**TEAM MEETING (1/10/22)**

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**Duration:**

**Agenda:**

* Architecture assignment
* Team divisions

| **No.** | **Agenda and Minutes** | **Actions needed** |
| --- | --- | --- |
| **1** | Filling out requirements |  |
| **2** | Discussion with professors   * Overall interpretation of the device?   + “Surface Haptics” work in Colgate group, results from modeling friction - but it is limited to being only on the opposite direction of the finger movement - our robot is meant to surpass those limitations   + An example of an application would be the touchscreen of a car, where you want to find and “feel” knob w/ot having to look   + Another example in VR,(flightsim?) reaching out and touching something to physically render virtual switches * Do use cases derive specifically from the 6 interactive modes provided in the specifications document?   + Those modes are the primitives that can be combined to create the “magic” - we should aim at achieving all 6 * Are magnets required? Language of the project specs. predisposed to magnets, but could there be better ways   + Not required but almost definitely needed - the main challenge with magnets could be friction caused; the friction should be negligible for this to work; hence try to develop some prototypes asap of magnets rolling on a surface (ideas: play with magnets on a acrylic surface, if the friction is too bad, aim at including either a low friction material or something that rolls   + They will probably get us monitors/displays * Are two fingers required at all times? Could you use two fingers from different hands?   + Could do it, not a requirement   + At least should work with pinching motion of 2 fingers * Can we introduce additional degrees of freedom if necessary?   + Yes * Could two people use the device simultaneously?   + Yes * How do they envision us tracking the hand?   + Probably Touch screen * Limits on the size of the device?   + Not necessarily, but around a table size should be ideal * How should we go about understanding problem/defining requirements   + separate 6 primitive cases from mechanism challenges   + 1 Dof: what do I need to have motion feel like x   + 3 Dof: * Additional considerations   + Speed: to what speed should the robot recognize hand movement? reasonably fast exploratory motion: 80mm/s, high limit 200mm/s low limit 1mm/s   + Squeeze forces: low single digit newtons, maybe up to 10 N   + Stiffness: 100000N/m(wisdom of crowd) probably too much   + Stiffness of coupling could be limiting factor * Consider admittance control as an option based on tangential force sensor   + Tricky to find the right sensor | Rapid prototypes of magnets on surface to ensure there is a way for them to ‘slide’ with negligible friction |