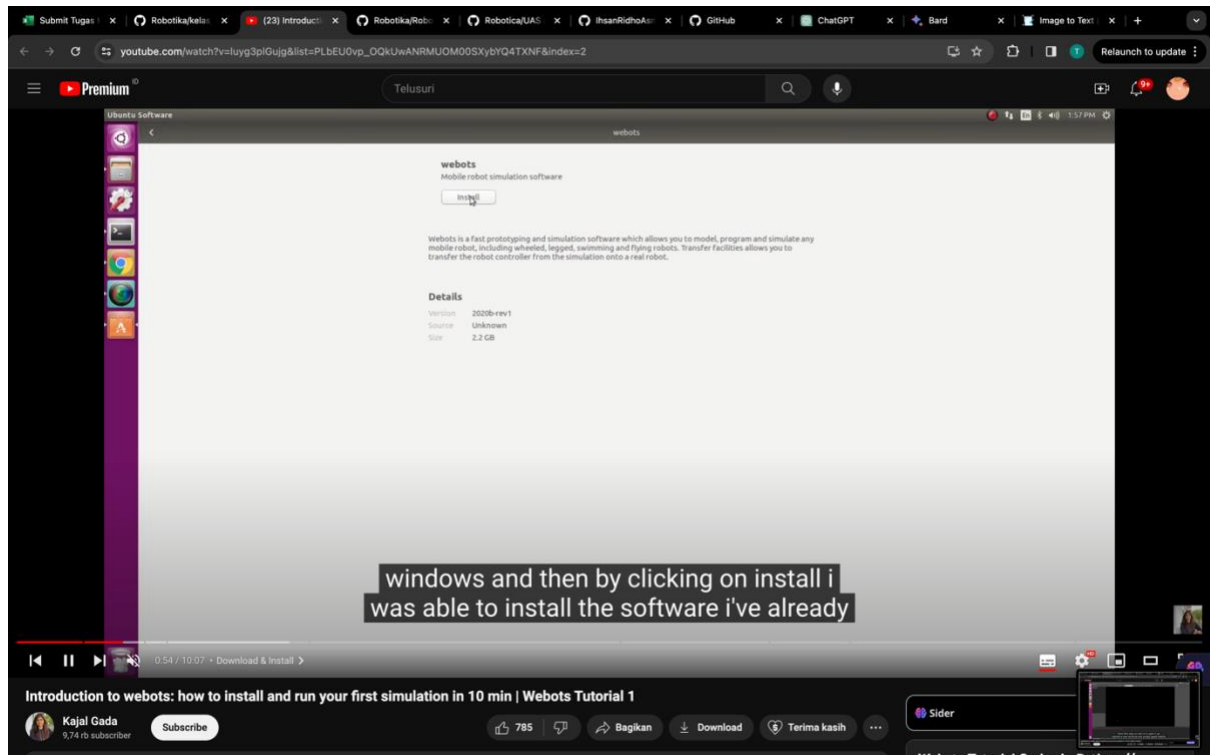
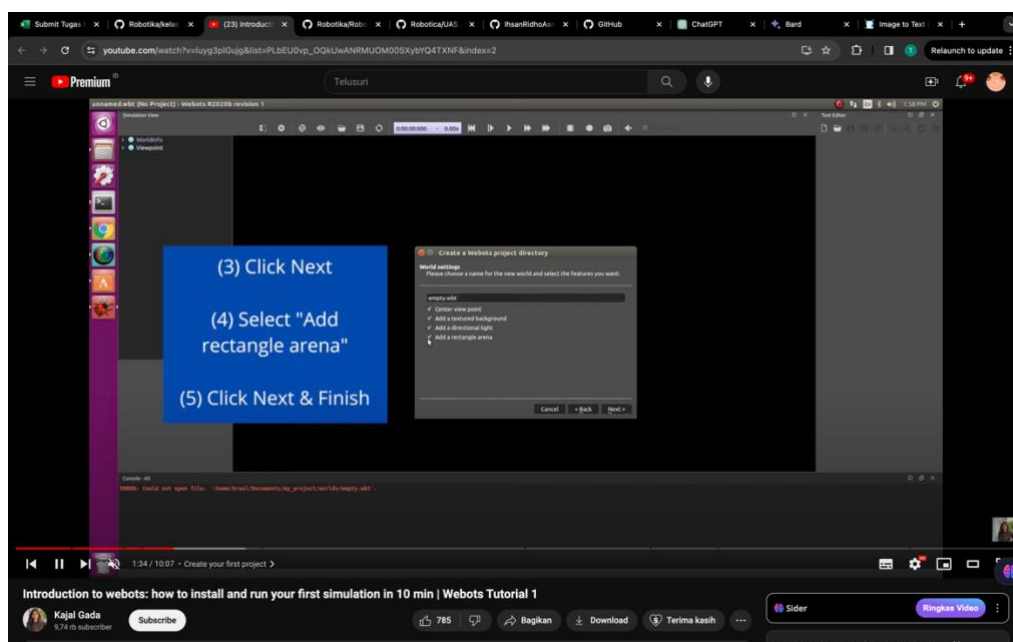


Nama: Muhammad Fariq Taqi Pasai
NIM: 1103204193
Kelas: Robotika
Lecture: Week 10, Webots in Python 1-3

