

**California State University, Chico**  
**SMFG 386 - Manufacturing Automation Systems**  
**Lab 6 - Physical Viewpoint of the Semester Project**  
**Team 2 - Sean Arend, Aaron Jones, Jose Quintana, Hector Ramirez**

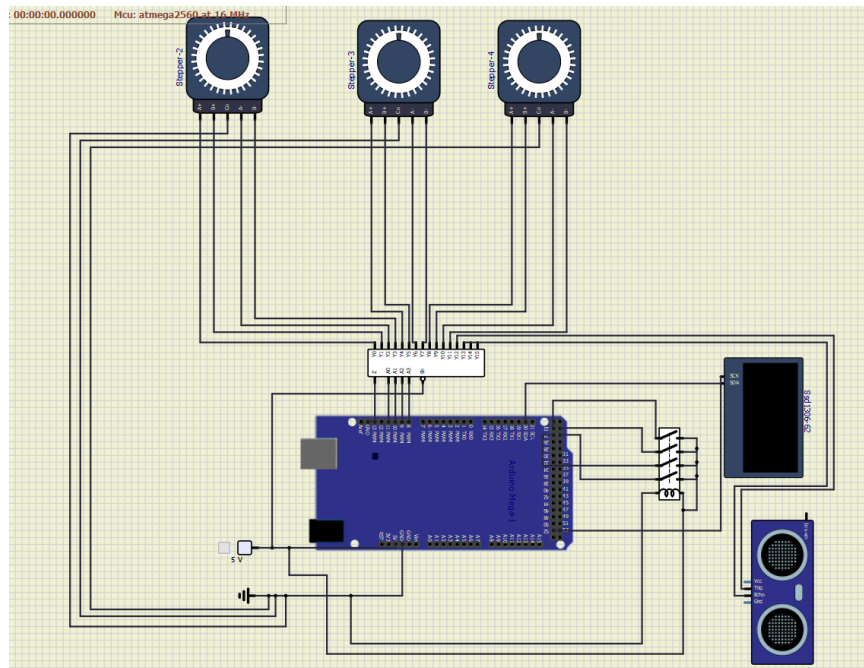
**Introduction:**

The goal of this exercise is to finalize many of the details needed to construct an injection molding machine that had previously been conceptualized and discussed. This is the stage where members of the building team are supposed to make sure that parts that will be purchased will all work together flawlessly. This is important because it may cut down on errors that may arise later, when building the physical machine.

