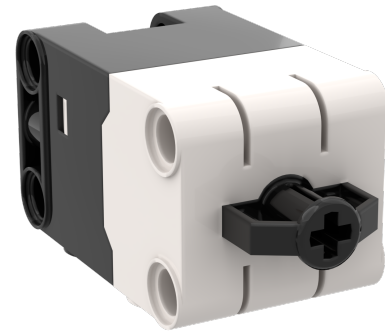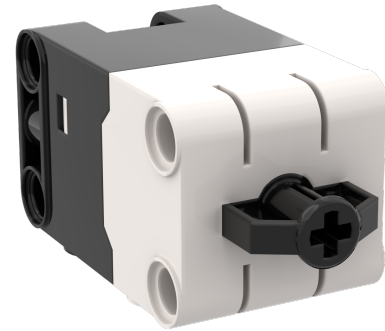# INTRODUCTION TO FORCE SENSOR

BY ARVIND SESHAN

LESSON OBJECTIVES

- Learn how to use the Force Sensor

- Learn how to use the Wait Functions

WHAT IS A FORCE SENSOR?

- The Force Sensor does two main types of sensing:

    - Touch sensing

    - Force sensing

- You can measure the Force in percent or Newtons

```
is_pressed()
get_force_newton()
get_force_percentage()
```

HOW DO YOU PROGRAM WITH A FORCE SENSOR

■ Just like with motors, the force sensor must be initialized before use

```
force = ForceSensor('F')
```

Name for
the sensor

Port

■ There are two modes of the force sensor

■ The two modes are

   ■ Pressed – even a gentle tap is detected

   ■ Released – hold the sensor in and release it any amount

```
force.wait_until_pressed()
force.wait_until_released()
```

CHALLENGE 1: MOVE UNTIL PRESSED

■ Program your robot to move straight until you press the sensor with your hand

■ You will use the wait_until_pressed() function for this challenge

```
force.wait_until_pressed()
```

■ Basic steps:

   ■ Set the **movement motors** for your robot (A and E for Droid Bot IV and ADB robot)

   ■ Set the **stop action** to brake

   ■ Set the **% speed** for your robot

   ■ **Initialize** the force sensor

   ■ Start **moving straight**

   ■ Use the **wait_until_pressed() function** to detect when the Force Sensor is pressed

   ■ **Stop moving**

CHALLENGE 1: SOLUTION

In previous lessons, you learnt how to configure your robot. The first 3 lines set the movement motors, the stop action, and the default speed. (See Configuring Your Robot Lesson)

```
motor_pair = MotorPair('A', 'E')
motor_pair.set_stop_action('brake')      Configure robot
motor_pair.set_default_speed(30)
force = ForceSensor('F')
motor_pair.start()    Start moving
force.wait_until_pressed()    Wait until the Force Sensor is pressed
motor_pair.stop()    Stop moving
```

CREDITS

- This lesson was created by Arvind Seshan for SPIKE Prime Lessons

- More lessons are available at www.primelessons.org