Step 2 – Preliminary CAD model

- Due Tuesday by 11:59pm
- Points 100
- Submitting a file upload
- File Types pdf

Create a preliminary CAD model to study the feasibility of a selected design. You can download CAD models of main components (e.g. Raspberry Pi, Motors, Controller board, battery, power adapter board, etc.) or use block placeholders. You can use any CAD software you like, such as SolidWorks, Fusion 360, Inventor, Creo, Blender, etc. Revise concepts if necessary.

The goal of this CAD model is to assess and evaluate the feasibility of your proposed concept. It should include general arrangement and of the robot components, the geometry and kinematics of the robot body and limbs. The robot should animate correctly and be stable. The model does not need to include details such as fasteners, mounts, bearings, cables, through-holes, cable fasteners, surface texture, etc.

Present a draft of your model in PowerPoint in Monday meetings. Include screenshots (multiple directions, including perspective). Include photorealistic rendering with representative materials. Show animation video of the robot moving to illustrate your idea. Give your robot a name.

Hand in:

A PowerPoint presentation of your CAD model. Insert your screenshots and images into the PowerPoint at maximum size and resolution possible. Add textboxes with name of concept, robot specifications, such as estimated speed. Add labels and text boxes to explain main components and features of your concepts. Consider adding multiple exploratory views, of various parts of the concept, context rendering, photo realistic renderings, exploded views. For example, show the robot in different poses. Videos of animation should be embedded in the PowerPoint and start automatically.

Append this assignment's slides to all previous slides from previous assignments. This assignment should be last, starting with a clear title slide. Save everything as a single PDF and upload the PDF. Any movies should be shown as a representative video frame plus a link to a video online.

PowerPoint Format:

1. Page 1: Title slide: Robotics Studio MECE 4611, Semester, Assignment 2, Full name(s), UNI(s), Date Submitted, Title of robot, General robot Rendering
2. Page 2-X: Renderings as described above

Grading

Grading of this part is incremental. You get points for various aspects and the more you do the more you get. Maximum grade is 100 points. Following are tentative rubrics you can receive points for:

1. 5 Points Title slide complete
2. 5 Points overall aesthetics, layout and formatting of the slides
3. 8 Points posting some cool renderings of your CAD on Discussion Boarda (show screenshot)
4. 8 Points 3D Renderings in perspective
5. 8 Points Key components included
6. 8 Points organic shape (no straight edges)
7. 8 Points photorealistic rendering
8. 8 Points context rendering
9. 8 Points animation
10. 8 Points exploded view
11. 8 Points key specs listed including speed
12. 8 Points multiple poses shown
13. 8 Points detail close-up shown
14. 8 Points side views with main dimensions
15. 8 Points sharing a relevant CAD component on GrabCAD or Thingiverse (show screenshot)