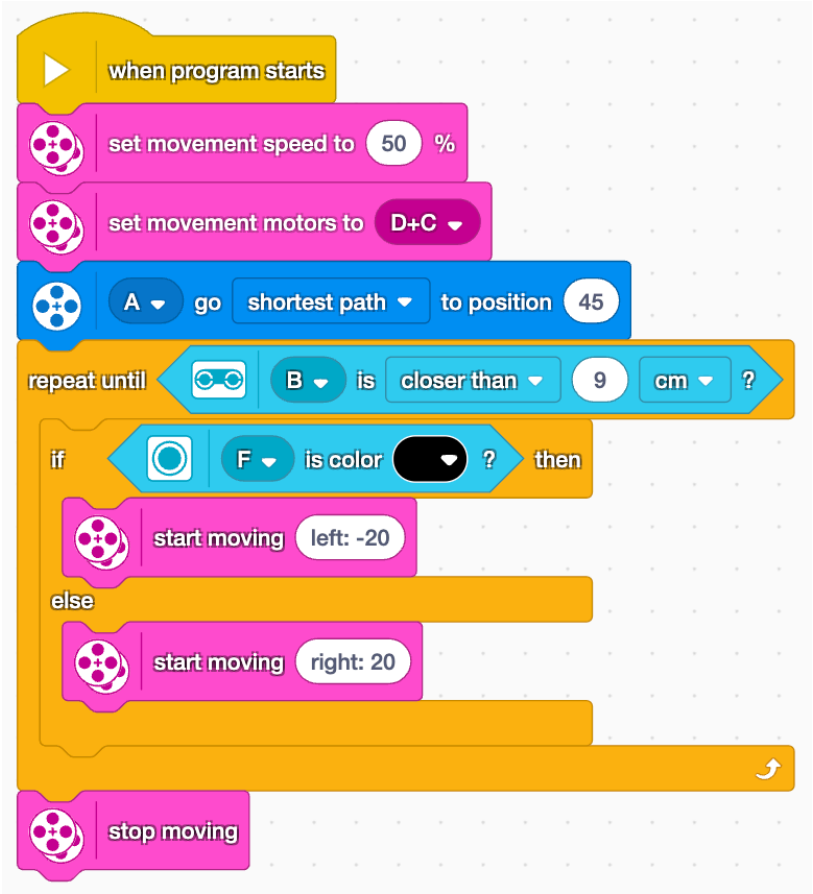
Parkside Montessori LEGO

TACObot Movement Challenge

These two programs do the same thing:




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

async def main():
    motor_pair.pair(motor_pair.PAIR_1, port.D, port.C)
    await motor.run_to_absolute_position(port.A, 45, 300)
    while True:
        dist = distance_sensor.distance(port.B)
        if dist == -1 or dist > 90:
            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)
        else:
            motor_pair.stop(motor_pair.PAIR_1)
            return
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)
```