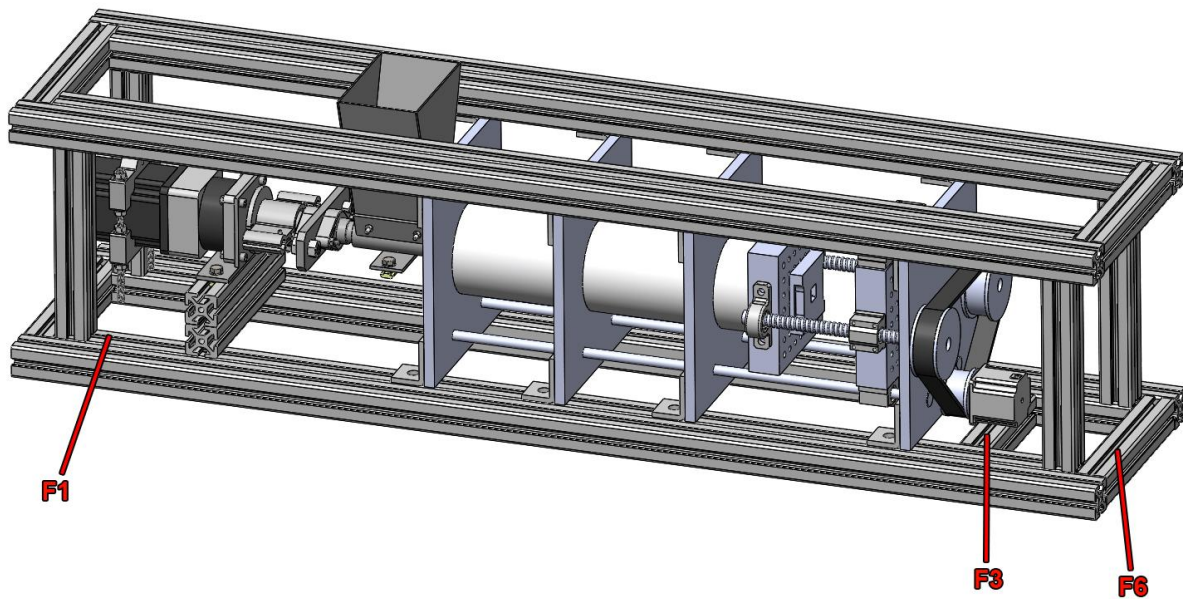
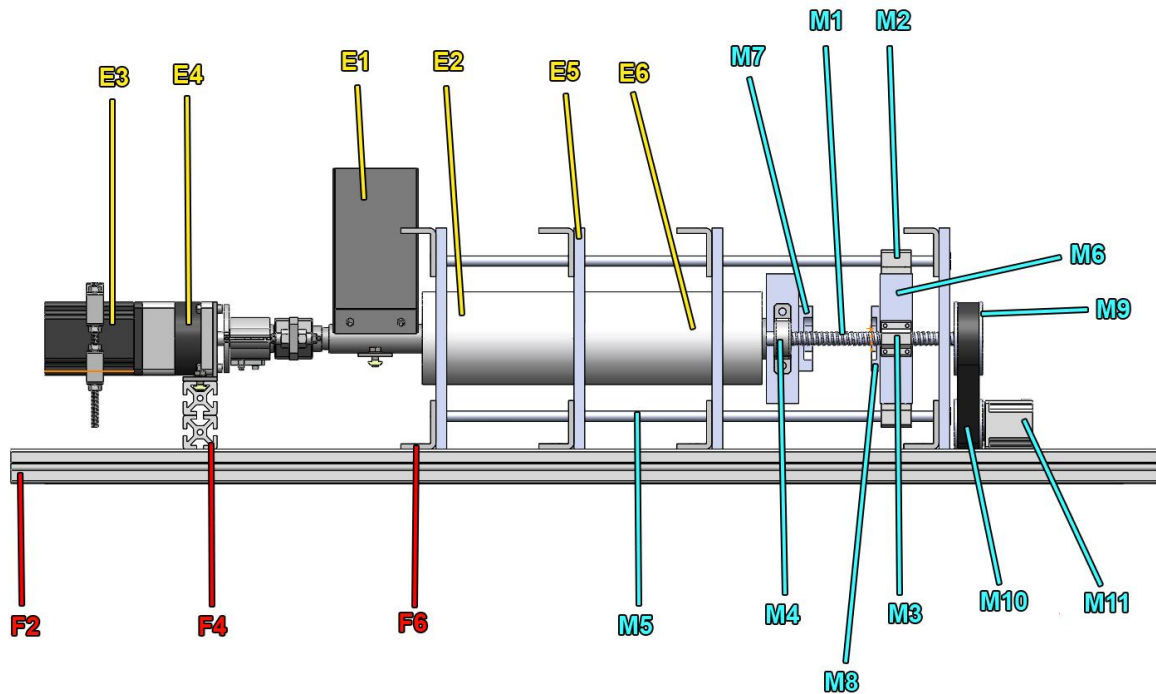
**Project Details:**

As shown in previous reports, the injection molder needs certain components to operate properly. What specific parts they are, however, were left as unknowns. On \_\_\_\_\_, the Wiki for this project, information regarding the progress that has been made with the project may be found. This includes a Bill of Materials (BOM) that contains a list of parts needed to build an injection molder, as well as links to supplier websites where these parts may be purchased. The primary source of parts was chosen to be McMaster-Carr, as many of their products have downloadable CAD models, making it easier to plan out the entire assembly process. Prices through this distributor are quite high, unfortunately, so although McMaster-Carr was used as an example, the price can likely be drastically reduced if parts were to be sourced elsewhere.

Other relevant information included on the Wiki page is the Wiring Diagram. Though with the limited knowledge and experience we have with such matters, there are likely going to be errors with the draft. This wiring diagram can be found below.



Additional information that may be found on the Wiki includes a “Physical Viewpoint” of the machine. In this case, a CAD model was made to show what pieces should go where, and how they should interact. These pictures also refer back to the BOM, so that more information can be gathered about each specific component by those not involved in the building process. The aforementioned pictures, along with their BOM references, may be found below.



**Obstacles:**

As mentioned above, while planning the Wiring Diagram, we did not have much prior knowledge to base our designs off of. Because of this, we had to rely heavily on the example wiring diagram that was provided with the Lab 6 instructions (that were also taken from Instructables). Fortunately, our design is not too different from theirs, so many of the mechanics of their project should translate to ours, as well. In addition, though we knew that making a CAD model of the entire assembly would be a time-consuming undertaking, there were problems that arose that we did not predict. Chief among them was the fact that after a certain number of components were added to SolidWorks, it started to glitch out, preventing certain types of Mates from being added. Because of this reason, electrical components like the Arduino and LCD screen, as well as fasteners, were left out of the assembly. This was probably a limitation caused by the computer's capabilities, and not the software's, but it was still the first time that any of us had encountered this, including Sean, who has been using SolidWorks for 11 years, and tutoring it for 7.

**Project Links:**

- (Github Link)
- <https://sketchfab.com/3d-models/injection-molder-assembly-a9d2bfdc74574008968b90028a32a86b>