As your team begins the design and detailed development of a single product concept, it will become increasingly more important to be visualizing and testing your ideas in 3D (in the physical world, not merely in the virtual world). In class the faculty has often explained, “Prototype early and often... fail your way to success.” You are strongly encouraged to quickly model your ideas.

1. The fastest way to visualize a 3D form is by using either foam core, or foam blocks (form dependent) for rapid visualization.

2. The engineers should begin creating a mechanical/electrical bread-board of the selected concept, a working demonstration of the principle being proposed.

3. These models provide volume studies and form factor studies based upon full scale layouts.

4. The models and bread-board provide the designers and engineers the opportunity to begin the process of synthesizing both aspects of this development effort into a single successful product concept.

5. As the ideas evolve, begin to create .STL files exported from the 3D geometry created in either SolidWorks or Pro-E and generate FDM ‘rapid prototypes.’

6. These models, bread-board, rapid prototypes, will provide valuable discussion and evaluation tools for the entire team and allow the business/marketing students to be an active part of the process.

All students who have completed the A&A Project Lab Orientation are able to fully participate in the fabrication of these models. Those few (marketing) students that were unable to complete the orientation, are able to assist in the Project Lab, but may not operate any powered equipment without being trained by Steve Backman on that specific piece of equipment.

1. Fabrication of volume studies, form factor studies, and mechanical bread-boards.

2. Create 3D geometry, export .STL files and fabricate .FDM rapid prototypes.

3. Keep in mind, this is an on-going process, the objective is to effectively iterate the design.

4. If any of these models are ready by Mid-Term, incorporate them into the presentation to Copco.

Due Date

Tuesday, March 15, 2005  First FDM (other models as they are completed)