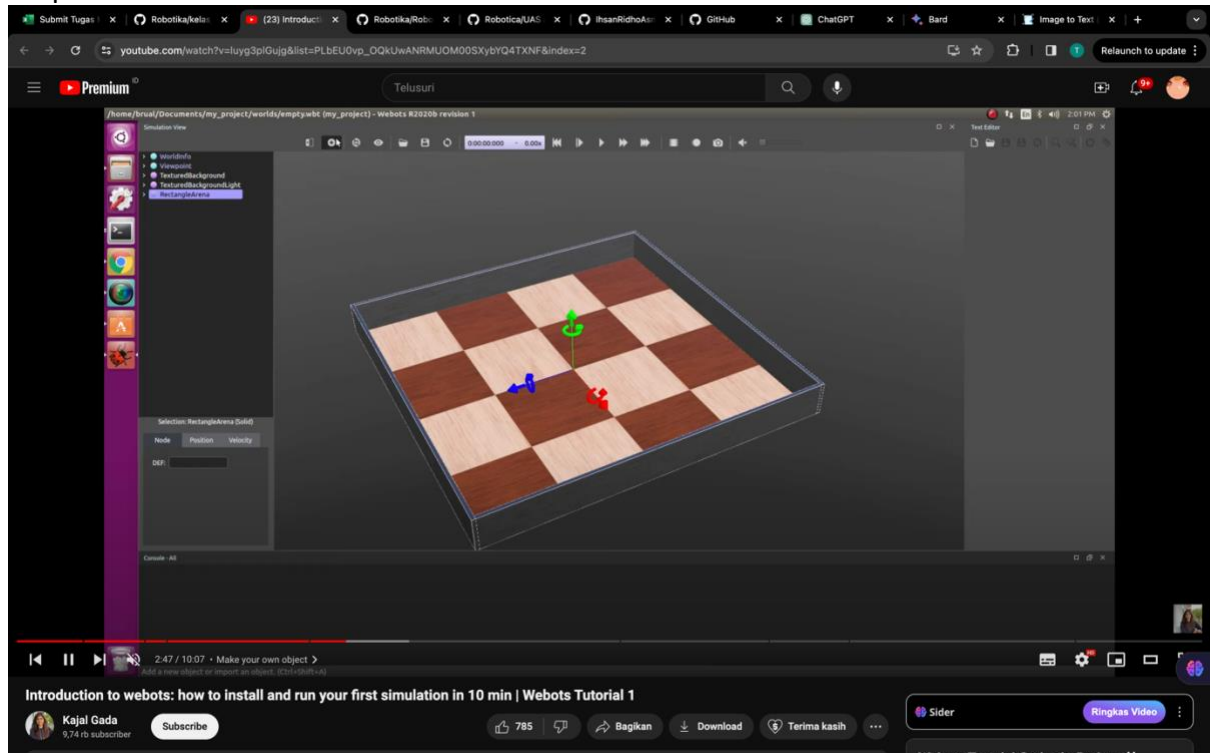
Video 1 Download and Install



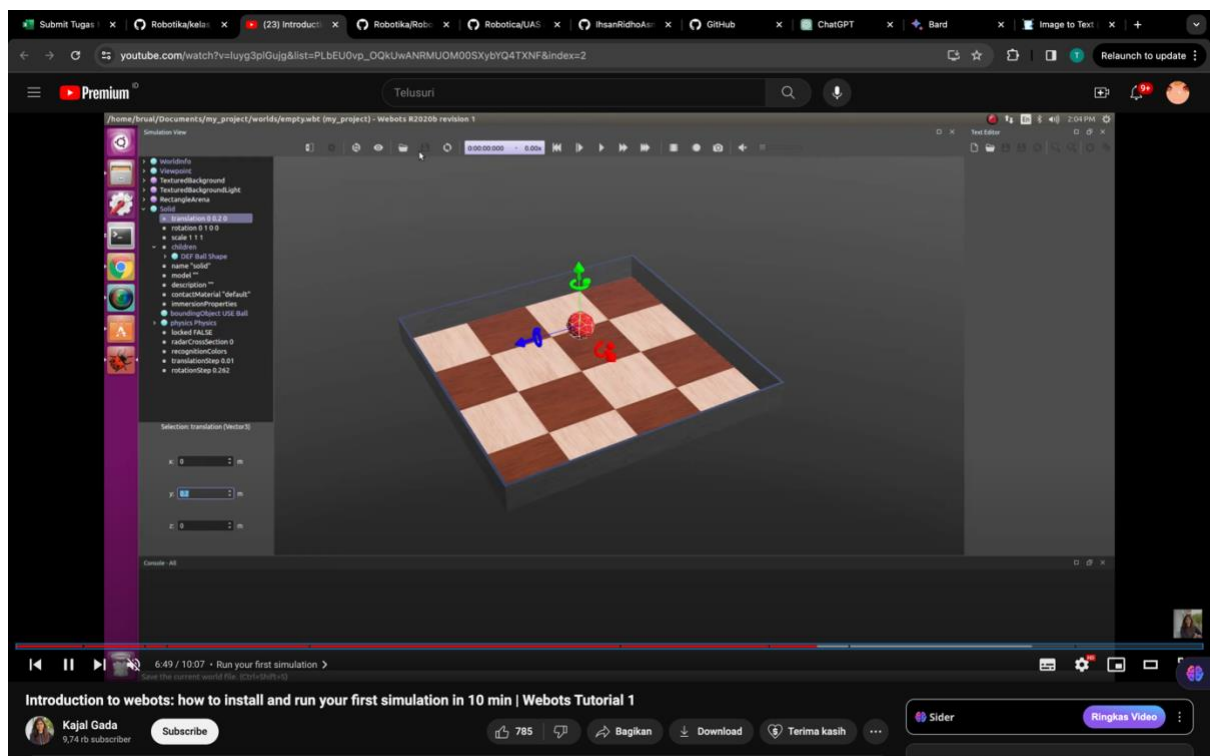
Create new project



