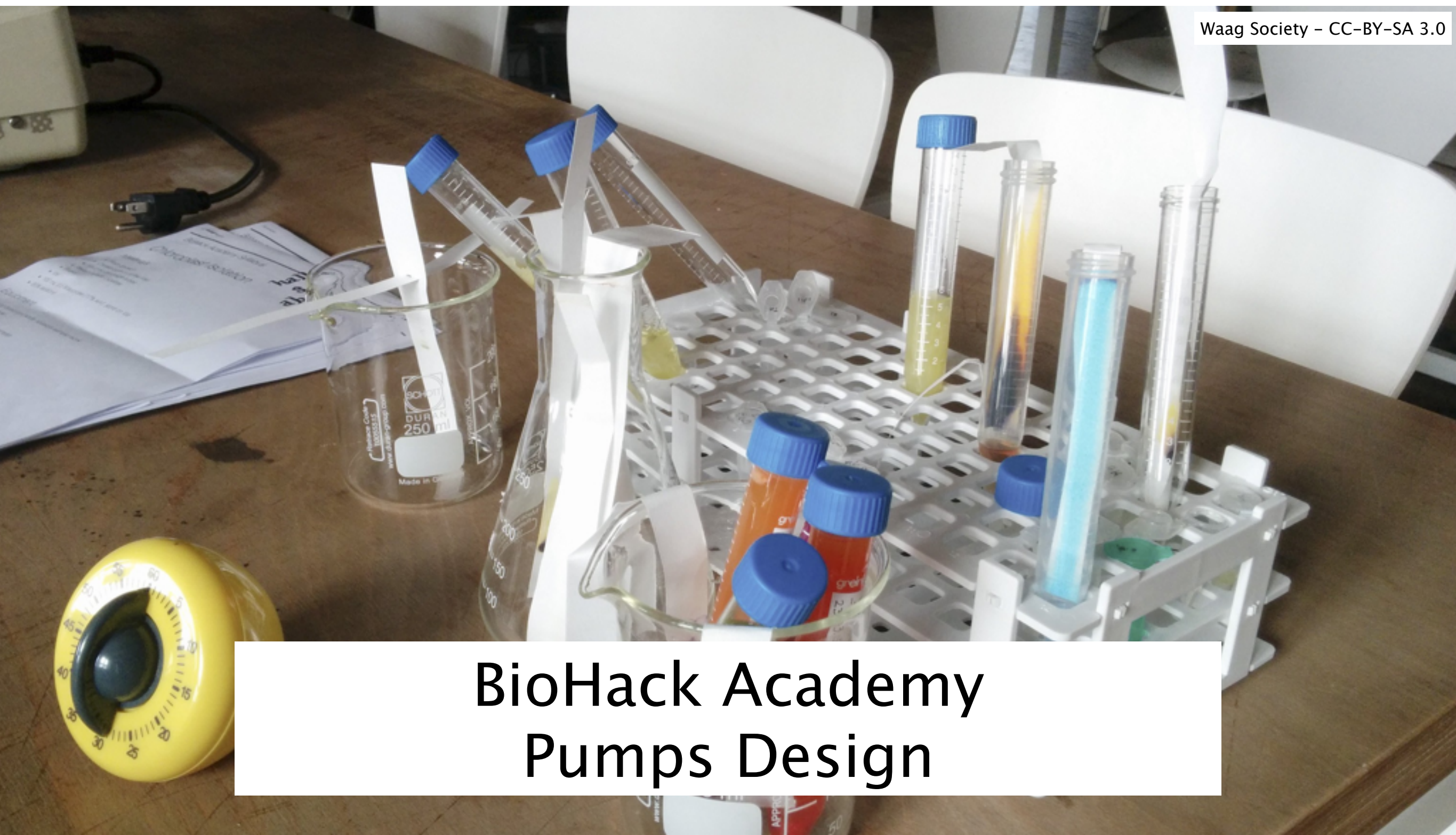




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BioHack Academy Pumps Design



Content

- Syringe pump
- Peristaltic pump



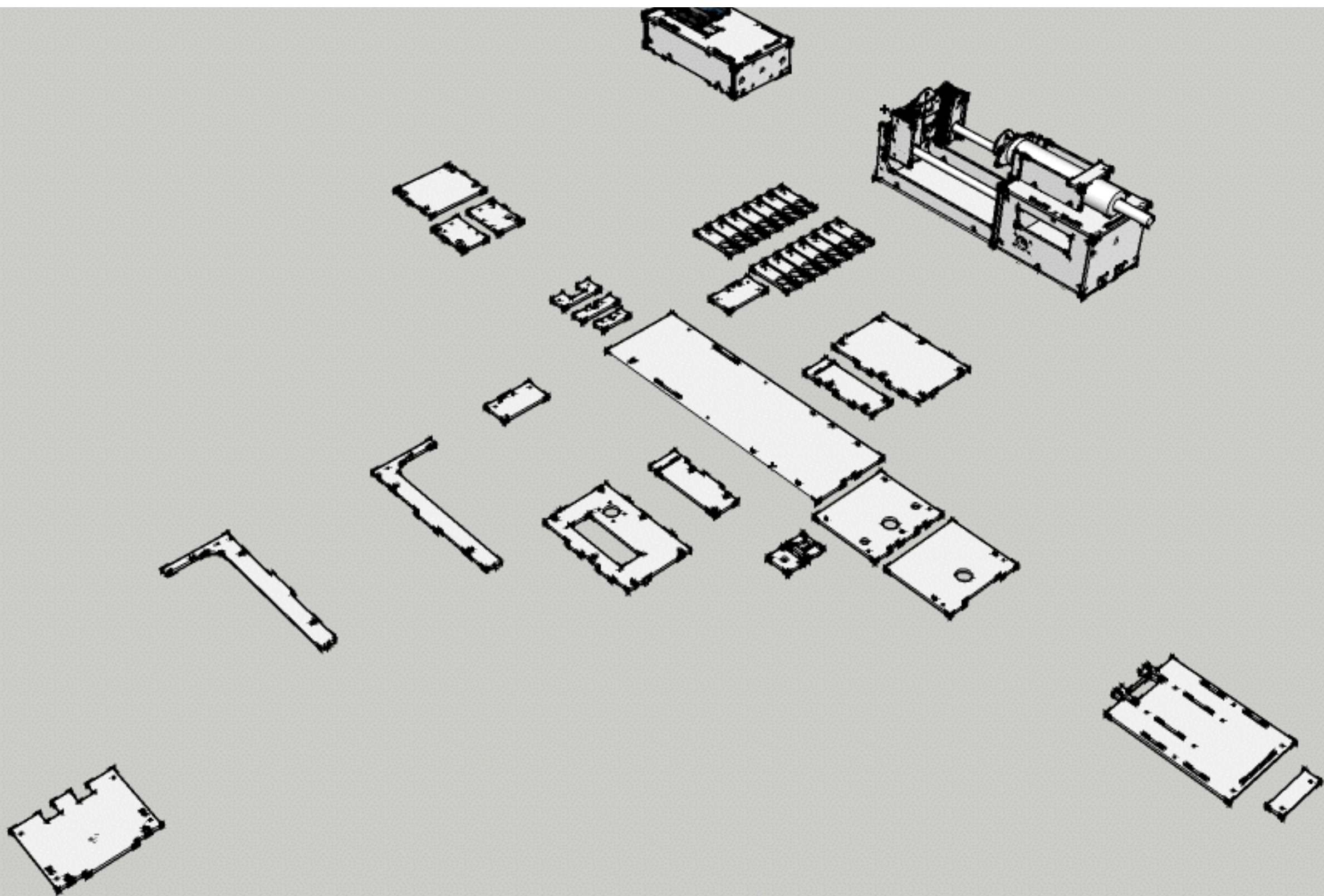
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Syringe Pump

