**Week 8**

**TEAM MEETING**

***Cameron,*** *Diogo, Jose, Samuel, Yujui, Lio*

## Notes from meetings throughout the week

| **No.** | **Agenda and Minutes** | **Actions needed** |
| --- | --- | --- |
| 2/21 | Meeting with Professors was lighter than normal as we had just met 3 days earlier on Friday.  **1DOF:**  Still finishing up building screen prototype(designed by Cam, built by Cam and Ray). Decided to move from Arduino to linux-based microcomputer because of extreme lack of documentation around arduino-ODrive libraries **Mechanism:**  The mechanism team is really leaning towards arm over gantry. Going to put a lot of effort in this week to get working 2x2R arm prototype w/ mag screen and everything  Sam showed off an awesome 2x2R arm design and got feedback, both on overall configuration and specific implementation details | Create new magnet pegs for polymagnets with teflon balls (Diogo)  Ideate an air bearing (Diogo)  Get balls that roll + grease (Diogo)  Develop a CAD model for a bracket design with parallelograms (Sam)  Finish gantry model w screen (Jose) |
| 2/22 | **1DOF:**  **Mechanism:** |  |
| 2/23 | **1DOF:**  Got first stiff wall with our impedance control working despite having to overcome a few bugs, Lio wrote code and everyone helped debug  **Mechanism:**  Diogo finalized magnets for Demo mockup  Sam and Jose continued working on the model |  |
| 2/24 | **1DOF:**  **Mechanism:** |  |
| 2/25 | Demo w/ Professors and class went quite well! Great work team.  **1DOF:**  Stiff wall demo went well. Showed off the “magnet friction” problem with magnets and screen, then took off-screen to allow people to feel the stiffness of the system  **Mechanism:**  Showed off gantry and arm prototypes, arm prototype was an awesome design, came out Gorgeous(great work by Sam). Team showed off our stuff well despite missing two members |  |

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## Notes From Meeting with Professors

### 1DOF

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### Mechanism

Translational is bad, tho it could be improved, but we can all agree to keep the 2R one

Shaft is undersized for the bearing

What to do for a perfect snug fit - that is still able to be disassembled by hand - really tight fit - jose says he is able to produce that fit

We can’t have no slap

Use a block of aluminum to determine the inertia of a motor

Have we ordered the cable belts?

Should we consider including a tensioning pulling?

Would a linkage be better than a pulley for the outer one?

Consider a parallelogram link form - there wouldn’t be a tensioning issue here - also the friction would be less than a cable and pulley

Order ball transfer for the magnets?

We could possibly get a plastic screen rather than a glass or a glass w a film - so we can use steal balls rolling on it (some type of wheel or ball is an avenue we should use)

* Look at grease and air bearings - then we would have to use an air pump

5$ air pump should generate enough atmospheric pressure to combat the 10N pressure of the magnets. The contacting surface should be really really flat so the the air doesn’t just flow out (machine piece of nylon)

Call polymagnet for a magnet with very small attractive force but good shear force and stiffness

* Really high shear stiffness and 0 attractive force (spec for lateral stiffness at least 1000N/m - spec for our virtual wall)

Look up for tips on how to design an air bearing

Should we reconsider electro magnets?

So:

* Refining teflon balls
* Get balls that roll
* Look at grease
* Look at airbearings
* Electromagnets .. but it doesn’t address the friction problem (separate path)

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