

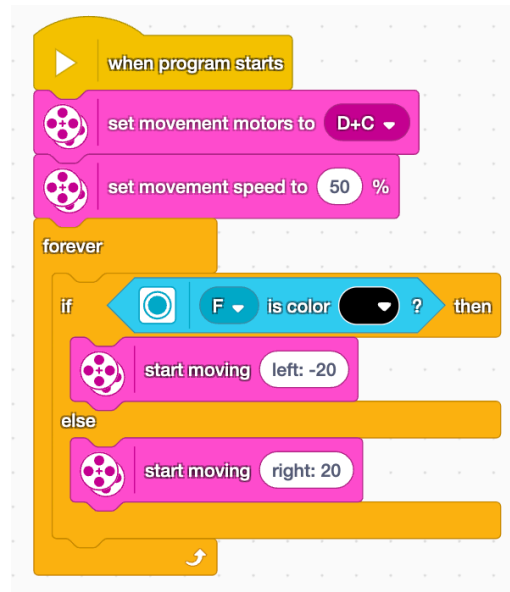


Parkside Montessori LEGO

# TACObot Line Following

## Example

These two programs do the same thing:



```
from hub import port
import runloop
import color
import color_sensor
import motor_pair
```

```
async def main():
    motor_pair.pair(motor_pair.PAIR_1, port.D, port.C)
    while True:
        if color_sensor.color(port.F) == color.BLACK:
            motor_pair.move(motor_pair.PAIR_1, -20)
        else:
            motor_pair.move(motor_pair.PAIR_1, 20)
```

```
runloop.run(main())
```

## Movement Functions

### Tank Movement by Rotation

```
# Drive forward for 5 revolutions at 20% speed
await motor_pair.move_tank_for_degrees(motor_pair.PAIR_1, 360*5, 220, 220)
#
#           Motor pair -----+
#           Rotation in degrees -----+
# Left motor velocity (-1100 to 1100) -----+
# Right motor velocity (-1100 to 1100) -----+
```

### Arc Movement by Rotation

```
# Drive straight for 2 revolutions
await motor_pair.move_for_degrees(motor_pair.PAIR_1, 360*2, 0)
#
#           Motor pair -----+
#           Rotation in degrees -----+
# Steering arc (-100 to 100) -----+
```

### Continuous Movement

```
# Arc turn to the right until a stop() command is received
# Note that we don't use await here
motor_pair.move(motor_pair.PAIR_1, 100)
#
#           Motor pair -+
# Steering arc (-100 to 100) -----+

# Keep driving for 1 second
await runloop.sleep_ms(1000)

# Stop moving
motor_pair.stop(motor_pair.PAIR_1)
```

## Sensors

### Color Sensor

```
# Returns color sensor value. Check for color.<color name> where color
# name can be one of Red, Green, Blue, Magenta, Yellow, Orange, Azure,
# Black, White
color_sensor.color(port.F)
```

# For example:

```
if color_sensor.color(port.F) == color.Magenta:
    # Do something when the color sensor sees magenta
```

### Distance Sensor

```
# Returns distance in millimeters or -1 if it's really far away
distance_sensor.distance(port.B)
```

# For example:

```
if distance_sensor.distance(port.B) > -1 and distance_sensor.distance(port.B) < 50:
    # Do something when the distance sensor reads less than 50mm (5cm)
```