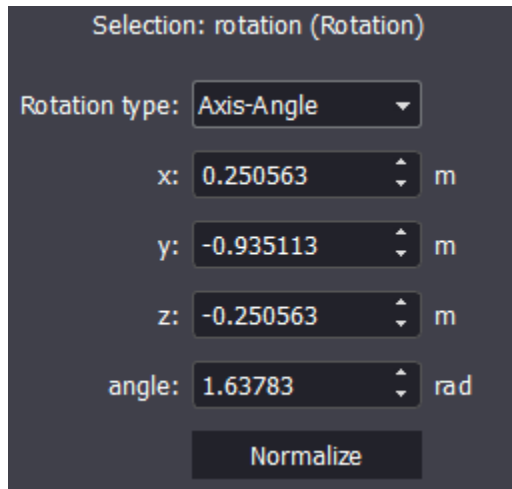
    2. Click on **+**

3. Select **Base nodes**

4. Click **Base nodes drop down**

    a. Select **Transform**

    b. Click **Add**

    c. Write the name of DEF function SMILE

    i. Set **translation** as per below values

    ii. Select rotation

iii. Double Click on **children under DEF SMILE TRANSFORM**

iv. **Select** Shape **under** Base nodes

v. Click **Add**

vi. Double click on drop down of **Shape**

     1. Double Click on **Appearance**

     2. **Select PBR Appearance**

     3. **Click Add**

     4. **Set base color 0.72 , 0.54 0.52(Pink color)**

Selection: baseColor (Color)

red: 0.721569

green: 0.054902

blue: 0.521569

Note : Color can be selected from ColourBox too as per student wish.If not then use

the mentioned one.

5. **Set Roughness 1**

6. **Set metalness 0**

7. Under **Appearance** there is **Geometry Null.** Double

   Click on **geometry Null**

8. Select **Cylinder under Base nodes**

9. Click **Add**

   a. Set **Height 0.018**

   b. Set **Radius 0.009**

   c. **Select subdivision 3**

Save the simulation.
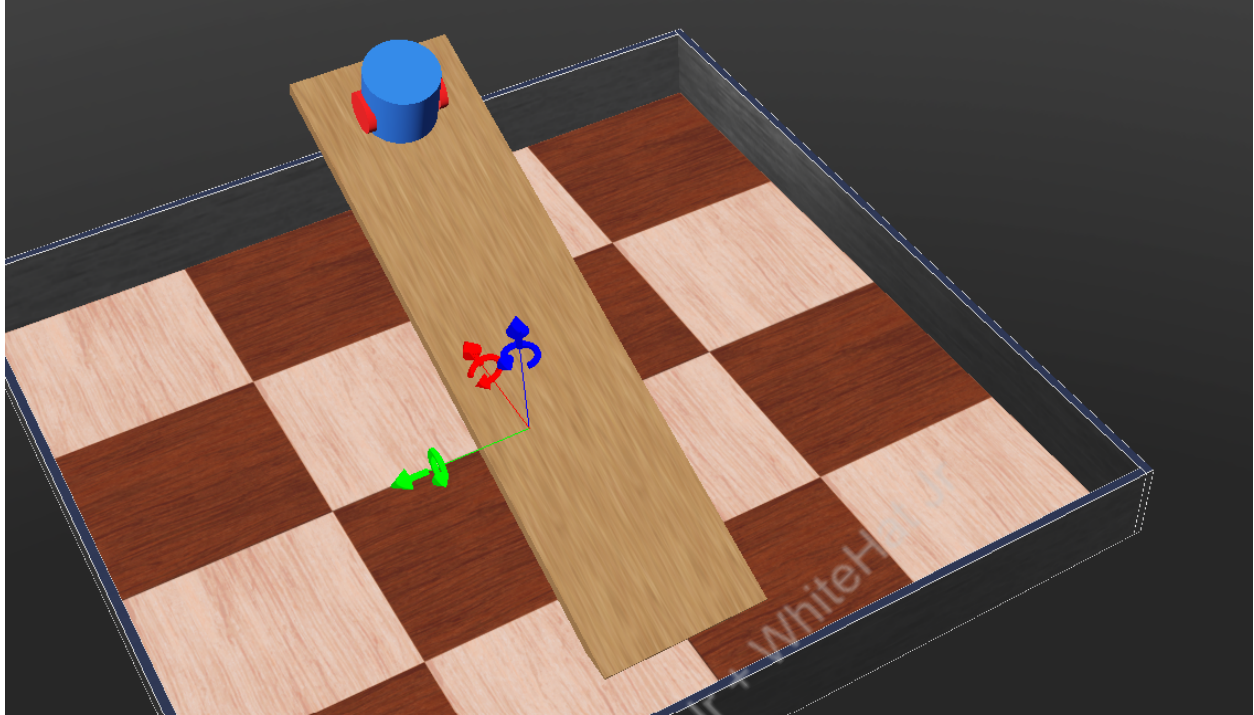
What's NEXT?

In the **next class**, we will learn to add a controller to work on the movement of Robot.

Expand Your Knowledge

To know more about **Distance sensors** [click here](.).