Driving School Part 2

Time required: 120 minutes

NOTE: The mBot is not an accurate robot. As the batteries discharge and the conditions change, it will behave differently. We can only change is power and time. Just try to get close.

Charge your batteries. Calibrate your robot.

Assignment

- Complete each shape in a separate code block.

- Assign each block/shape to a different remote-control button. Use Simple Remote Control as an example.
 **Hint:** Use if else to stack your remote-control keys.

- Open the completed **Driving School** program.

- Save the program as **Driving School 2**

Requirements

1. **ForwardReverse** - Move forward 12", turn 180°, move backwards 12" (which will be the same direction), turn 180° again, and then continue to move forward 12". The robot should move in one direction but do part of the trip moving backwards.
   ForwardReverse Video Demo

2. **Octagon** - Move your robot in a 12" octagon. Each turn is a 45° angle. Start and end in the same place and the same orientation.
   Octagon Video Demo

3. **Equilateral Triangle** – Move your robot in a 12" equilateral triangle. Start and end in the same place and the same orientation. An equilateral triangle has an inside angle of 60 degrees. Subtract that from 180 degrees to find out how far the robot should turn for each side.
   Equilateral Triangle Video Demo

4. **5-Point Star** – Teach your robot to trace a 5-point 12" star. Start and end at the same location and orientation. Look up the inside angle and subtract from 180 degrees.
   5-Point Star Video Demo

5. **3-PointTurn** - Using 3 or more turns, teach your robot how to make a 3-point turn, like a regular car. You don't have to do curves, you can use straight angles if you wish.
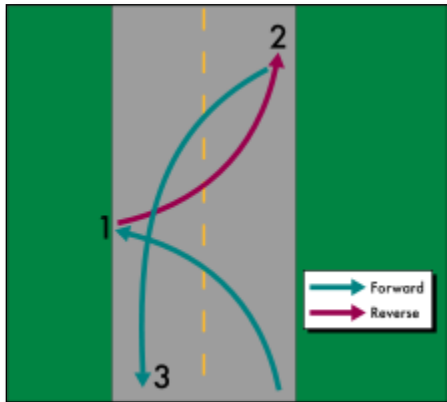
Optional Challenges

1. Modify the program to trace the outline of a 12" pentagon.

2. Modify the program to trace the outline of a 12" hexagon.

Assignment Submission

- **All students** → Attach finished programs to the assignment in Blackboard.

- **In class assignment submission** → Demonstrate in person.

- **Online submission** → A link to a YouTube video recording showing the assignment placed in the submission area in BlackBoard.