CISC 1003

Group #: ____ Name: 1. _____

2. _____

3. _____

Spring, 2022
Section T8

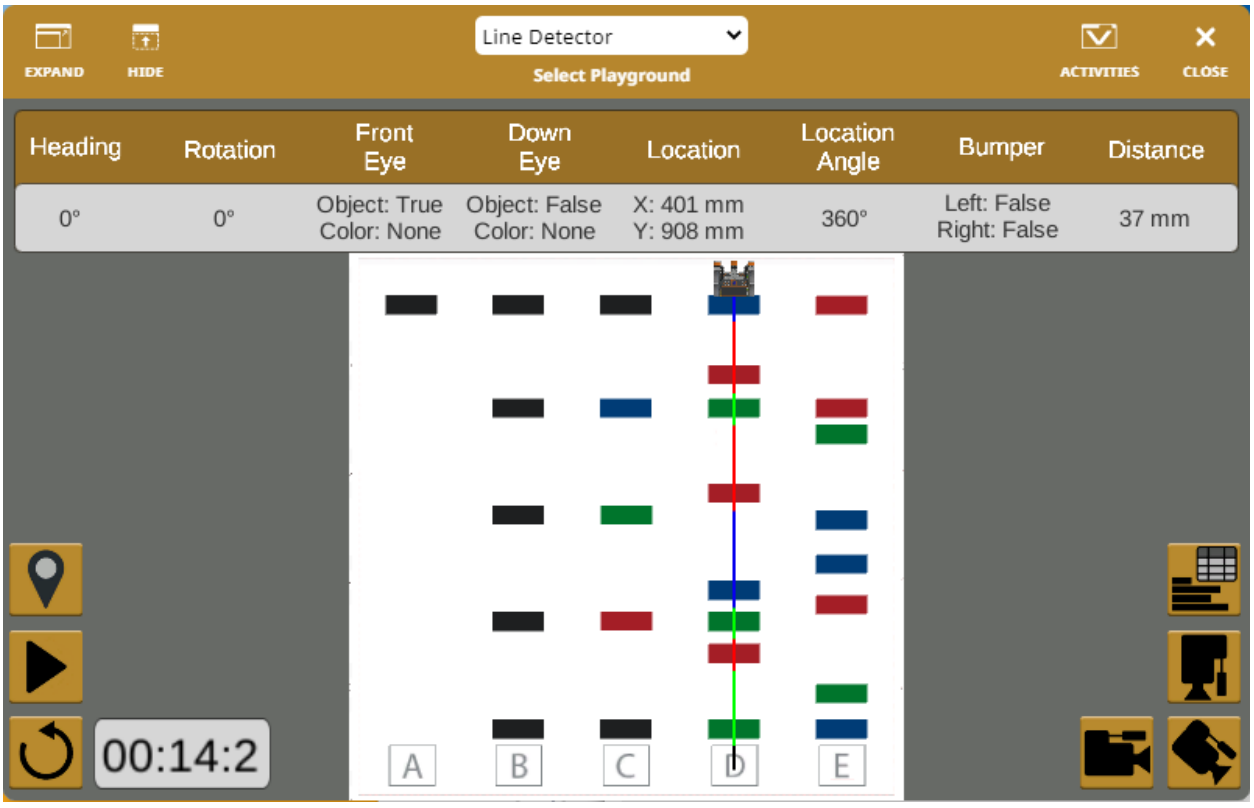
Unit F – Lab Assessment

Instructions:

1. For each project, first create an algorithm describing in detail how the robot solves the problem step by step. Write your algorithm in plain English as a numbered list of executable steps. Then create a corresponding VEXcode VR program and test it to make sure it works.
2. Submit your finished two projects as five files: 1) one PDF file containing the algorithms for the two projects 2) two PDF files for the two project programs 3) two .vrblocks files for the two project programs.

Project #1:

In this project, you will use the **Line Detector Playground.** Select the starting location D before running the program. Program the VR Robot to draw a line from the starting location to the end of the Playground. Every time it detects a new colored line, the VR Robot should change the Pen's color to the color of the line it detects. (See the picture below.) Your program must use loop and decision-making structures.



Project #2:

In this project, you will use the **Dynamic Castle Crasher Playground.** You will program the VR Robot to utilize the Drivetrain commands to move around the playground in order to knock over all castles and clear every building off of the playground. Your program must have a strategy for the robot to automatically look for and find the castles, not moving around aimlessly. This Playground comes with a twist! Every time the **Dynamic Castle Crasher Playground** is reset, the layout of the castle buildings will change. You will need to create an algorithm that instructs the VR Robot to complete the challenge for all possible **Dynamic Castle Crasher Playground** layouts. Also this Playground doesn't have walls, so don't drive the VR Robot off the edge or it will fall off the Playground. Figure out what sensor(s) to use to avoid driving the VR Robot off the edge of the Playground.