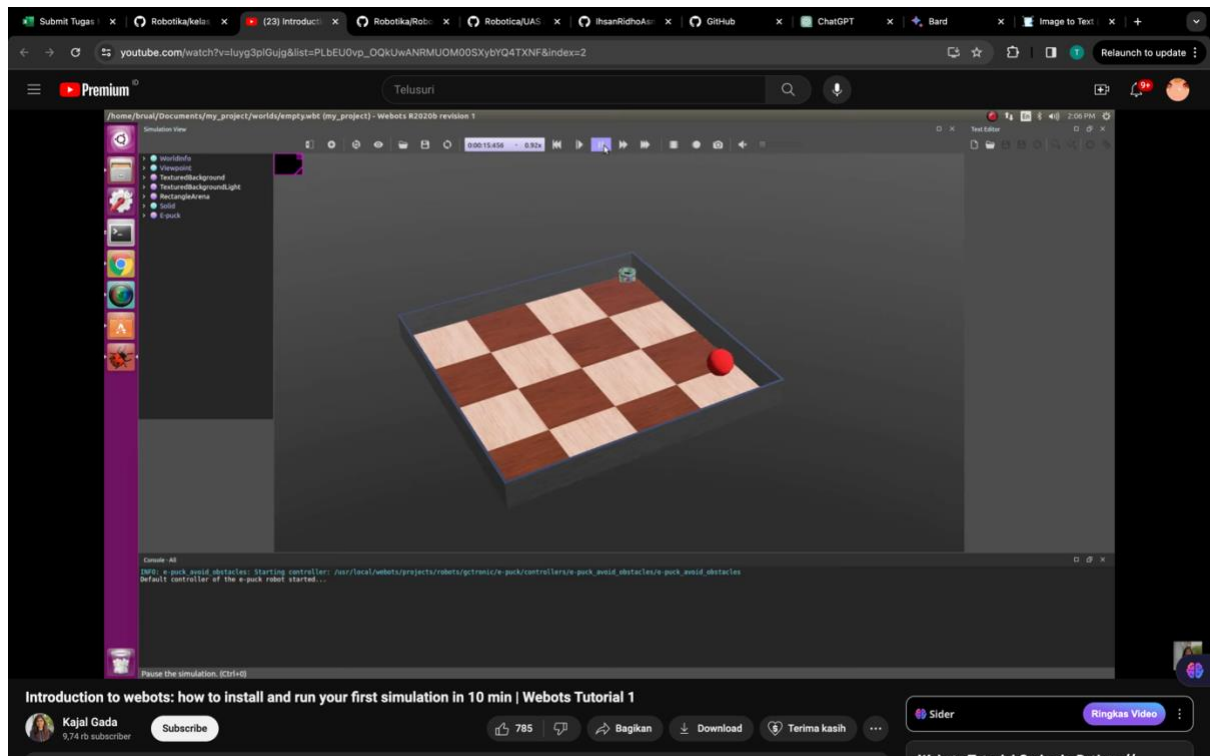
Preparation



Mensimulasikan

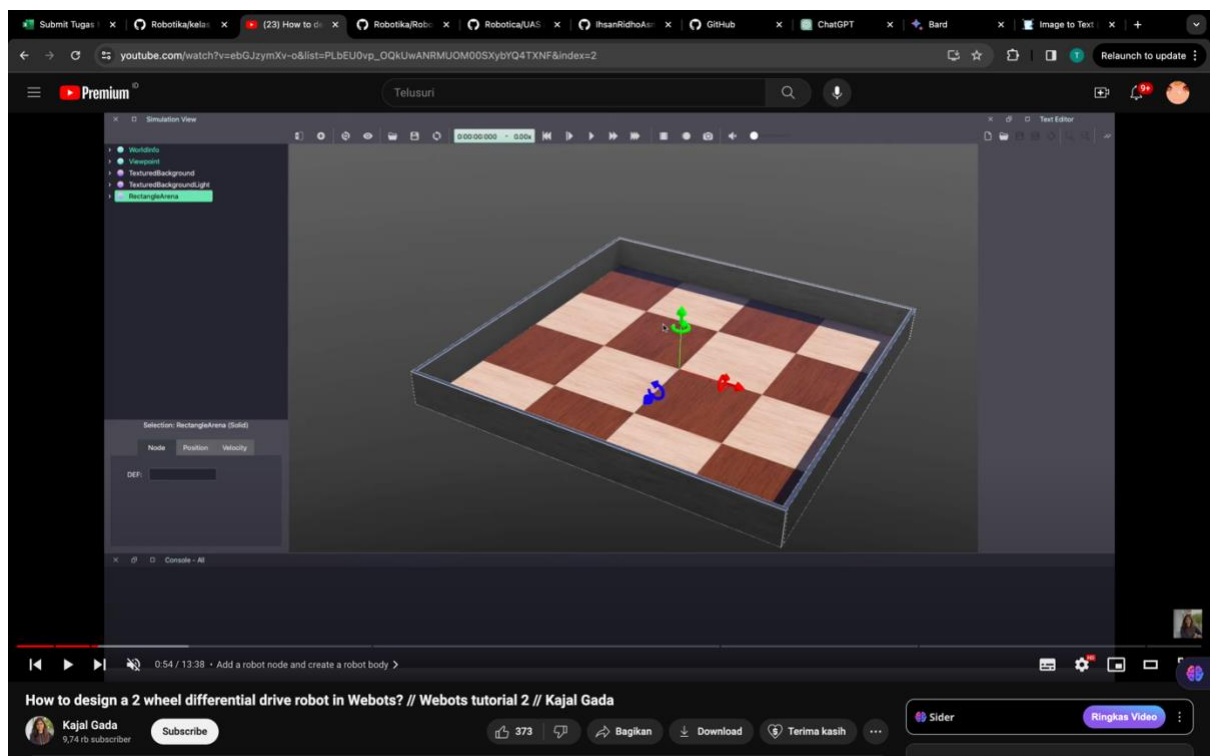


Mensimulasikan dengan menambahkan robot

