

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 materials (aluminum channel, steel tubing, etc.) you will need to make your frame from. If you have not, then you should ask for advice from your peers and the instructors!

Part and materials orders will be aggregated and sent out every Monday and Wednesday. (so the first part order will occur on Wednesday this week). To request a purchase, send to the instructor and master of parts purchasing (charlesg@mit.edu) an email with the following information: **Vendor , Part number/item number, quantity.** e.g. “McMaster-Carr, 91259A520, 2x” or “Monster Scooter Parts, Y23-3068, 1” If your part or item is found on eBay, just include a direct link. To make it into the queue for a certain day, send your request in **by noon**. 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. You should make sure just the mechanical hardware 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. For example, for a scooter this may be the chassis with mounting facilities for the motor, wheels, etc. 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: 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.
- frame materials
- other miscellaneous hardware you might need to build your vehicle.

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

OTHER ACTIVITY: Wednesday (15 February) office hours will focus on finalizing your parts selection. Help with Solidworks will also be available.

RESOURCES:

<https://stellar.mit.edu/S/course/2/sp12/2.007/r12/courseMaterial/topics/topic2/lectureNotes/evresources/evresources.pdf> Use the EV Resources sheet if you are still in doubt about where to look for parts.