Worksheet: Full Stop!

Introduction to Mobile Robotics > Anytime Activities > Full Stop!

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: Program the E-Stop Button

Observations:

1. What is multitasking and how is it used in the program?

2. Does it matter what the program on the main beam is doing, as far as the emergency stop code on the second beam is concerned?

Contemplate

3. What is the purpose of having an emergency stop button on your robot? What is its purpose on a real, full-size robot?

4. Write a brief description of what each icon in the Emergency Stop program does, and what the second beam does.

i. Block 1:

ii. Block 2:

iii. Block 3:

iv. Block 4:

5. How does the Touch Sensor function as a button? How did you add to your Touch Sensor, if at all, to improve its performance as a button?

6. A side effect of the E-Stop code is that you need to manually exit the program or press the E-Stop button if the regular program ends before the E-Stop button is pushed.

i. Add the E-Stop code to a “720 degrees forward” program. Download the program and run it, but do not press the E-Stop button. What happens to the program when the robot stops moving?
ii. You can get around this side effect by placing another Stop (that’s Program Stop, not Motor Stop) block at the end of the main program beam. Do this now, then download the program and run it, without pressing the E-Stop button. What happens to the program when the robot stops moving now?
iii. Explain why this extra Stop block is necessary, and why it works.