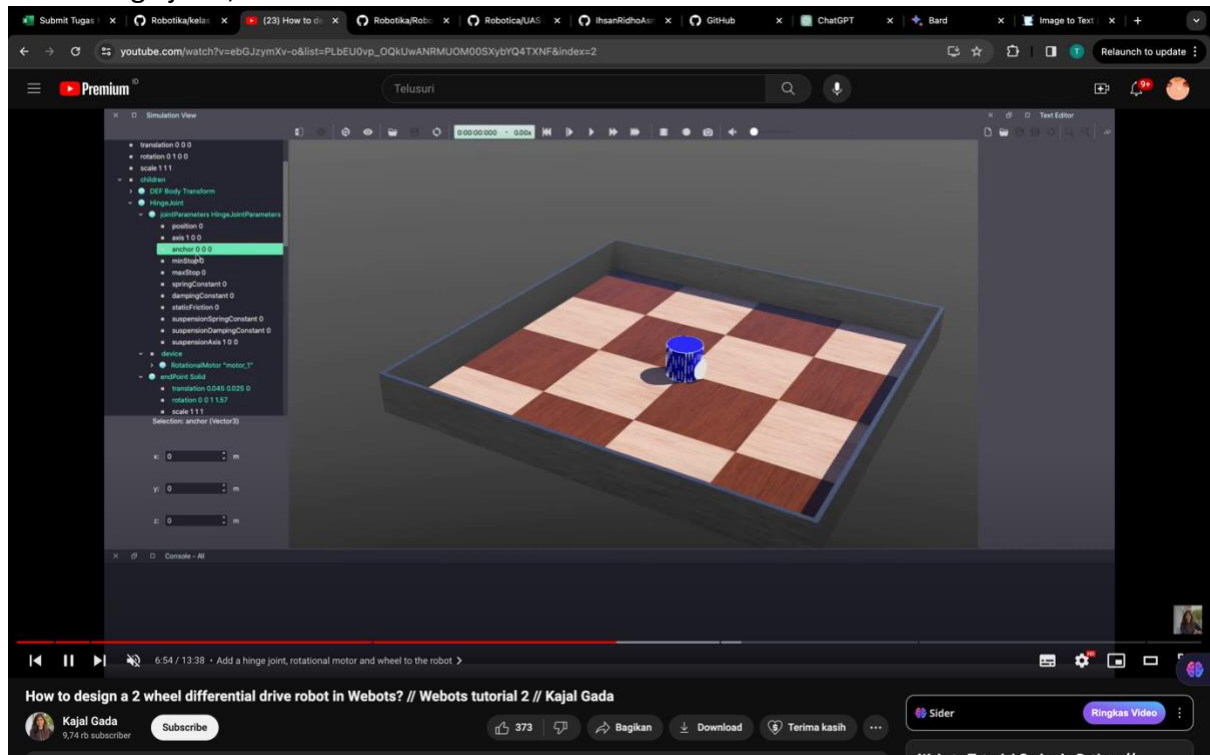


Video 2

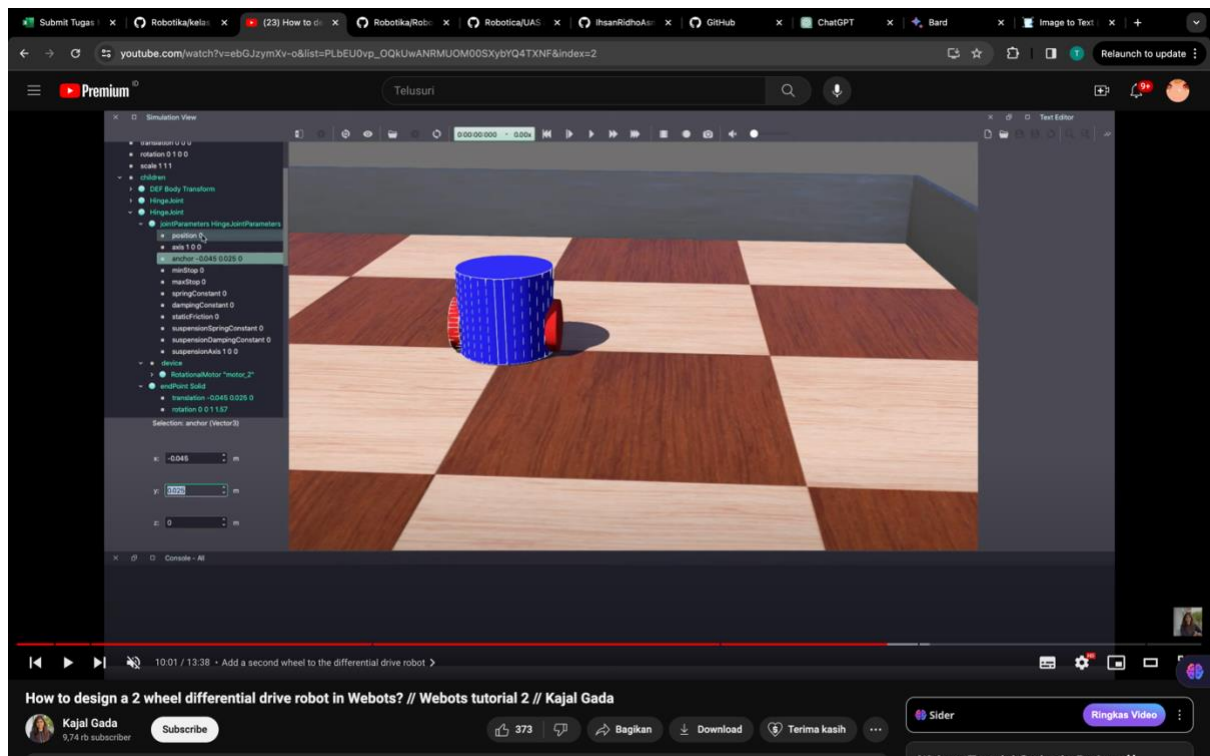
Menambahkan node robot dan membuat tubuh robot



