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2.007 Design and Manufacturing I
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Milestone #3 – Design Concept

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DUE: Oral report on Monday 23 FEB, during the scheduled lab time 1PM-4PM
Notebook at the normal times we have discussed during the period 23-27 FEB

DESCRIPTION:

The milestone centers on definition and selection of your design concept. A design *concept* lays out a means to accomplish your strategy developed last week, but it can leave out design *details* that you'll develop later in the term. Don't worry about becoming locked in -- this is a preliminary design and can be altered later as circumstances dictate. Your work should be documented with about 6 pages in your lab notebook which should include:

1. **Selection rationale** – Describe at least a few different design concepts. Explain why your chosen design concept seems preferable. As part of this, list at least a few criteria you have used in your selection process. A Pugh matrix is one good way to summarize the information.
2. **Functional decomposition** – Describe about five functional requirements of your chosen design concept. For each one, briefly describe your design concept addresses these requirements. Describe any major risks you've identified and countermeasures you might employ.
3. **First order models** – Please generate some coarse models of your design concept (by "coarse" I mean leaving out details, not necessarily implying sloppiness). If you are comfortable enough with SolidWorks already, you might try making a simple solid model of your concept using assemblies of primitive shapes and catalog components. If you find it more expedient or useful at this early stage, we could accept other forms of models such as simple physical representations (EPS foam cut with a hot wire), Working Model simulations, and/or good hand drawings.

DELIVERABLE:

No presentation, just document your work in your notebook and deliver it to the bin on the 4th floor at the normal times we have discussed during the period 23-27 FEB.

OTHER ACTIVITY:

The other principal goal of lab in week #3 is to begin designing your most critical module. During the times your peer group is not presenting, you should make progress on that.