

# Project Deliverable D: **Detailed Design and Prototype 1**

## GNG 2101 – Intro. to Product Dev. and Mgmt. for Engineers

Faculty of Engineering – University of Ottawa

### **Objective:**

Provide design details for your concept and build a prototype to test the product's most critical functionality and target specifications. Use the prototype to interact with your client and obtain valuable feedback.

### **Instructions:**

As a group:

1. Summarize the client feedback that you received during your second meeting for your conceptual design and clearly state what needs to be changed or improved in your design.
2. Develop an updated and detailed design of your concept, based on your client meeting, which includes:
  - a. *For physical prototypes:* Visual representations of the overall concept, as well as each subsystem. Clearly define how each subsystem is linked to other subsystems (including fasteners and electrical wires).
  - b. *For software prototypes:* User interface and flow chart diagrams of the overall concept, as well as each subfunction. Clearly define how each subfunction is linked to other subfunctions.
3. Define your most critical product assumptions and create your first product prototype, which will be used to test those assumptions.
4. Document your prototype using as many sketches/diagrams/pictures as required and explain the purpose and function of your prototype.
5. Carry out prototype testing, analyze and evaluate performance compared to the target specifications developed in Project Deliverable B and document all your testing results. Present your testing in an organized, tabular format that shows expected versus actual results.
6. Outline what your team intends to present to your client(s) and what information you would like to gather at your next client meeting.

Since this is your first product prototype, you can either create a global proof of concept or a more focused prototype for one or more critical subsystems, in order to ensure that your design will work well. You will not receive a budget for this prototype, therefore it should be made using materials and components that *cost very little* (e.g. things found around the house, Makerspace or Brunfield, scrap or other recycled material, etc.). Get *creative* in order to improve your results, but make sure that you confirm that the 'scrap' material is available for use.

Exception: if you intend on using a specific component in your final prototype and are confident that it will be required (e.g. Arduino), then it can be approved and purchased through your project manager at this time.

***Submission:***

Each team (***only one person from each team***) must submit a PDF copy of this deliverable by uploading the file as an attachment into Brightspace.

***Due Date:***

See Brightspace.