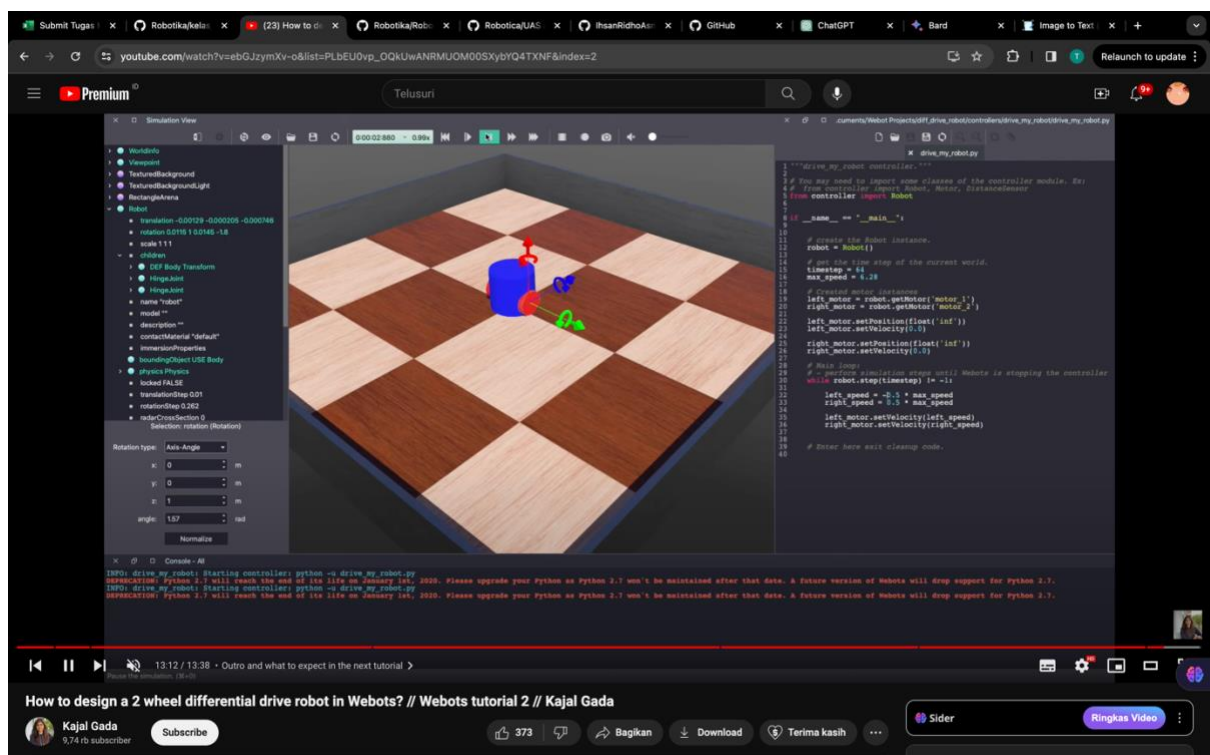
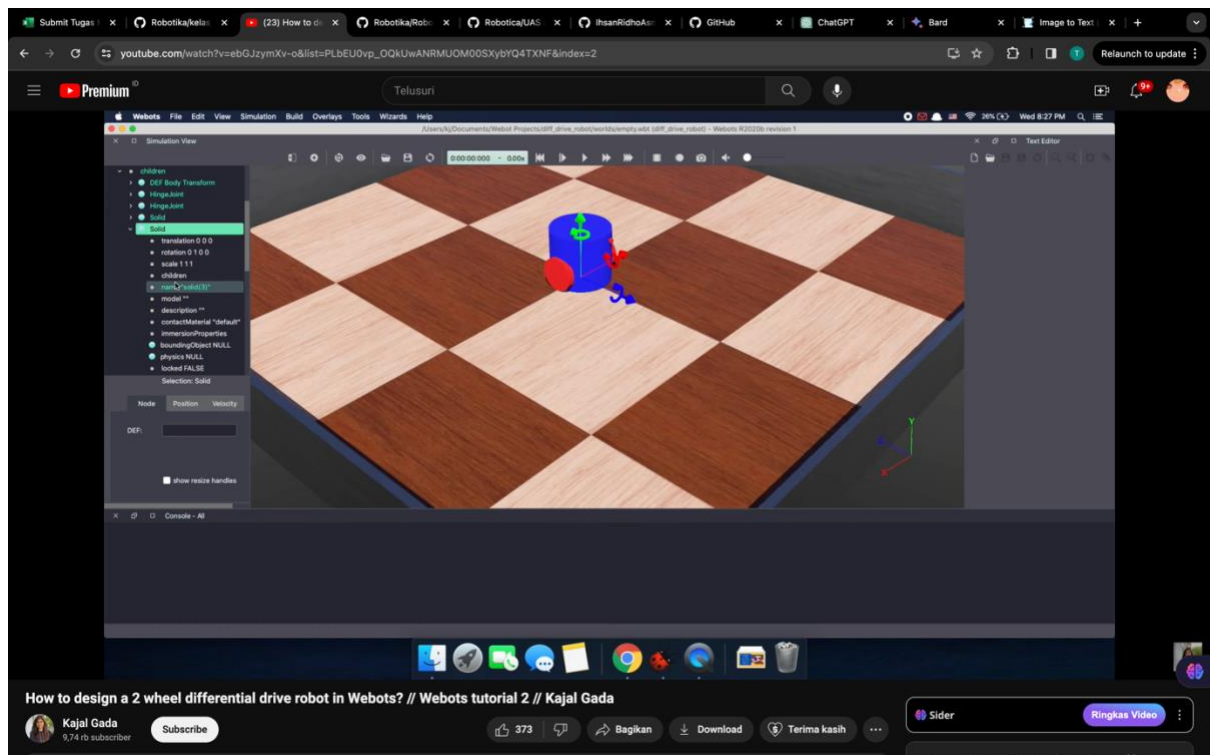
Add a hinge joint, rotational motor and wheel to the robot



