Move Along an S-shaped Track

Time required: 60 minutes

Please read all the directions carefully before beginning the assignment.

- Comment your code as shown in the tutorials and other code examples.
- Follow all directions carefully and accurately.
- Think of the directions as minimum requirements.

Understanding

Demonstrate understanding of:

Using Code Blocks

In this example the module block 

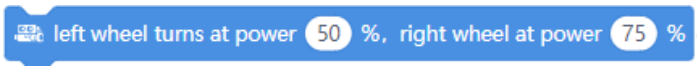
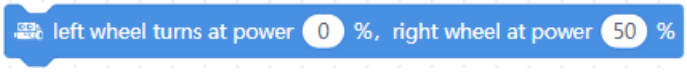
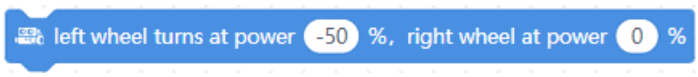
is defined to let the mBot move in a S-shaped track.

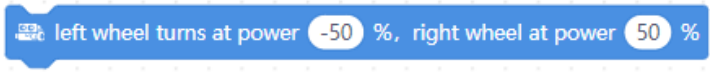
Define the module directive to combine several blocks. The program executes the defined module directive, i.e. calling its defined block behavior. This can make the program simpler and easier to read.

Use "Differential Speed" to Control mBot's Turns

When the right wheel is faster than the left one, mBot turns left; when the left wheel speed is faster than the right one, mBot turns right.

Watch mBot's turning by testing the following scripts.

Script	Type of Turning Motion
	Differential turn, turning left while moving forward
	Car turn, turning left on the left wheel
	Car turn, turning left on the right wheel, the left wheel goes backwards

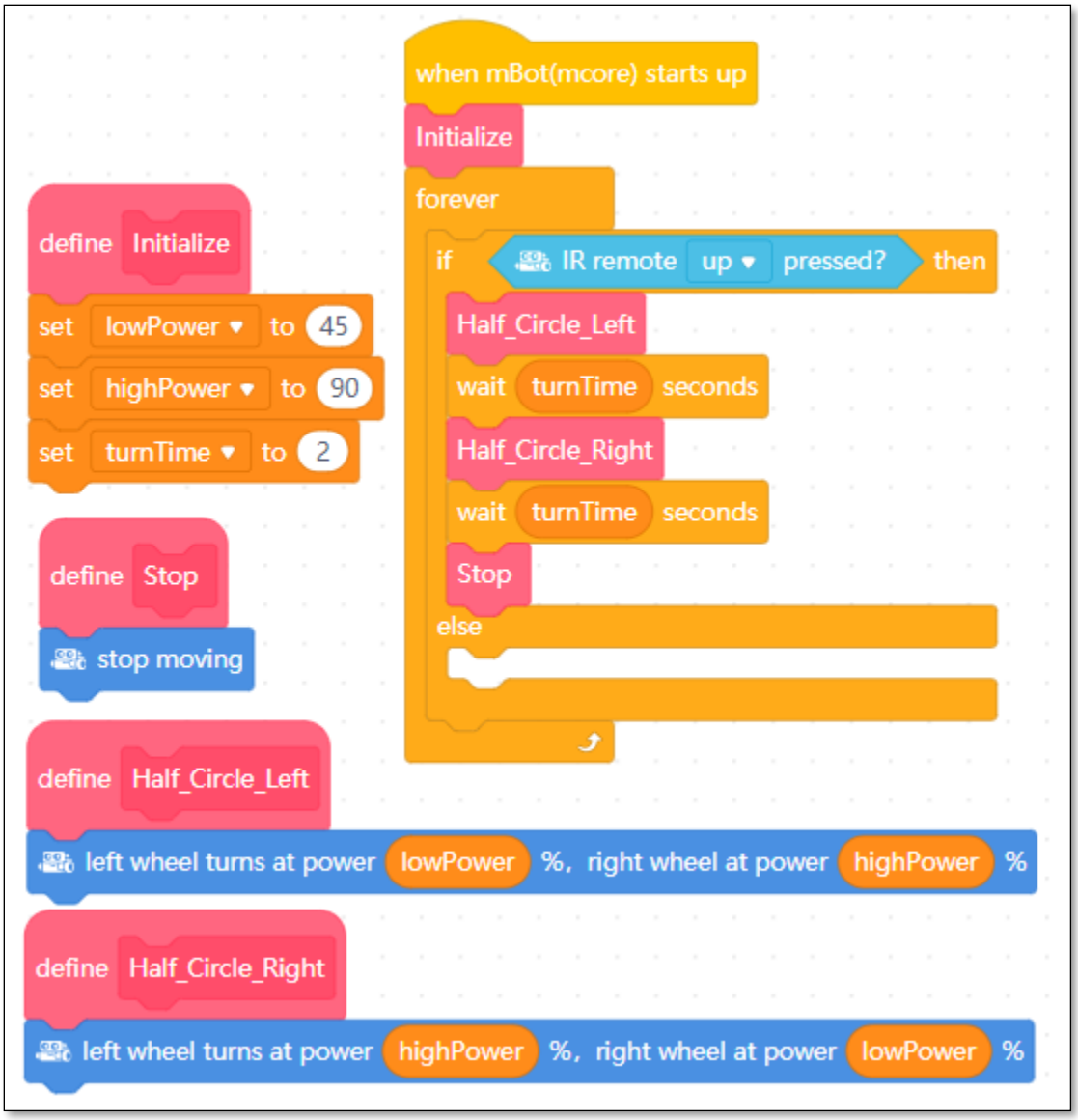
	Tank turn, turning left in place.

Requirements

- Use differential turning to trace out the letter S.
- The program will trace out an S shaped track when you press the robot's remote-control button.

Tutorial Assignment

1. Start mBlock. Save the program as **S-shaped Track**.
2. Complete and test the program as pictured with the requirements listed.
3. The program uses two half circles to create an S. One is a left turn half circle, the other is a right turn half circle.
4. Change the turnTime variable to make an S.



Assignment

Start with your tutorial project and add the following.

- Move the robot in a circle. Use a different remote button to trigger this part of the program.
- Have the robot trace an infinity symbol. Create this shape with a different remote button press.
  Hint: This is two S's connected.

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.