Stay Inside the Line

Time required: 30 minutes

The linefollowing sensor can be used for other tasks besides following a line. This sensor detects dark or light. This can be used to keep the mBot inside a circle or other shape that is outlined in black. You can use your line following track or some sort of black tape to outline a shape. Automotive cloth wiring harness tape works really well. You could also use a piece of paper or the back of the mBot paper track on a dark floor.

Tutorial Assignment

1. Start mBlock. Save the program as **Stay Inside the Line**.

2. Complete and test the program as pictured with the requirements listed.

Requirements

- Stay inside the line.

Challenges

- Add a sound to indicate hitting the line.

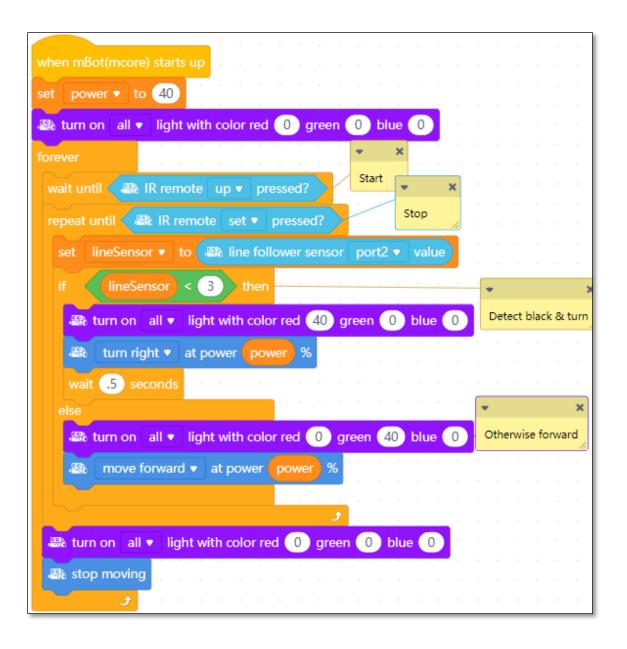- Backup after hitting the line.

Extra Credit Challenge

- Randomly turn left or right to avoid the line.

Assignment Submission

- All students attach the finished program to the assignment in Blackboard.

- Each assignment can be demonstrated in class.

- For online students, a link to a YouTube video recording showing the assignment can be placed in the submission area in BlackBoard.

```
when mBot(mcore) starts up
set  power ▾  to  40
🎛 turn on  all ▾  light with color red ( 0 ) green ( 0 ) blue ( 0 )
forever
    wait until  🎛 IR remote  up ▾  pressed?                    [Start]
    repeat until  🎛 IR remote  set ▾  pressed?                 [Stop]
        set  lineSensor ▾  to  🎛 line follower sensor  port2 ▾  value
        if  ( lineSensor  <  3 )  then                          [Detect black & turn]
            🎛 turn on  all ▾  light with color red ( 40 ) green ( 0 ) blue ( 0 )
            🎛  turn right ▾  at power  power  %
            wait ( .5 ) seconds
        else                                                    [Otherwise forward]
            🎛 turn on  all ▾  light with color red ( 0 ) green ( 40 ) blue ( 0 )
            🎛  move forward ▾  at power  power  %
    🎛 turn on  all ▾  light with color red ( 0 ) green ( 0 ) blue ( 0 )
    🎛 stop moving
```