



Grand Blanc High School Robotics Team

Initial Member Deliverables – Auton and Teleop Programming (combined)



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Mentors to ask if you have questions about, and may sign off on this Challenge: Robin Barrie, Sean Lynch or Ryan Berry.

If you get stuck, start with a Programmer on your VEX Team, then other Students, THEN move to a Mentor.

BEFORE GETTING STARTED ON THIS DELIVERABLE:

1. All you will need is a computer or (Chrome Book) with internet and printer access to complete this Deliverable:
 1. If you do not have a computer, check the board in the conference room to see if a Team Laptop is available to check out. *Please use a PR Laptop first, then move to Programming laptops if no PR laptops are open.*
 2. Before you leave the Conference Room with the Laptop, ensure that you have the following items:
 1. Laptop
 2. Backpack
 3. Mouse
 4. Charging Cable
 3. If any items are missing, inform Brandi, Clinton or Cathy BEFORE you take items out of the conference room.
2. Because you only need internet access and a printer for this Deliverable, it may be completed anywhere, but you are still responsible for saving your work (in case a Mentor wants to check it).

Important Information:

1. To take a **screenshot** of everything you see on your **Chromebook's** screen at once:
Hold down the "Ctrl" button and press the "Switch Window" Button (located in the top row, in between the Full Screen and Brightness Down buttons - it has a picture of multiple squares)
2. To take a **screenshot** of a selected portion of your screen on a **Mac**:
 - Press Shift-Command-4 simultaneously
 - Move the crosshair to where you want to start the screenshot, then drag to select an area
 - When you've selected the area you want, release your mouse or trackpad button
 - Find the screenshot as a .png file on your desktop.
3. To take a **screenshot** using a **Windows** machine, read this tutorial and select the correct steps based on your operating system: <https://support.microsoft.com/en-us/help/13776/windows-use-snipping-tool-to-capture-screenshots>
4. You may work in the Wood Shop, Back Room, or Lunch Room.
 - a. *If you will be completing this task in the lunchroom, Team Members are required to sit so ALL laptop screens are visible from the lunchroom entrance.*
5. Please plug in the Laptop while you are working, so the battery won't be dead for the next person who uses it.
6. The Password for all Team Laptops is: 2337
7. If you are working at Premier, you may use the EngiPrinter (Brother HL-3170CDW series) in the Conference Room to print required materials for this Deliverable.
8. Scissors and Glue Sticks are available for use in the conference room. Please make sure you return them when you're done.
9. At the end of the meeting, you **MUST**:
Check the Laptop (if you borrowed one) back in with Brandi, Clinton or Cathy by signing the log – **WHETHER OR NOT YOU ARE DONE. You may not take Team Laptops Home with you.**



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Engineering Notebook Entry Instructions:

WRITE LEGIBLY AND USE COMPLETE SENTENCES, and copy down the question if it's necessary to make the entry to make sense at a later date:

1. While you are working, document your process, including successes, problems or frustrations that you encountered while trying to write your code.

Answer the following questions:

2. In the first challenge, what is the function of whitespace, and why is it important?
3. In the second challenge, how would you change the code input to power four motors?
4. In the third challenge, how does changing the time (as indicated below) affect the outcome of your maze?
5. How many attempts did it take you to compile your code the Labyrinth Challenge before it was correct?
6. After completing this challenge, would you want to be part of the Programming Team on the FRC Team? Why or why not?

Challenge Instructions:

Part One:

1. Open an internet browser window, and navigate to:
<http://robotc.net/tutor/Cortex/cortexunits.php?platform=Cortex>
2. To start the first challenge, click on "ROBOTC Rules" link.
3. Read the instructions and follow the directions to complete all 8 sections, pausing at the completion of the "Comments:: Part 2" section to:
 - a. Take a screenshot of the code box and the box below, which shows your completed message.
 - b. Print it out the screenshot and attach it to your Engineering Notebook entry.

Part Two:

1. Return to <http://robotc.net/tutor/Cortex/cortexunits.php?platform=Cortex>
2. To start the second challenge, click on the "Movement Fundamentals" link.
3. Read the instructions and follow the directions to complete all 8 sections, pausing at the completion of "Turning Part 2" to:
 - a. Take a screenshot of the code box and the box below, which shows your completed message.
 - b. Print it out the Screenshot and attach it to your Engineering Notebook entry.
 - c. Take *an appropriate* selfie (or ask someone else to take photo) of you, that shows:
 - i. You working on this Deliverable,
 - ii. Your work environment,
 - iii. The browser window with the second challenge visible.
 - d. Print the photo and include it in your Engineering Notebook entry.



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Part Three:

1. Return to <http://robotc.net/tutor/Cortex/cortexunits.php?platform=Cortex>
2. To start the third challenge, click on the “Labyrinth Challenge” link.
3. Read the instructions and follow the directions to complete all 4 sections.
4. **IMPORTANT NOTE:** When completing the Final Length of the Labyrinth Challenge, the tutorial will prompt you to write code to move forward for 1.5 seconds - **THIS IS AN ERROR. Please substitute a value of 1.0 seconds for "Move Forward Full Speed"**

Assignment

After looking at the maze we know we must:

1. Move forward full speed for **1.5 seconds**

```
58 motor[port2] = 0;
59 motor[port3] = 127;
60
61 wait1Msec(1500);
62 //stop
63 motor[port2] = 0;
```

5. At the completion of Final Length section take a screenshot of the code box and the box below, showing your completed message, print it out and attach it to your engineering notebook.

To Complete the Challenge:

1. Ensure that your Engineering Notebook entries are completed (including screenshots and photos).
2. Find one of the Mentors listed at the top of this Deliverable and escort them to your workstation to inspect your completed work.
3. Ask one of the Mentors listed on this deliverable to approve your Engineering Notebook entry and have your deliverables checklist validated.
4. If you used one of the Team Laptops:
 - a. Log out of all of the browser windows,
 - b. Put the computer into sleep mode by shutting the lid,
 - c. Return the computer, mouse, charger, and any other computer materials to the appropriate backpack.
 - d. Return the laptop to the bin in the conference room.
 - e. Sign the check-in/check-out log.
2. Clean your workspace AND the floor around you:
 - a. Wipe off tables,
 - b. Push in Chairs,
 - c. Sweep the floor.