

## Minutes from Monday, 2/13

Meeting was held in the Senior Design Center from 6-7:30 PM.

Attendees:

- Brad Olan
- Brad Ling
- Jackie Bastardi
- Sabine Loebner
- Rob Hughes
- Bill Nowak

Went through each person's status updates:

1. Brad Ling
  - a. Torque calculations completed
  - b. Motor Selected
    - i. NEMA 17 Flange
    - ii. 35 VDC, 1.7 Amps
  - c. Backlash discussion
    - i. Discussed possible programming workaround if it is too large
    - ii. Decided it is too hard to accurately quantify analytically
    - iii. We will need to test the amount of backlash in the system once it is assembled
2. Brad Olan
  - a. CAD model of manipulator finished
  - b. Envelope slightly exceeds customer specification, but Schrlau says that is OK
  - c. Populating BOM
  - d. Discussed what parts should be make vs. buy
3. Sabine
  - a. Presented updated GUI. Schrlau had OK'ed the layout, so that is what we will go with.
  - b. Joysticks
    - i. Industrial joysticks are expensive, but have more speed settings
    - ii. Gaming joysticks are far less expensive, but have less speed settings
    - iii. Decided that the gaming joystick, which may not have as good of performance, will help us prove the concept and is a better choice
  - c. Working on flow chart for programming logic
  - d. Pseudo code is not necessary at this stage of the design
4. Jackie
  - a. Using 1/2" stroke length piston.
  - b. Comes in double actuation mode – already spring loaded
  - c. Lead time of 7-10 days
5. Rob
  - a. Preliminary CAD model of pump completed
  - b. Needs to look at stack up tolerancing and clearances

- c. Considering stainless steel bolts since the assembly is mostly aluminum
- 6. Detailed Design Review
  - a. Will be held during week 10.
  - b. Top three time choices as follows:
    - i. M 12-2
    - ii. T 4-6
    - iii. W 10-12
  - c. Rob is going to talk to faculty members about what times work best for them
  - d. Dr. Schrlau has asked us to invite the students in his Lab to the DDR because they will be using this manipulator as well.