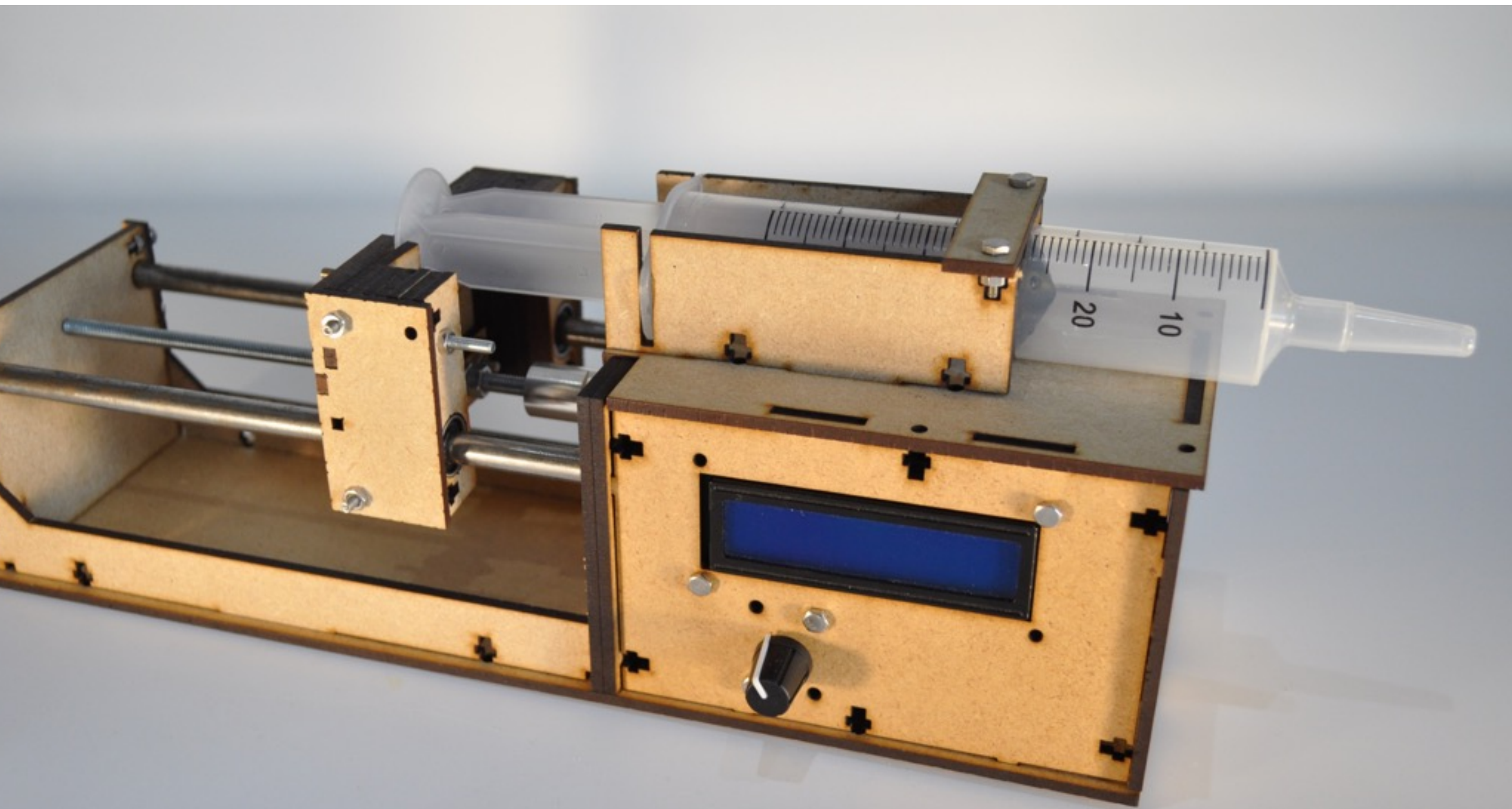


BioHack Academy design



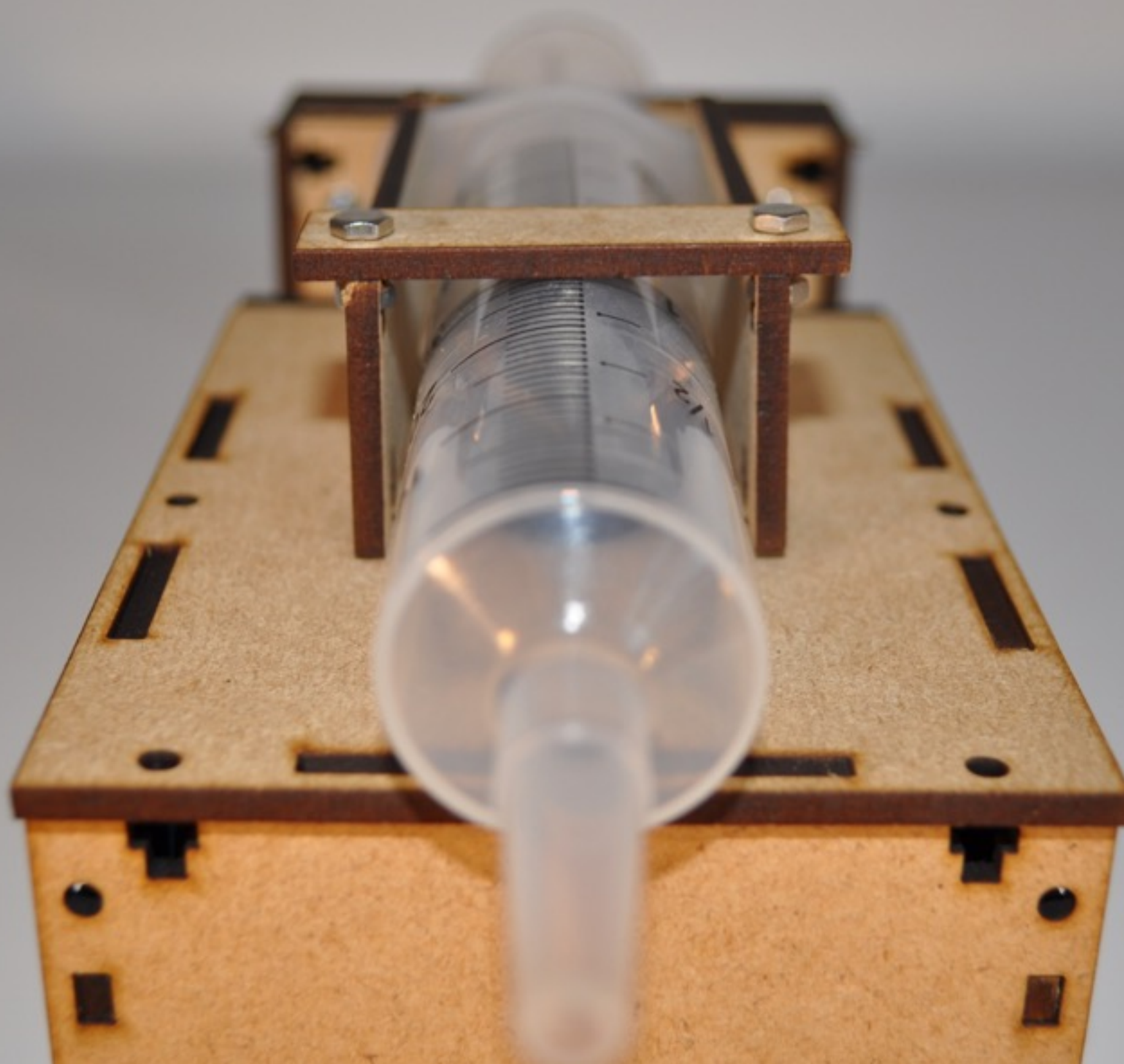


BioHack Academy design





BioHack Academy design



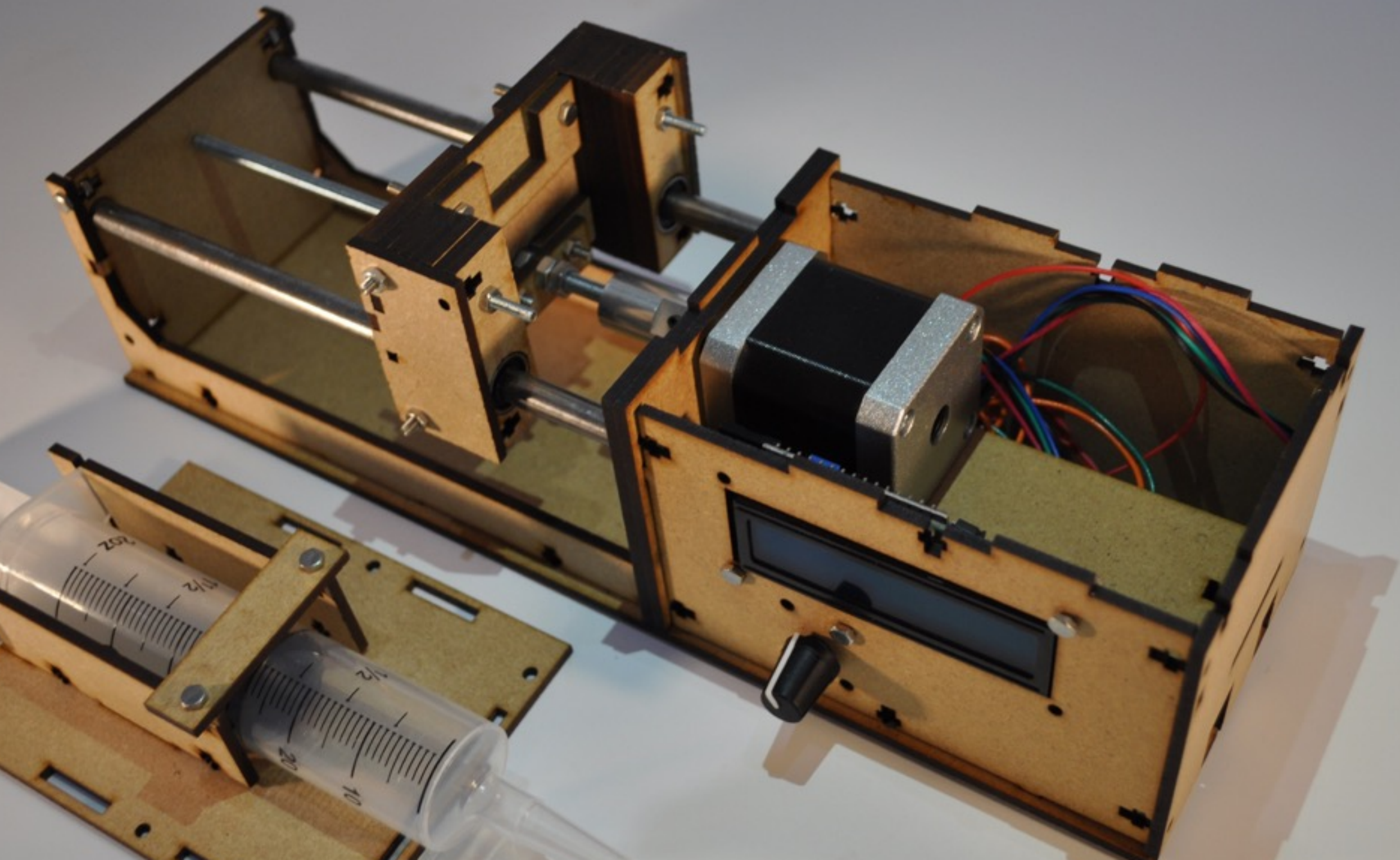


Bill of Materials

#	Amount	Description
1		1 NEMA17 Stepper motor
2		1 Pololu Stepper Driver
3		1 8mm smooth rod
4		1 Axis coupling
5		1 M5 threaded rod
6		3 Hexagonal M5 nut
7		1 100 uF capacitor
8		1 Rotary encoder
9		1 Knob
10		1 Button
11		2 10K resistor
12		2 10nF capacitor
13		2 100nF capacitor
14		1 12V 5A Power supply