Add a second wheel robot



Add a pair of eyes to make robot look friendly



Video 3

Create controller in webots

Simulation view

Name selection

Please, choose a name for your controller program.

Controller name: drive_my_robot

Enter "drive_my_robot" as controller name.

Webots tutorial 3: Controller code to drive a differential drive robot // Webots Tutorial Python

Kajal Gada

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3 Webots tutorial 3: Controller code to drive a differential drive robot... Kajal Gada 12.58

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5 Webots Tutorial: Line Follower Robot using e-puck // Controller... Kajal Gada 10.58

6 Webots Tutorial Project Wall follower robot using e-puck // ... Kajal Gada 10.51

7 [SOLVED] How to use Python 3 code in Webots on Ubuntu? // ... Kajal Gada 10.07

Webots controller code in python

drive_my_robot.py

```
1 """drive_my_robot controller."""
2
3 # You may need to import some classes of the controller module. Ex:
4 # from controller import Robot, Motor, DistanceSensor
5 from controller import Robot
6
7
8
9
10 # create the Robot instance.
11 robot = Robot()
12
13 # get the time step of the current world.
14 timestep = int(robot.getBasicTimeStep())
15
16 # You should insert a getDevice-like function in order to get the
17 # instance of a device of the robot. Something like:
18 # motor = robot.getMotor('motorname')
19 # ds = robot.getDistanceSensor('dsname')
20 # ds.enable(timestep)
21
22 # Main loop:
23 # - perform simulation steps until Webots is stopping the controller
24 while robot.step(timestep) != -1:
25     # Read the sensors!
26     # Enter here functions to read sensor data, like:
27     # val = ds.getValue()
28
29     # Process sensor data here.
30
31     # Enter here functions to send actuator commands, like:
32     # motor.setPosition(10.0)
33     pass
34
```

Done to run this module as the main code.

For better understanding check out the article in description.

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Motor control in webots

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youtube.com/watch?v=CDOrTKQAQs&list=PLbEU0vp_OQKUwANRMUOM005KybYQ4TXNF&index=3

Telusuri

drive_my_robot.py

```
1 """drive_my_robot controller."""
2
3 # You may need to import some classes of the controller module. Ex:
4 # from controller import Robot, Motor, DistanceSensor
5 from controller import Robot
6
7
8 if __name__ == "__main__":
9
10     # create the Robot instance.
11     robot = Robot()
12
13     # get the time step of the current world.
14     timestep = 64
15
16     # You should insert a getDevice-like function in order to get the
17     # instance of a device of the robot. Something like:
18     # motor = robot.getMotor('motorname')
19     # ds = robot.getDistanceSensor('dsname')
20     # ds.enable(timestep)
21
22     left_motor = robot[
23
24     # Main loop:
25     # - perform simulation steps until Webots is stopping the controller
26     while robot.step(timestep) != -1:
27         # Read the sensors:
28         # Enter here functions to read sensor data, like:
29         # val = ds.getValue()
30
31         # Process sensor data here.
32
33     # Enter here functions to read sensor data, like:
34     # val = ds.getValue()
35
36     # Process sensor data here.
```

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Telusuri

drive_my_robot.py

```
1 """drive_my_robot controller."""
2
3 # You may need to import some classes of the controller module. Ex:
4 # from controller import Robot, Motor, DistanceSensor
5 from controller import Robot
6
7
8 if __name__ == "__main__":
9
10     # create the Robot instance.
11     robot = Robot()
12
13     # get the time step of the current world.
14     timestep = 64
15
16     # You should insert a getDevice-like function in order to get the
17     # instance of a device of the robot. Something like:
18     # motor = robot.getMotor('motorname')
19     # ds = robot.getDistanceSensor('dsname')
20     # ds.enable(timestep)
21
22     left_motor = robot[
23
24     # Main loop:
25     # - perform simulation steps until Webots is stopping the controller
26     while robot.step(timestep) != -1:
27         # Read the sensors:
28         # Enter here functions to read sensor data, like:
29         # val = ds.getValue()
30
31         # Process sensor data here.
32
33     # Enter here functions to read sensor data, like:
34     # val = ds.getValue()
35
36     # Process sensor data here.
```

