

Team Assignment #5
Navigating the BOE-BOT with whiskers

Reading Assignment:

- 1) Refer to the following sections in Robotics Version 2.2 (follow link on Paul Gordy's web page or online at www.parallax.com)
 - Chapter 5 – Tactile Navigation with Whiskers
- 2) Refer to various sections of BASIC Stamp Syntax and Reference Manual, Version 2.1 for information of PBASIC commands (follow link on Paul Gordy's web page or online at www.parallax.com)
- 3) BOE-BOT Lecture #4 – Navigating the BOE-BOT with whiskers

Team Assignment:

- 1) Adding whiskers to the BOE-BOT
If whiskers have already been added to your BOE-BOT, skip to step 2. If your BOE-BOT does not have whiskers, add them by following the instructions on page 4 of BOE-BOT Lecture #4.
- 2) Adding a whisker test circuit to the BOE-BOT
 - Add a whisker test circuit to your BOE-BOT as shown on page 8 of BOE-BOT Lecture #4.
 - Enter the whisker test circuit program shown on page 13 of BOE-BOT Lecture #4.
 - Test the circuit. When the left whisker is pressed, the left LED should light. When the right whisker is pressed, the right LED should light.
 - Save a print the program.
 - Demonstrate the circuit to the instructor when it is working correctly.
- 3) Navigating the track with whiskers
 - Enter the whisker navigation program shown on page 15 of BOE-BOT Lecture #4.
 - Try navigating the track shown on the following page with the program just loaded. Save this program before making modifications in the next step. Save the modified program (see next step) under a different file name.
 - The BOE-BOT probably had some difficulty in navigating the track, so try modifying the program until the BOE-BOT can efficiently navigate the track. Note that the program cannot use dead reckoning (counting wheel revolutions). The BOE-BOT must make its navigation decisions based on inputs from the whiskers.
 - Demonstrate proper operation to your instructor.
 - The fastest team will earn bonus points (as timed by the instructor).

4) **Report**

Organize your results into a report and submit a single typed report for the group to the instructor by the assigned due date. The report should consist of:

A) A **title page** as shown below.

B) Printouts for each of the three programs (be sure to include plenty of comments in your programs explaining the instructions). Also include comments **in all programs** specifying the course number, team assignment number, BOE-BOT number, your team number, each team member's name (only if present), the program number (Program 2A), and the filename (pick an appropriate filename).

EGR 120
Introduction to Engineering
Team Assignment #4
Date

Group #N (your group number)

Attendance & Participation Record:

(list all team members and all dates when teams worked together in class on this assignment and check boxes to mark attendance)

Team Member	Date 1	Date 2
John Doe	✓	✓
etc		

Demonstration of Programs

Program	Successfully Demonstrated	Time
Whisker test circuit	✓	--
Track Navigation	✓	Record time