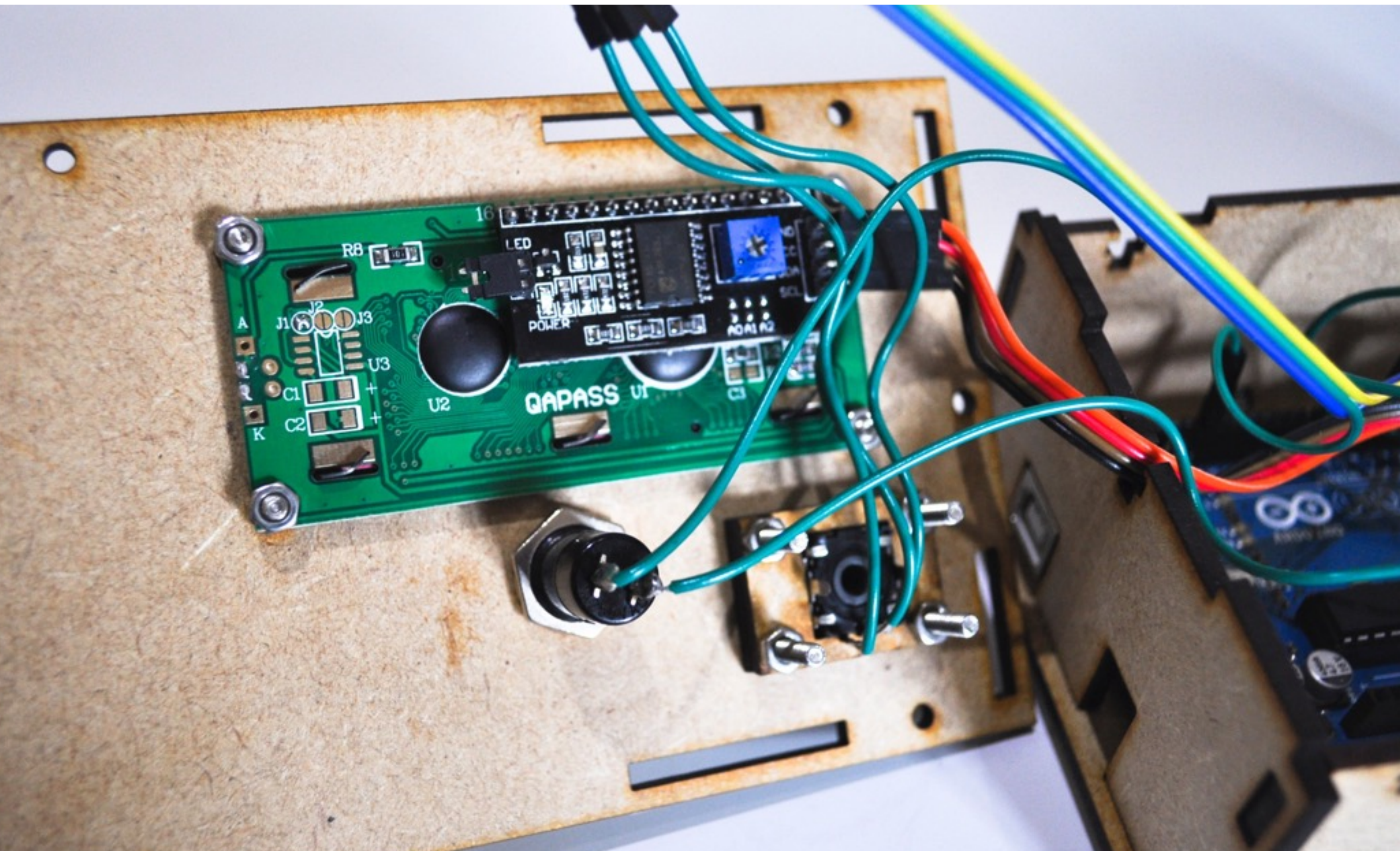


Electronics





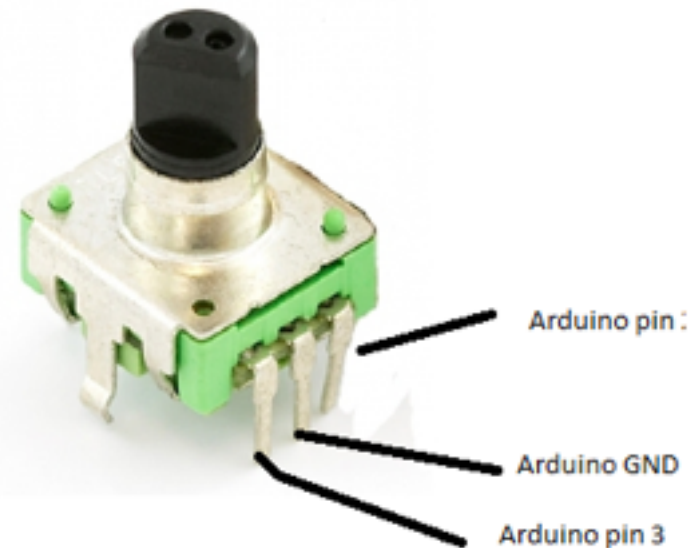
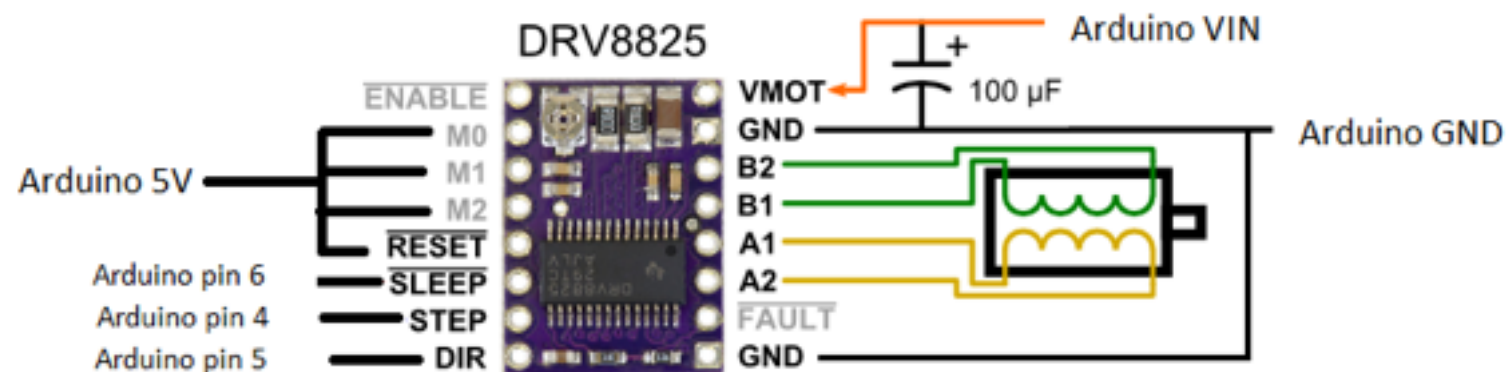
Electronics