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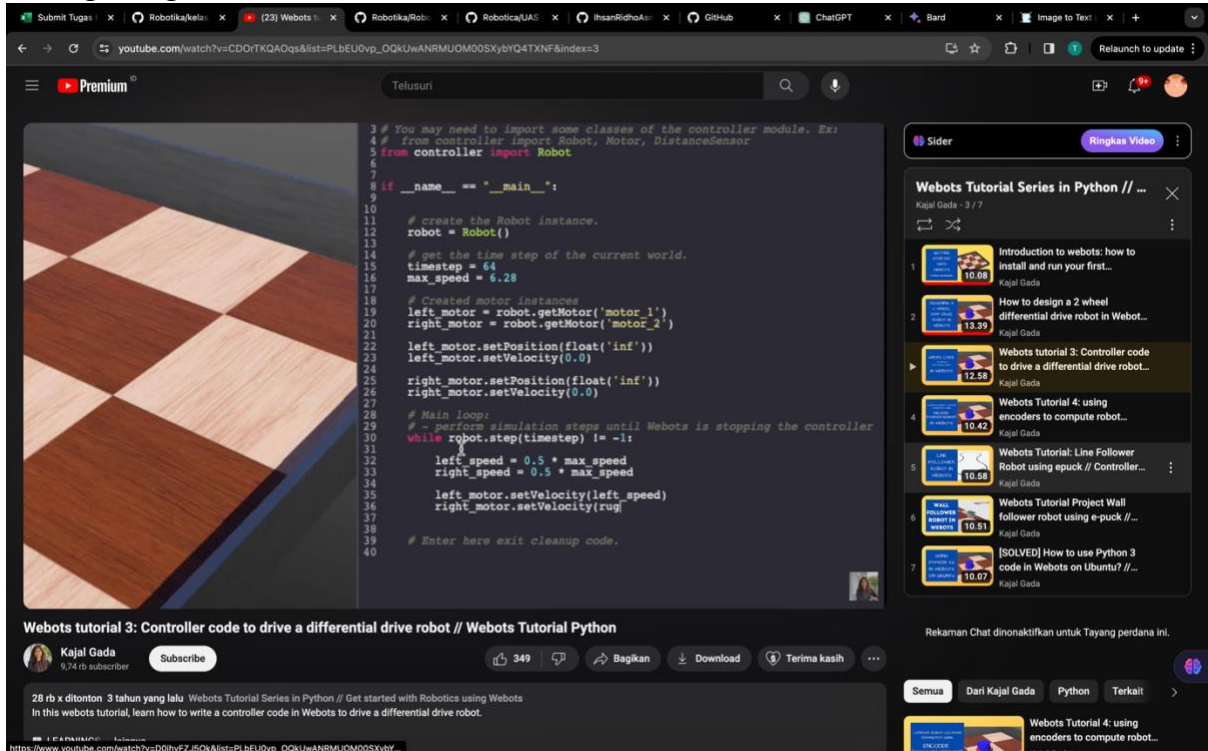
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Driving Straight



The video displays a 3D simulation of a robot on a checkered floor. The Python code shown is as follows:

```
3 # You may need to import some classes of the controller module. Ex:
4 # from controller import Robot, Motor, DistanceSensor
5 from controller import Robot
6
7
8 if __name__ == "__main__":
9
10     # create the Robot instance.
11     robot = Robot()
12
13     # get the time step of the current world.
14     timestep = 64
15     max_speed = 6.28
16
17     # Create motor instances
18     left_motor = robot.getMotor('motor_1')
19     right_motor = robot.getMotor('motor_2')
20
21     left_motor.setPosition(float('inf'))
22     left_motor.setVelocity(0.0)
23
24     right_motor.setPosition(float('inf'))
25     right_motor.setVelocity(0.0)
26
27     # Main loop:
28     # - perform simulation steps until Webots is stopping the controller
29     while robot.step(timestep) != -1:
30
31         left_speed = 0.5 * max_speed
32         right_speed = 0.5 * max_speed
33
34         left_motor.setVelocity(left_speed)
35         right_motor.setVelocity(right_speed)
36
37     # Enter here exit cleanup code.
```

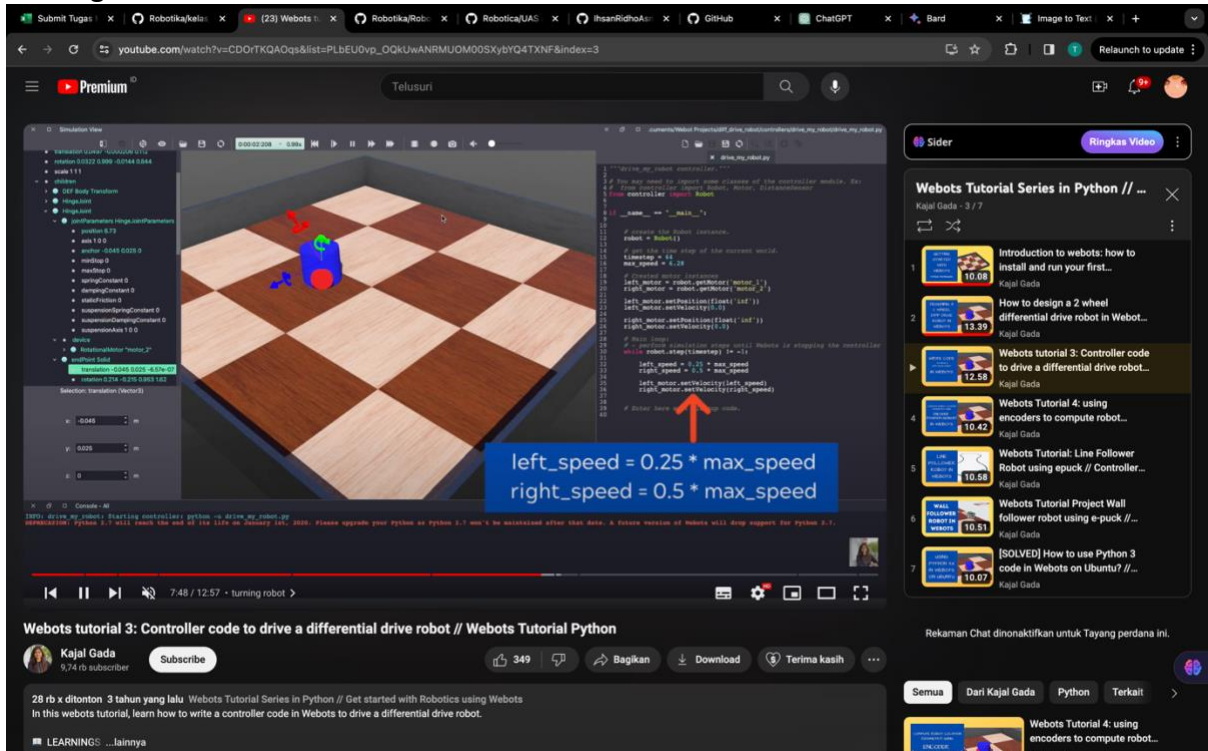
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Turning Robot



