# Lab Number 05
# CoppeliaSim EDU – Conveyor Belt System with UR5

## Introduction:

Conveyor system is a traditional robotics application and still is in use in industries. In this Lab, conveyor belt system will be visualized.

## Software Used:
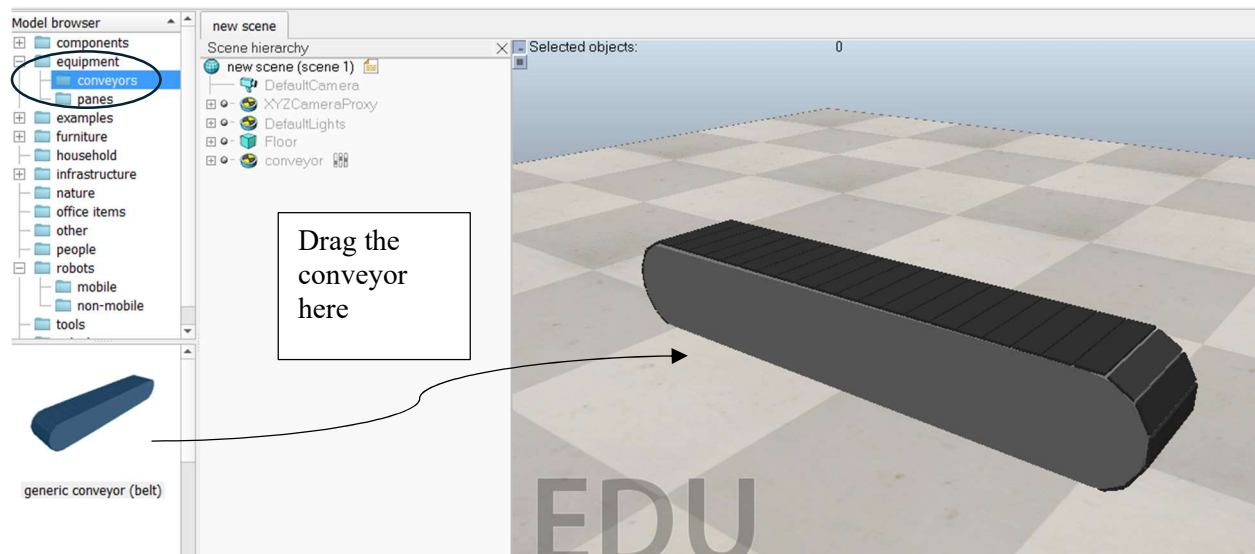
CoppeliaSim EDU v4.7

## Programming Language:

LUA

## Objectives of the Lab:

- To code conveyor belt system using sensors.
- To understand UR5 robot along with its inbuilt code.
- To attach gripper or any object with UR5 robot.

## Procedure:

Add a conveyor belt.



