

Worksheet: Right Face

Introduction to Mobile Robotics > Right Face

This worksheet is provided for reference only. Be sure that you follow the steps in the online directions, and answer the questions at the appropriate times. Fill out all your answers on a separate sheet of paper.

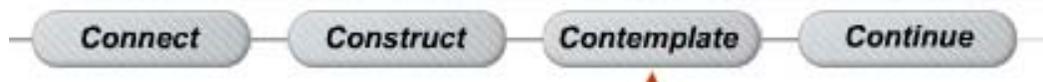
Construct



Observations:

1. What happened when you ran the program?
2. Which motor(s) spun?
3. What direction did each motor spin?
4. Did the robot's body turn to its left or its right?
5. About how much did the robot's body turn, relative to a full turn?
6. This behavior is called a "swing" turn. Around what point does the robot swing?

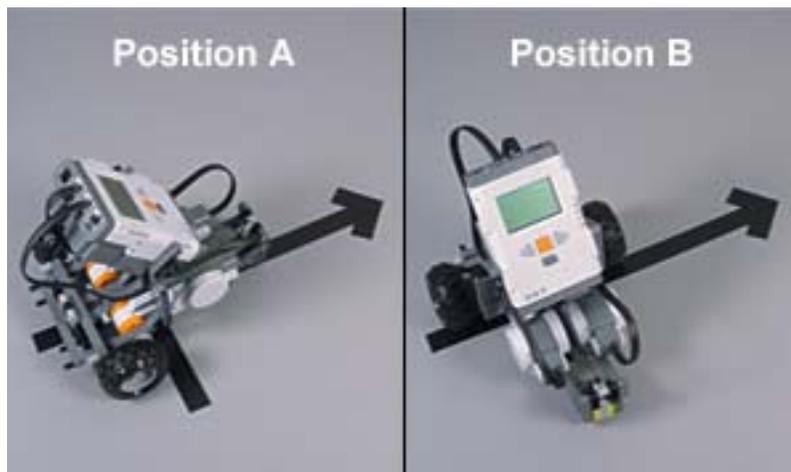
Contemplate



7. Write a brief one or two sentence description of what each icon in the program "Swing Turn" does.



8. The robot started at position A on the diagram shown here. It then turned in place until it reached position B.



- i. Can you tell which direction it turned to get to this position? Explain why or why not.
 - ii. Suppose the robot turned to its left to reach position B. What fraction of a full turn did it make to get from A to B?
 - iii. Suppose the robot turned to its right to reach position B. What fraction of a full turn did it make to get from A to B?
9. Consider the effects of some additional factors.
- i. How do you think different wheels will affect the robot's ability to turn? Does it matter?
 - ii. Does the surface on which the robot is turning matter?
10. The robot in the given program turned right by moving its left wheel forward while holding its right wheel stationary.
- i. Could you also turn right by holding the left wheel stationary and running the right wheel in reverse?
 - ii. Write the program to make the robot do the backward right turn proposed in part (i).

Continue: Left Turn



Answer the following:

11. What program blocks are different between the *left turn* and original *right turn* behaviors?
12. Could a left turn also be done with the backward-moving wheel idea from question 10? Program your robot to make the backward-left turn.

Continue Point Turn



Answer the following:

13. Describe the difference between the motion of a *swing turn* and a *point turn*.

14. Describe a situation where:

- i. A swing turn is more useful than a point turn.
- ii. A point turn is more useful than a swing turn.