The video displays a 3D simulation of a robot on a checkered floor. The Python code shown is as follows:

```
3 # You may need to import some classes of the controller module. Ex:
4 # from controller import Robot, Motor, DistanceSensor
5 from controller import Robot
6
7
8 if __name__ == "__main__":
9
10     # create the Robot instance.
11     robot = Robot()
12
13     # get the time step of the current world.
14     timestep = 64
15     max_speed = 6.28
16
17     # Create motor instances
18     left_motor = robot.getMotor('motor_1')
19     right_motor = robot.getMotor('motor_2')
20
21     left_motor.setPosition(float('inf'))
22     left_motor.setVelocity(0.0)
23
24     right_motor.setPosition(float('inf'))
25     right_motor.setVelocity(0.0)
26
27     # Main loop:
28     # - perform simulation steps until Webots is stopping the controller
29     while robot.step(timestep) != -1:
30
31         left_speed = 0.25 * max_speed
32         right_speed = 0.5 * max_speed
33
34         left_motor.setVelocity(left_speed)
35         right_motor.setVelocity(right_speed)
36
37     # Enter here exit cleanup code.
```

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Drive in polygon shape

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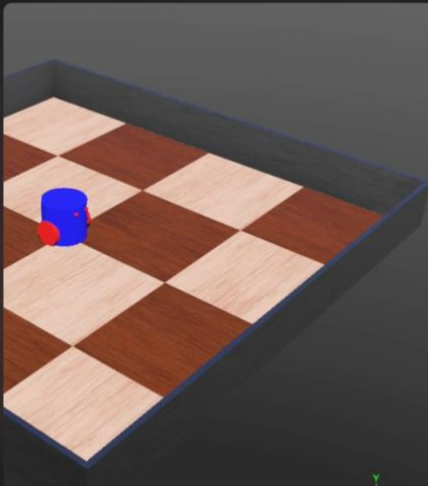
ChatGPT

Bard

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Telusuri



```
1""drive_my_robot controller.""
2
3# You may need to import some classes of the controller modul
4# from controller import Robot, Motor, DistanceSensor
5from controller import Robot
6
7
8if __name__ == "__main__":
9
10
11# create the Robot instance.
12robot = Robot()
13
14# get the time step of the current world.
15timestep = 64
16max_speed = 6.28
17
18# Created motor instances
19left_motor = robot.getMotor('motor_1')
20right_motor = robot.getMotor('motor_2')
21
22left_motor.setPosition(float('inf'))
23left_motor.setVelocity(0.0)
24
25right_motor.setPosition(float('inf'))
26right_motor.setVelocity(0.0)
27
28num_side = 4
29length_side = |
30
31
32# Main loop:
33# = perform simulation steps until Webots is stopping the
34while robot.step(timestep) != -1:
35
36    current_time = robot.getTime()
37
38    left_speed = max_speed
39    right_speed = max_speed
40
41    left_motor.setVelocity(left_speed)
42    right_motor.setVelocity(right_speed)
43
```

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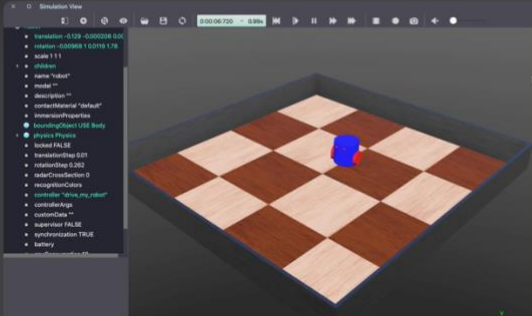
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Simulation View



Simulation View

```
1# drive_my_robot
2
3right_motor = robot.getMotor('motor_2')
4left_motor = robot.getMotor('motor_1')
5left_motor.setVelocity(1.0)
6right_motor.setVelocity(1.0)
7
8left_motor.setPosition(float('inf'))
9right_motor.setPosition(float('inf'))
10
11length_side = 0.25
12wheel_radius = 0.025
13linear_velocity = wheel_radius * max_speed
14
15duration_side = length_side/linear_velocity
16start_time = robot.getTime()
17
18# Main loop:
19while robot.step(timestep) != -1:
20
21    # Perform simulation steps until Webots is stopping the controller
22    # = perform simulation steps until Webots is stopping the controller
23    while robot.step(timestep) != -1:
24
25        current_time = robot.getTime()
26
27        left_speed = max_speed
28        right_speed = max_speed
29
30        left_motor.setVelocity(left_speed)
31        right_motor.setVelocity(right_speed)
32
```

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5 Webots Tutorial: Line Follower Robot using epuck // Controller...

6 Webots Tutorial Project Wall follower robot using e-puck // ...

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