Spin coater

1. Code and servo motor
   1. Originally, the goal was to make a spin-coater where the user would be capable of defining an acceleration program. This Arduino code currently allows for the user to define a desired-frequency and sends this frequency to and ESC connected to the hard drive. The frequency is then incremented by 1000 rpm until the frequency exceeds 7000 rpm.
   2. Future directions
      1. Measure the maximum rotation of the disk for calibration. The code currently assumes that the maximum acceleration will be around 7000 rpm.
      2. Add more loops so that the user can develop timed acceleration programs that fit their applications. example: linear acceleration with defined increment followed by another acceleration (linear, exponential, etc.)
   3. Notes
      1. It seems like the calibration is not necessary every time the program is booted up. The sudden burst resulting from the 0 to 179 signal jump could affect spreading results.
2. Platform on SolidWorks and 3D printing
   1. The goal of this part was to create a platform on which the sample would lie. The base of the platform would then attach to the hard drive. The SolidWorks file for the base can be found in the attachments.
   2. Future directions:
      1. Developing a way to connect the platform onto the
3. Opening the hard drive
   1. On the hard-drive cover, there are two or three screws that are hidden by stickers. It will be impossible to remove the cover unless these screws are removed as well, no matter how hard you force! The interior of the hard drive contains magnetized parts, some of which must be removed in a certain order because of encumbrance by higher-up parts. There are numerous videos online that show how to disassemble it, including this one: https://www.youtube.com/watch?v=N13zNjdShGw
4. The protective platform/tube and the laser cutter
   1. These two parts are meant to collect any liquid that flies off of the platform and to protect the hard drive. The tube is about 15 cm high and rests on the platform, which is supported by bolts connected to the hard drive.
   2. The tube: The tube should rest simply on the platform. During coating, excess fluid will fly off the platform and collide with the walls of the tube. When finished, the tube can easily be removed for simple washing.
   3. Add picture of tube on platform

<https://myhub.autodesk360.com/ue2b51eaa/g/projects/2017061379991656/data/?tryNew=true>