How to Write Specifications

A set of specifications (specs) is a translation from customer needs (qualitative) to numerical values (quantitative) that described what a product will do. A set of specs is comprised of many individual statements. Each single specification (e.g. time to assemble <75s) consists of a metric (e.g. time to assemble) and a target (e.g. <75s). Note that each spec describes an end result, not a method for achieving this result.

Purpose
Specifications provide clear targets so that…

- During problem definition, the team and client can develop shared understanding of the goals of the design project
- At the end of the project, the team and the client can have the same understanding of whether or not the goals were achieved

Who?
- The design team writes specs, modifies these to match client perspectives, communicates final specs, and then validates the final design against the specs.
- Clients review specs, give input on how specs need to be modified, and they Sign off on final specifications.

When?
- **Target specs** are written during problem definition.
- **Final specs** are completed during system integration.
- Performance of the ‘as built design’ is measured during Validation. If specs are not met, the design is modified until the specs are met.

Method

1. Review and prioritize customer needs (reported in Initial Project Summary).
2. Brainstorm possible metrics and map these to customer needs.
3. Identify variables and units associated with metrics.
4. Establish target values.
5. Review and revise specs (team, mentor, instructor, and client). Post these on your project web page/wiki for ongoing reference.
Discussion Questions
(based on documentation from Capstone Website by Team DropItOn)

a) What are three features of the DropItOn IPS that would be most valuable to emulate in your project?

b) What are two insights about prioritizing and communicating customer needs that you gained by reviewing work of team DropItOn?

c) How do you see each of the steps in the method for writing specs represented in the work of team DropItOn? What other background work do you think was necessary to create the list of target specifications?