RoboEX Critical Design Review Template and Grading Rubric

Please use this guide to structure your presentation.

**You do not need to follow this strictly but must address all the questions asked (see points allocation along with each item).**

STRICT 20 MINUTE LIMIT!

1. Intro slides
2. Outline
3. Code Walkthrough and Demos:

Step by step walkthrough of **ALL** commented code (copy and paste critical code). Show me what each module does. Summarize the workflow in an easy-to-understand diagram. (50 points)

Manipulation and demonstration:

Do this in PowerPoint, copy and paste screenshots as needed. Do this for the surface mesh ONLY. (100 points)

* 1. Demonstrate through visualization that you can locate both surface meshes in 3D space relative to one another. A simple wireframe plot of both of them together in the same volume would suffice.
  2. Repeat (a), but now change the location and orientation of the robot with respect to the sphere.
  3. Demonstrate through visualization. Merge the two meshes such that:
     1. Only the robot head sticks out above the highest proximity of the sphere (think of the robot is peaking out the top). Define clearly the criteria for selecting elements on the robot mesh that correspond to “head”. Any orientation or location is acceptable.
     2. The robot is standing on the sphere, again, any orientation and location of your choosing. Standing in this context can be defined using any merger of the lower parts of the feet, with the appropriate location on the sphere.

**Outside of PowerPoint:** One mystery task related to the surface mesh. (50 points)

**Outside of PowerPoint:** Demo code, show how long it takes to read into your data structure each volume mesh, how long it takes to write out to a separate copy of the (a) sphere (25 points) and the (b) robot (25 points). +25 bonus points to the group that can do this the fastest.

**Outside of PowerPoint:** Demo code, show how long it takes to read into your data structure each surface mesh, how long it takes to write out to a separate copy of the (a) sphere (25 points) and the (b) robot (25 points).

1. Demonstrate reusability of I/O other tools. This can be done by showing me that you have structured your read and write ascii file tools separately, and brought them into the project through “make” or equivalent. (25 points)
2. Demonstrate collaborative effort. Add a section to your presentation that has group member name and contribution. Show contribution history (Git or equivalent) for each member. (Individual score: 100 points).
3. Demonstrate how you used the principles of solution breakdown (listen, example, brute-force, optimize) we have discussed in class. (50 points)
4. Demonstrate version control. Add a section that shows various iterations, branches, contributions etc. of your project. (Individual score: 25 points).