**PLE - Pendulum Mechanism**

A picture containing icon

Description automatically generated

7

6

3

4

2

1

5

**Figure 1: Pendulum setup**

**Part list:**

1. Pendulum base part
2. Pendulum arm part
3. 2x -5/16” -18 Hex Nuts
4. 2x - 5/16” -18 Palm-Grip Threaded-Stud Knobs
5. Tops part
6. 12 mm by 3mm magnets
7. 6mm Shaft Optical AB 2 Phase Quadrature Encoder with 600P/R

**Encoder with Arduino setup:**

Diagram

Description automatically generated

**Pendulum Part 3D printing settings:**

Ultimaker Cura slicer software was used to setup the corresponding filament setting as well as slice the STL file into G-code for the 3D printer.

The pendulum mechanism was 3D printed using PLA filament. The PLA Cura setting used to 3D printing the pendulum mechanism is as followed:

* Standard Quality (0.2mm)
* Infill density (30%) and infill pattern (Grid)
* Printing temperature (215 C) and build plate temperature (60 C)
* Printing speed (70 mm/s) and initial layer speed (20mm/s)
* Support enabled, support density (10%), and support pattern (Grid)
* Build plate Adhesion type (Raft with 2.0mm Raft Extra Margin) (if needed)

Any setting not specified above was left as default.