Now run the simulation and see. The conveyor belt is moving. It is pre-coded. Add two cuboid above the conveyor belt to make it move with the conveyor belt. Simulate and see the objects are moving along conveyor belt.
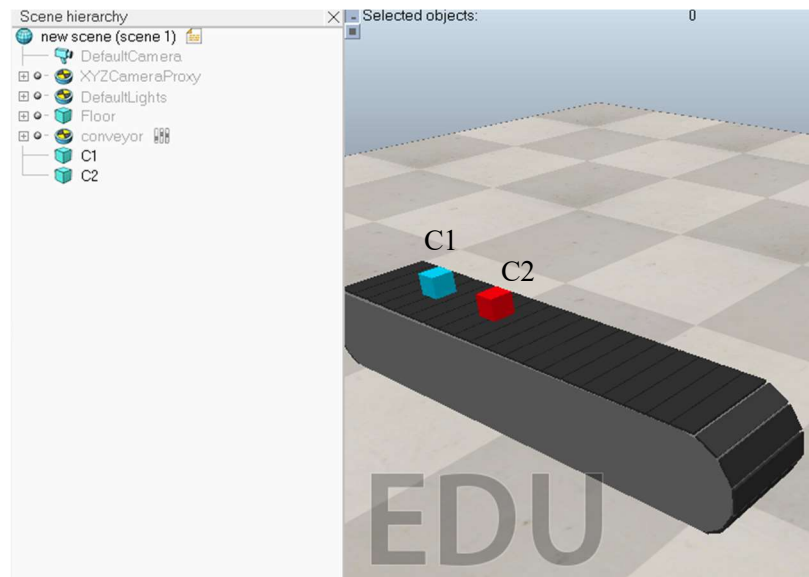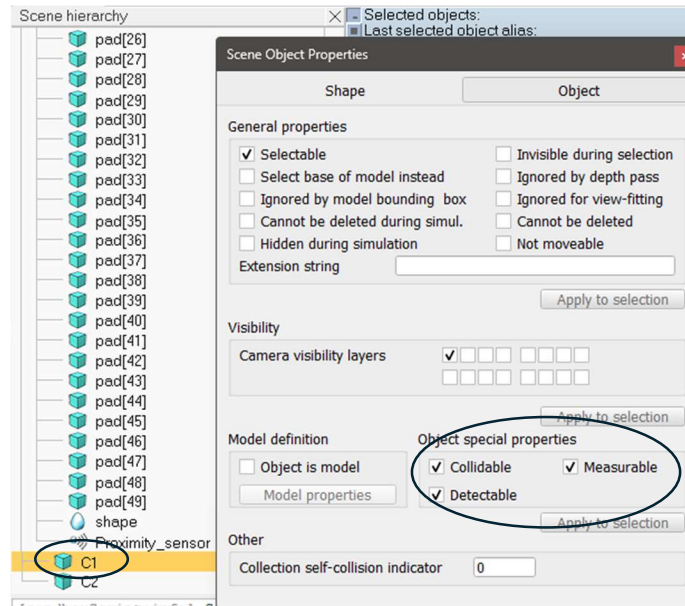
Add a proximity sensor with conveyor belt to detect these objects. Make proximity sensor as child of the conveyor to code it properly.
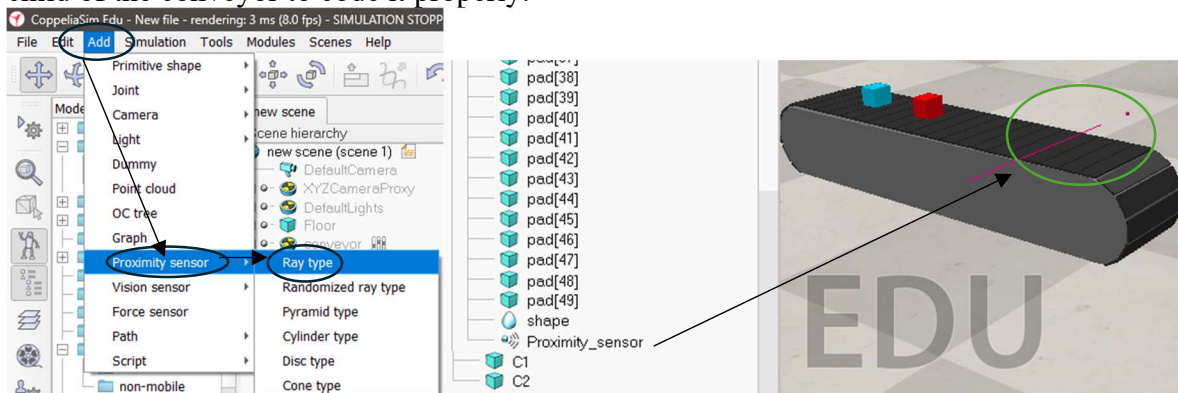


Change the properties of cuboid C1 and C2 as measurable, collidable and detectable.