Component Wiring

Peristaltic Pump
connection diagram





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Demonstration



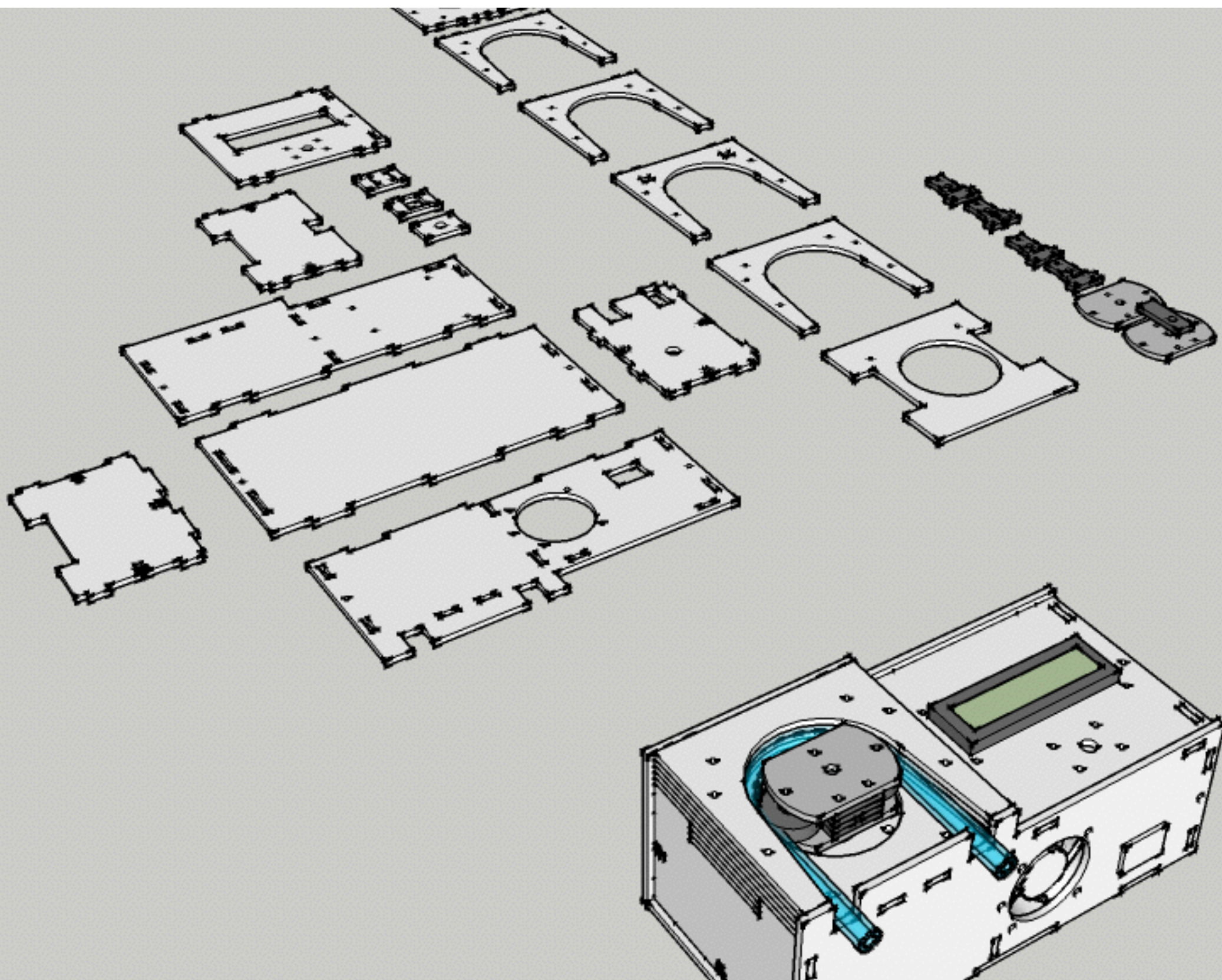
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Peristaltic pump

