

## Milestone #3 – Component Selection and Solid Modeling

**DUE: 27 February**

### DESCRIPTION:

This week, you will be finalizing your parts and materials list. By now, you should have narrowed most of your major component choices to one or two candidates and know what additional materials you will need to make your frame from, besides the supplied 80/20 extrusions and aluminum plate (if you choose to use it).

Part and materials orders will be aggregated and sent out every **Wednesday** (so the first part order will occur on Wednesday this week if you are ready). To request a purchase, send to the instructor and master of parts purchasing ([charlesg@mit.edu](mailto:charlesg@mit.edu)) a **TEXT FILE**, with the following information for each item requested:

- **Vendor, [Part number], Quantity, or**
- **[Direct link to product (e.g. Amazon or eBay)], Quantity**

Please name your file something easily identifiable with your team members' names. For example, *SmithWilliams-20feb2013.txt* is acceptable, *stuff.txt* is not.

This is due **by the end of lab hours** each week. Orders not received by then will be held off until the week after – no exceptions

You do not have to order everything this week – in fact, it may be wise to hold off on material purchases until you model your frame and drivetrain, and are sure of how much of a material you need. Ensure that just the mechanical components and motor controllers, etc. are not exceeding your budget, because you will have to include some electrical components later on like power switches.

Next, you should start solid modeling major part of your frame and drivetrains. This might mean portions of your frame, a steering assembly, a full drivetrain assembly with motor and wheel and pulleys, etc. or anything else that can be deterministically designed from raw materials of known dimension. They need not be complex. It is fine if your part to be modeled will not arrive until the first shipment – please model something else. If the part you want to use is in the “sample parts” selection, then you should measure and model it in Solidworks.

**FORMAT OF DELIVERABLE: (1)** A first-order BOM (bill of materials) in your notebook containing major parts such as

- motor, controller, wheel(s)
- major hardware like axles, bearings, etc.
- other frame materials you might need in addition to the provided extrusion and plate
- other miscellaneous hardware you might need to build your vehicle, pursuant to the BOM rules as stated in the Syllabus

(2) At least **two** Solidworks models of portions of your vehicle which are not solely derived from the sample parts available in lab.

(3) Please be prepared to give a short presentation or talk on the 27<sup>th</sup> during Lab #4 about your team's design, the process by which you arrived at it, the parts you are planning on using, etc. This will be very short and informal – consider 5 minutes as the guideline. A formal presentation slide is not required, though visuals are recommended.

**OTHER ACTIVITY:** February (22 February) office hours will focus on finalizing your parts selection. Help with Solidworks will also be available.

**RESOURCES:**

Refer to the EV Resources document and Scooter Power System instructable document for questions regarding where to find parts and resources.