Now add a script as child of conveyor and write down the following code to stop the object when it is detected by a proximity sensor.

```
sim=require'sim'

function sysCall_init()
    self=sim.getObjectHandle('..')
    sensor=sim.getObjectHandle('../Proximity_sensor')
end

function sysCall_actuation()
    beltVelocity = 0.05

    if (sim.readProximitySensor(sensor)>0) then
        beltVelocity= 0

    end

    sim.writeCustomTableData(self,'__ctrl__',{vel=beltVelocity})
end
```
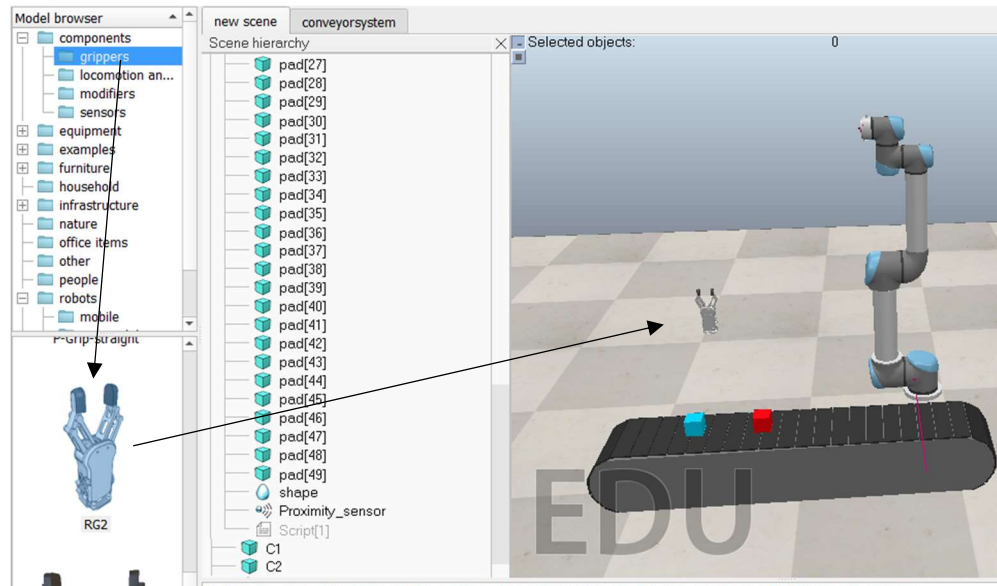
Now you can visualize that the conveyor belt is working fine and is detected the object.
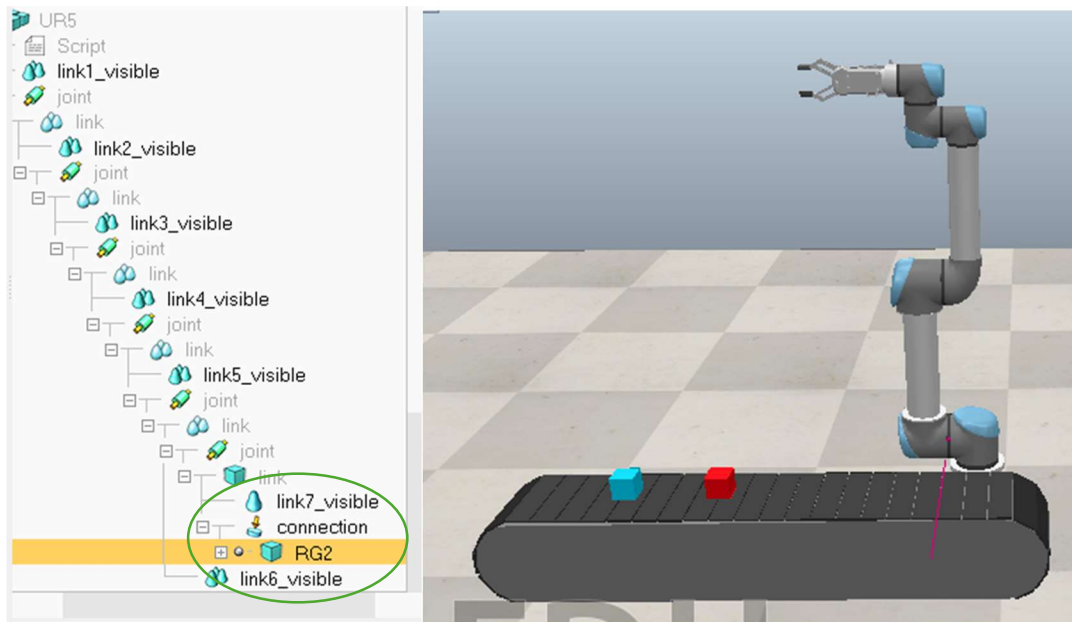
Add UR5 near conveyor belt.

Attach RG2 gripper with it.

Make the gripper as child of UR5 by attaching it to the child **"connector"** of the UR5. And **translate/rotate** gripper relative to parent frame to make it connected UR5's connector.



Now run the simulation and see gripper is connected with UR5.