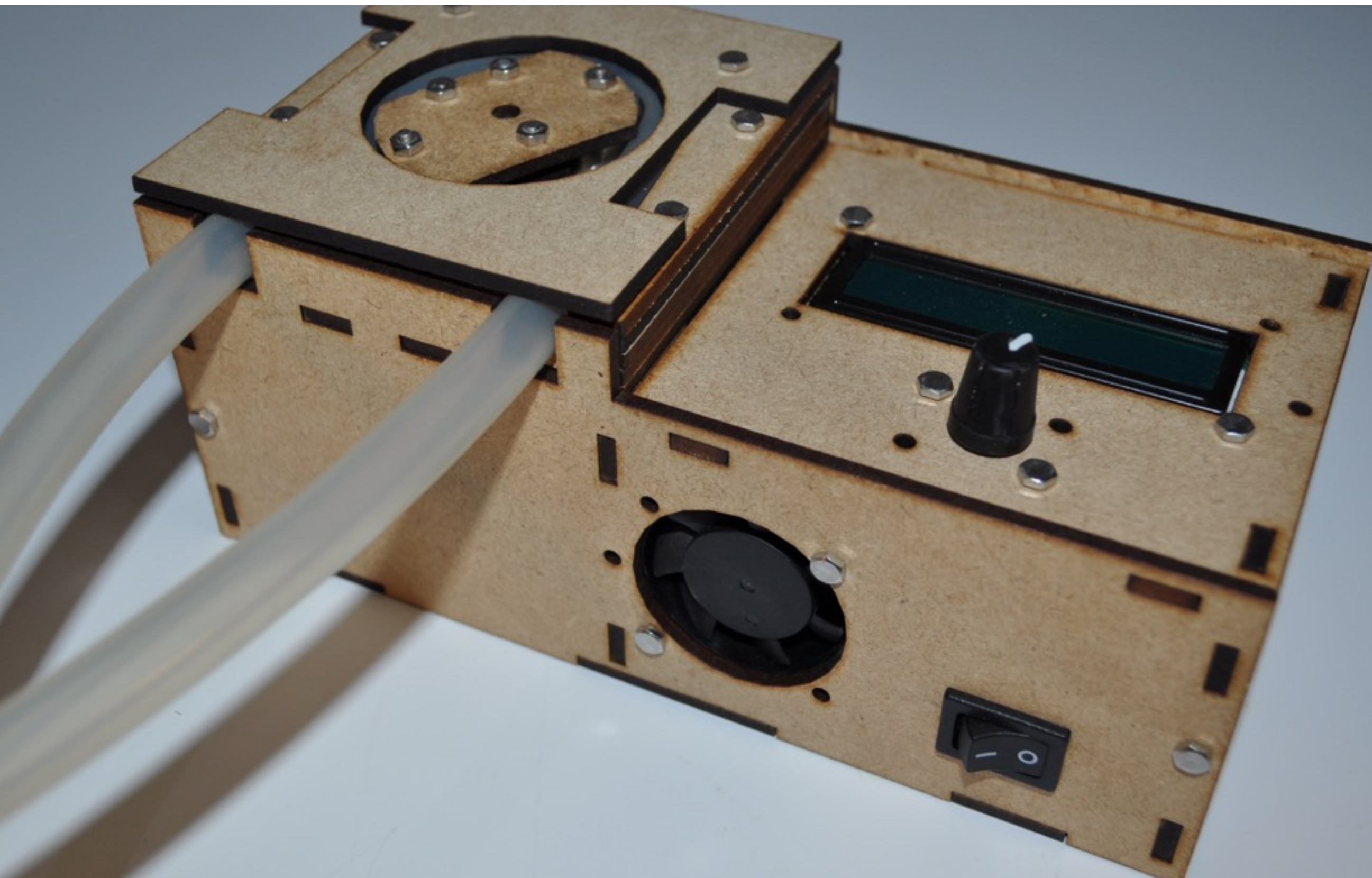


BioHack Academy design



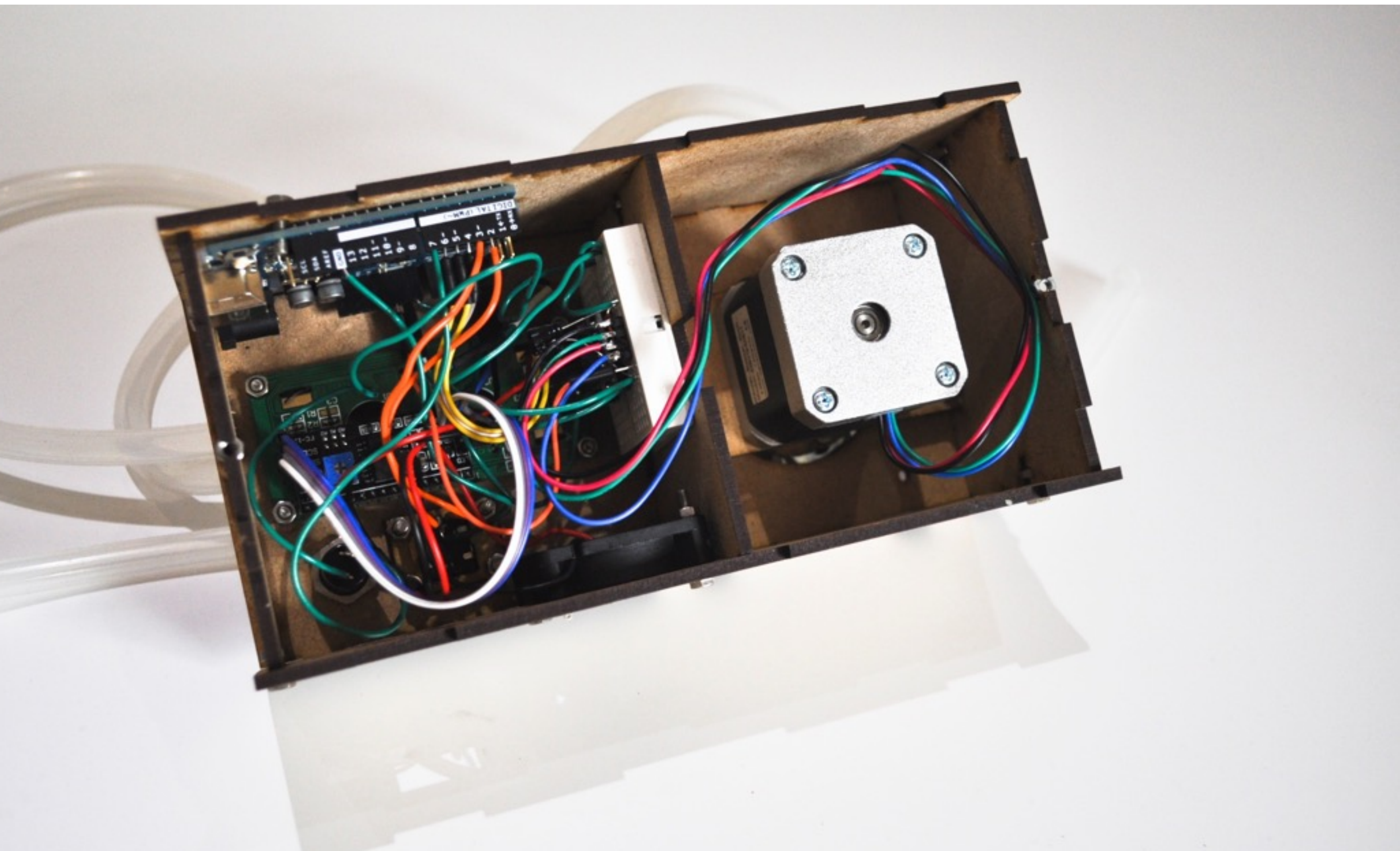


BioHack Academy design





BioHack Academy design





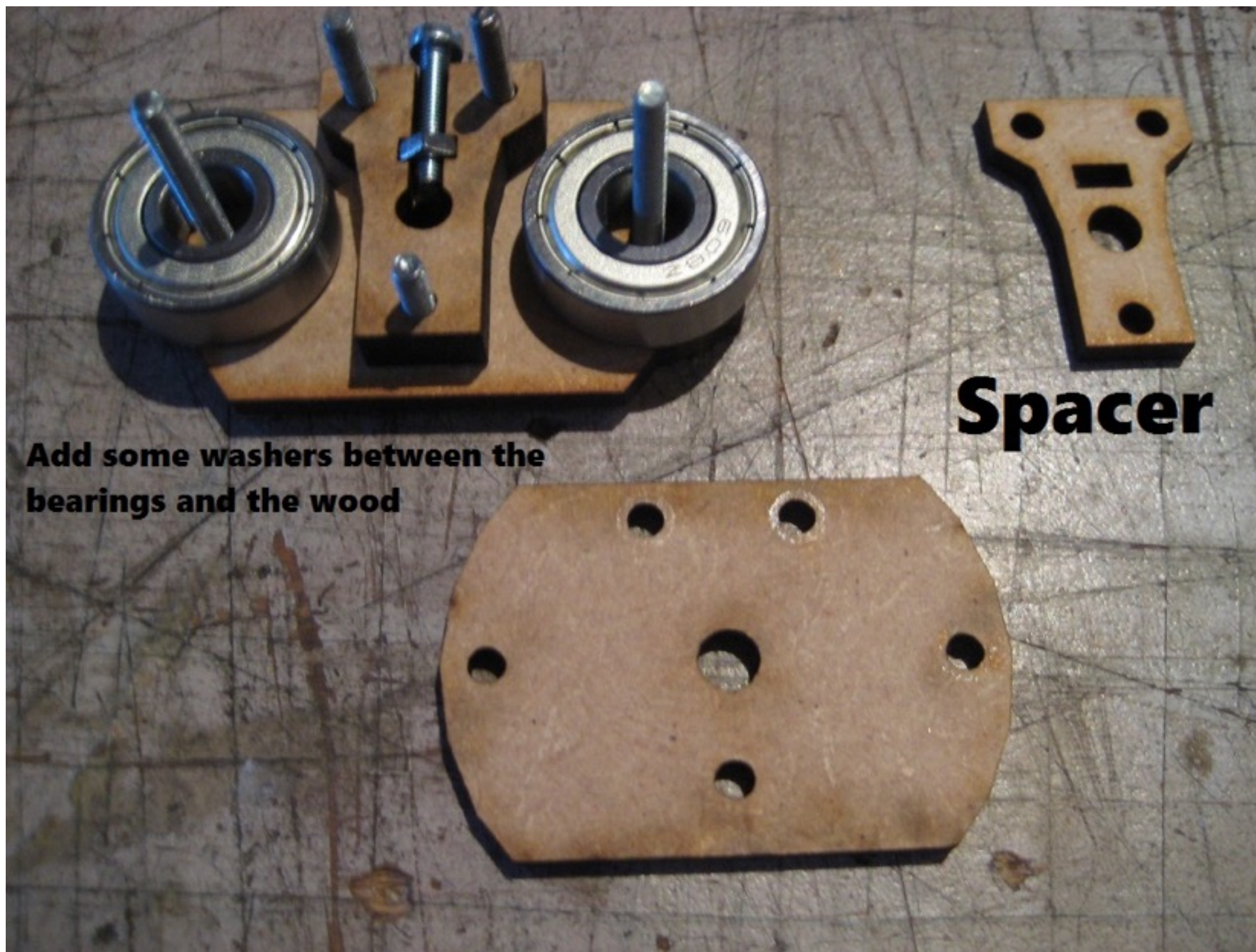
Bill of Materials

#	Amount	Description
1		1 NEMA17 Stepper motor
2		1 Pololu Stepper Driver
3		2 LM8UU Linear Bearings
4		1 100 uF capacitor
5		1 Heatsink
6		1 10 pack washers
6		1 Fan 40x40mm
7		1 Rotary encoder
8		1 Knob
9		1 Button
10		2 10K resistor
11		2 10nF capacitor
12		2 100nF capacitor
13		1 12V 5A Power supply
14		4 Rubber feet



