EW309 GUIDED DESIGN EXPERIENCE – FINAL DEMONSTRATION GUIDANCE AND GRADE SHEET

Your final demonstration is due NLT 6 May 2019. Each member of your team must be present for the final demonstration. The following pages will be used by your instructor for grading purposes.

Your signature on this document affirms that you conform to the Honor Concept in all aspects of this final demonstration of the EW309 project. In doing so, you acknowledge that you may have received help from your instructors or other students, but that the undersigned are the sole authors of this code used in this demonstration.

No duplication, reproduction, or distribution (electronic or physical) of your entire code to other midshipman is authorized except by the faculty of the Weapons, Robotics and Control Engineering Department or their officially authorized agents.

Name: _____ Date: _____

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The final demonstration comprises 20% of your overall grade in EW309 and will be conducted in the classroom in Maury 104. Steps to take prior to your demonstration:

1) Set-up procedures
    a. Get all hardware (turret, gun, firing circuit, laptop computer, and camera) ready as well as your Matlab and mBed code and place it on the table where you will fire.
    b. You will be required to demonstrate your autonomous turret at two different ranges for a 95% probability of one hit on a 5in diameter target. The target color may also differ for the two different ranges.
    c. Adjust the target height to center your camera vertically as well as remove any y-bias.
    d. Based on the given range and target color, run your Color Thresholder or modify any of your code necessary to "tune" your computer vision parameters.
2) Demonstration Parameters
    a. For each range you will be required to perform three different tests in order to demonstrate repeatability. Thus at a minimum you will be firing your weapon six time (three times at each range).
    b. The instructor will rotate the turret as necessary to place the target near the edge of the camera's field of view on both sides.
    c. Make sure that you have all your bias correction parameters and number of shots required computed prior to starting the test. Once the timer is started, there should be no interaction on your part.
    d. For each test you must be able to display the final steady state error and settling time. Additionally you must either display or let the instructor know the number of shots needed to take at this range for the designated probability of a single hit.
    e. For each run, the following subsystem demonstration parameters will be scored (extra features may be awarded extra points):

SCORING SHEET

Target Distance: _____ Number of Shots Required: _____ Target Used: _____

Trial #1:

	0	3	5
Correctly Identifies Target	Never finds the target	Only finds the target when camera is centered or finds more than one target	Finds the correct target at all camera locations
Settling Time	Does not settle or takes greater than 20 secs to settle	Settling time greater than 8s but less than 15s	Settling time less than or equal to 8s
Steady-State Error	Unstable turret or error great than 3°	Error greater than 0.5° but less than 3°	Error less than or equal to 0.5°
Total Number of hits (for two volleys)	Gun does not fire	Gun fires but 0 hits or > 3 hits	Gun fires and hits the target > 0 and < 3 times

Trial #2:

	0	3	5
Correctly Identifies Target	Never finds the target	Only finds the target when camera is centered or finds more than one target	Finds the correct target at all camera locations
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