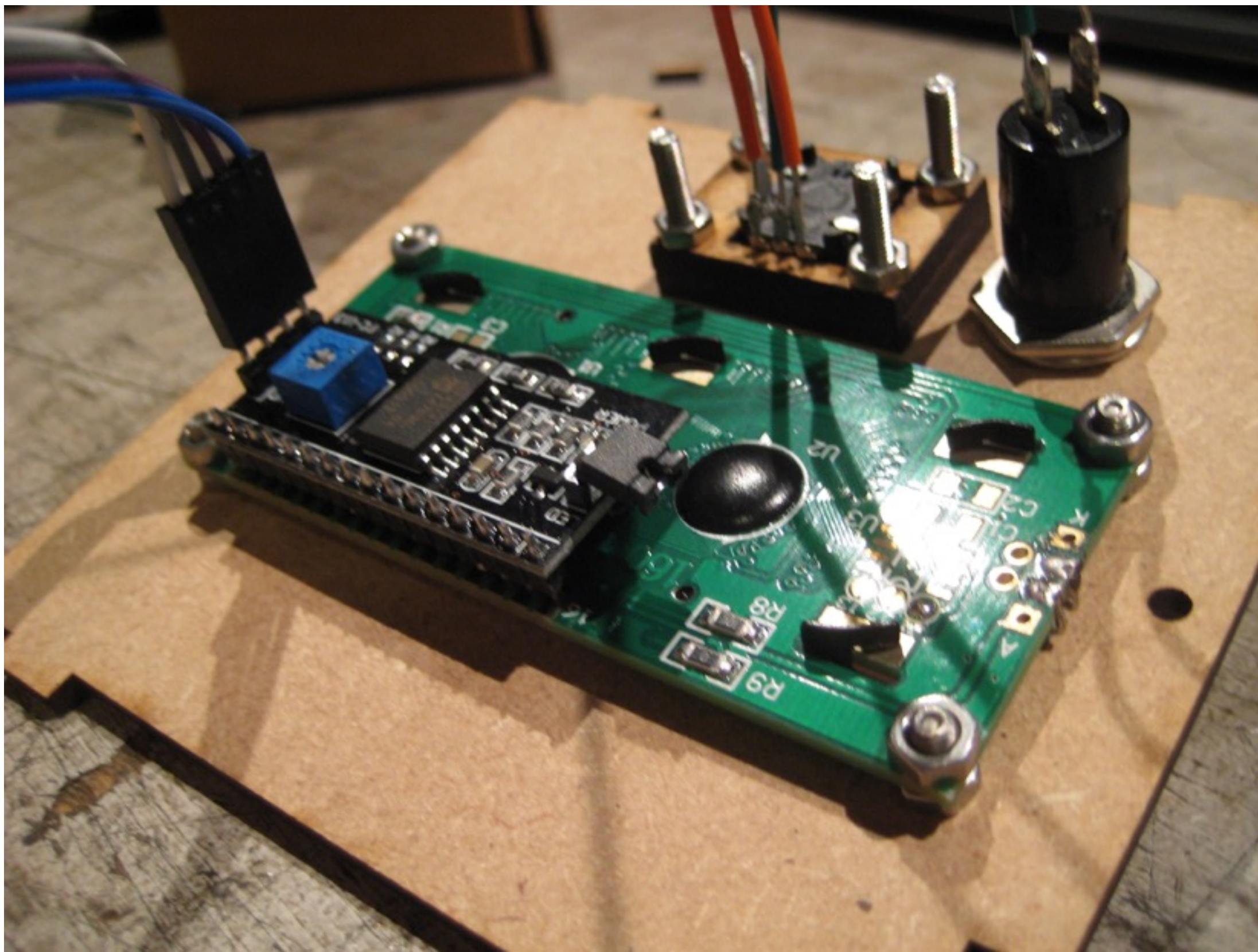
Axismounted bearings





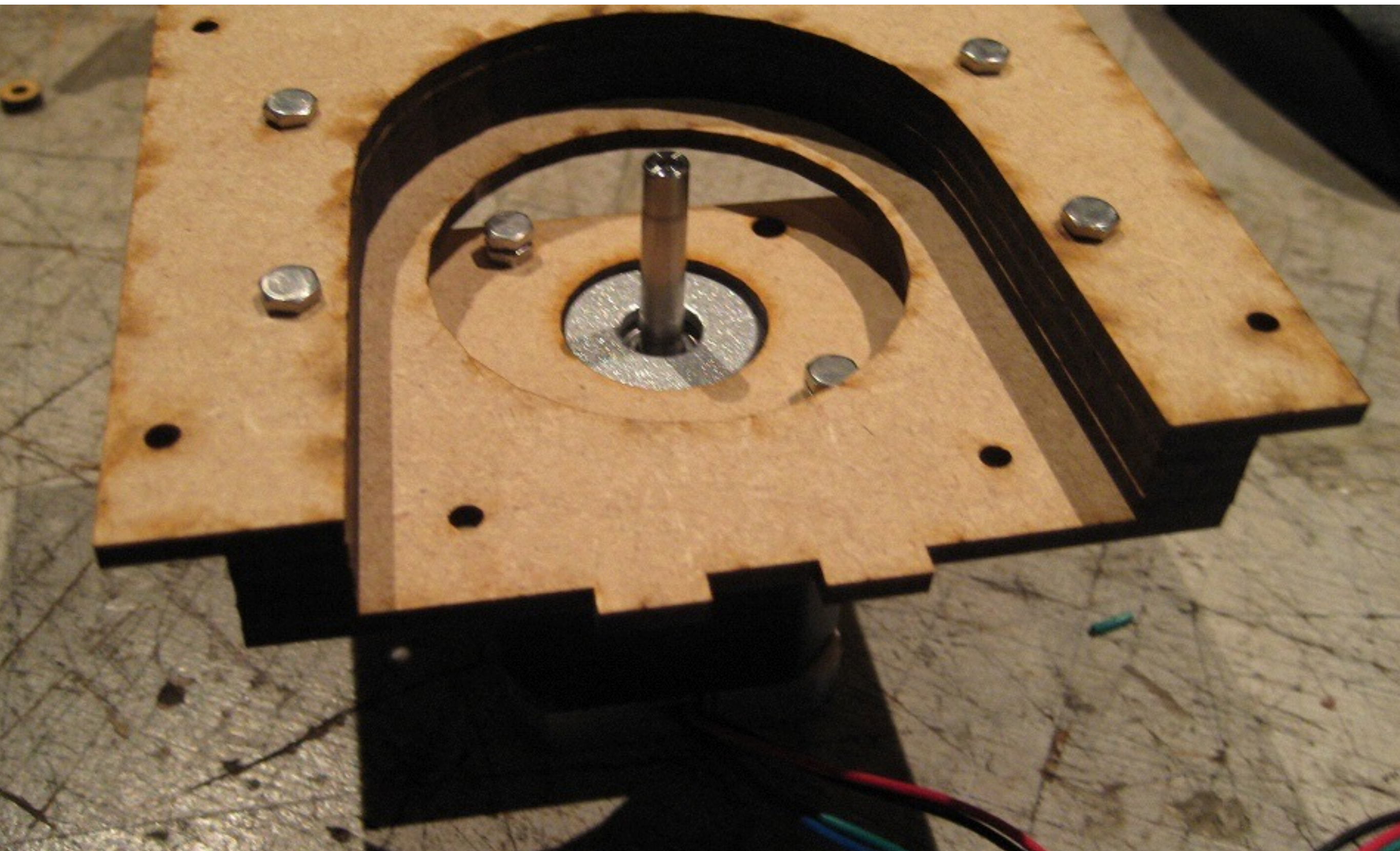


Control panel





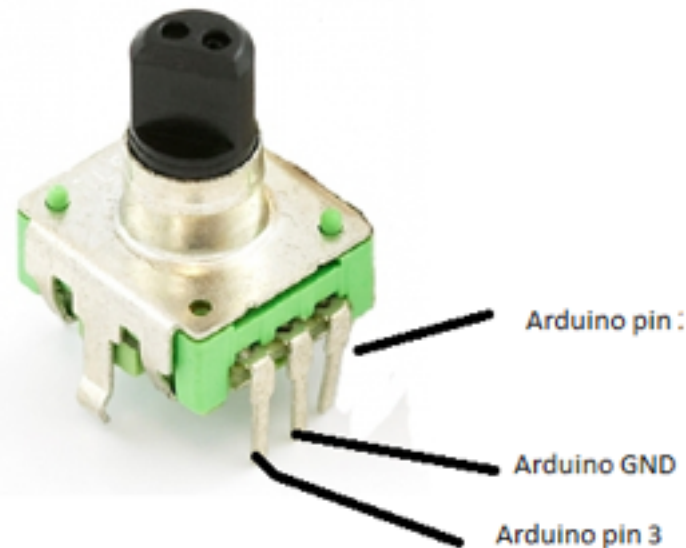
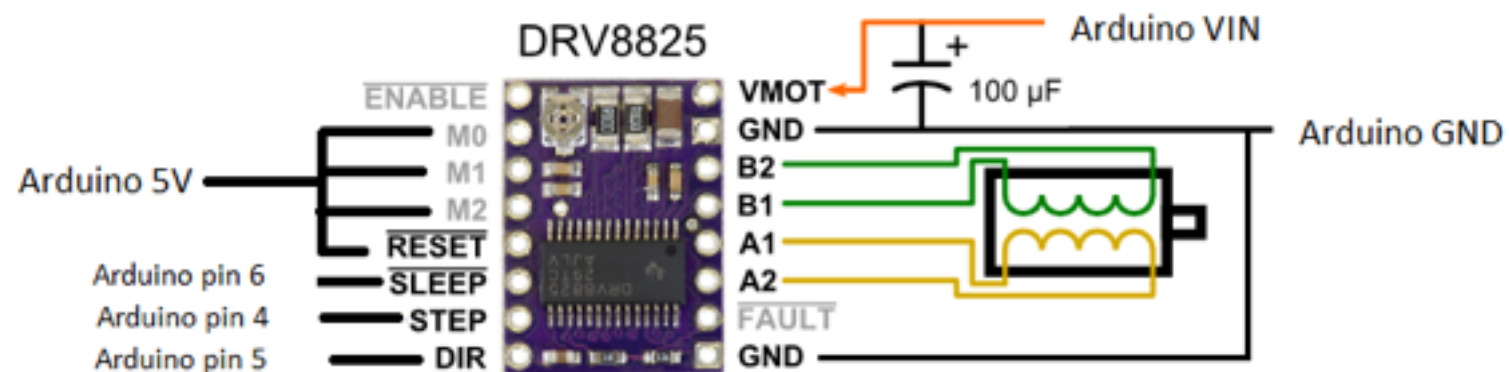
NEMA17 mount





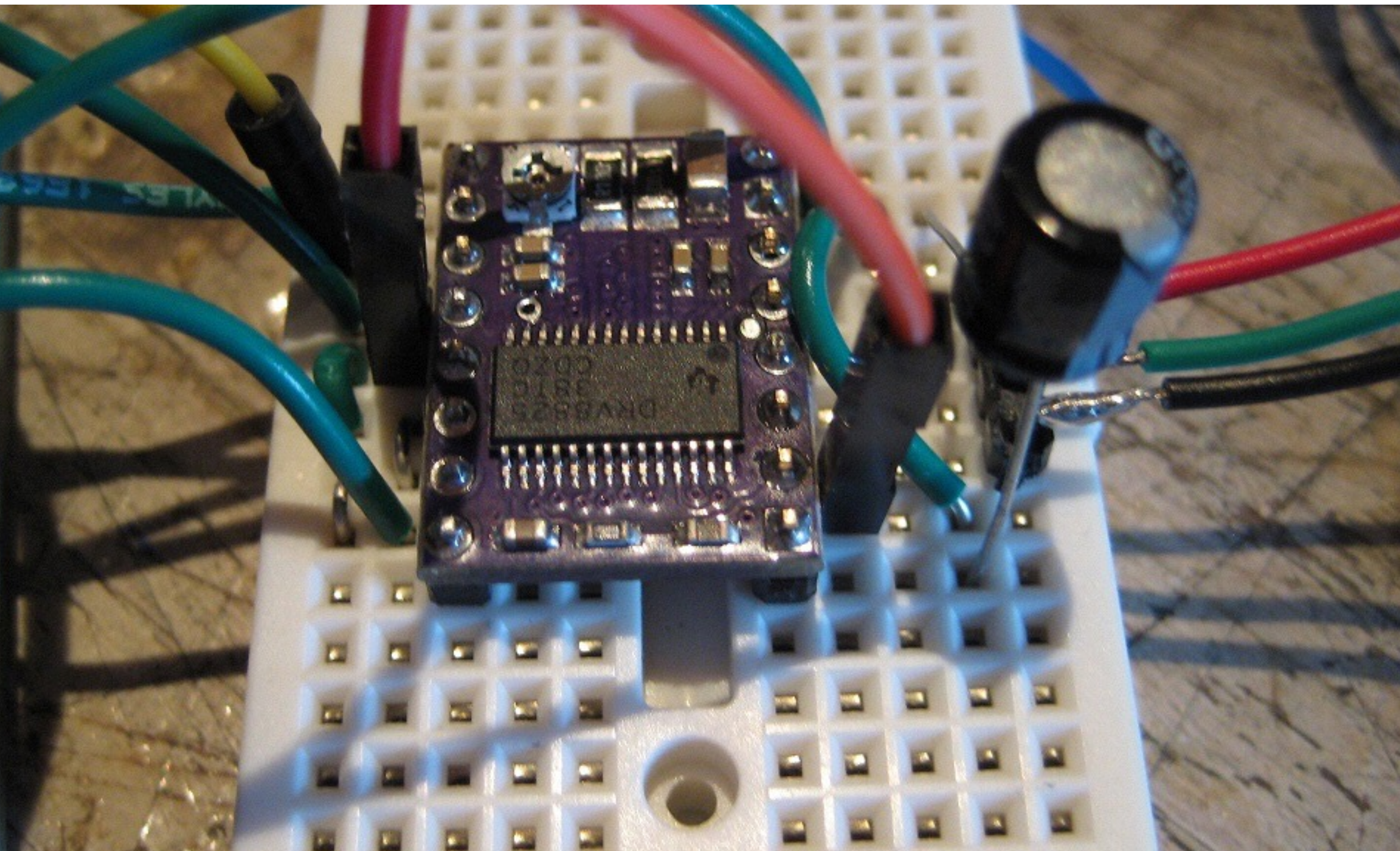
Component Wiring

Peristaltic Pump
connection diagram



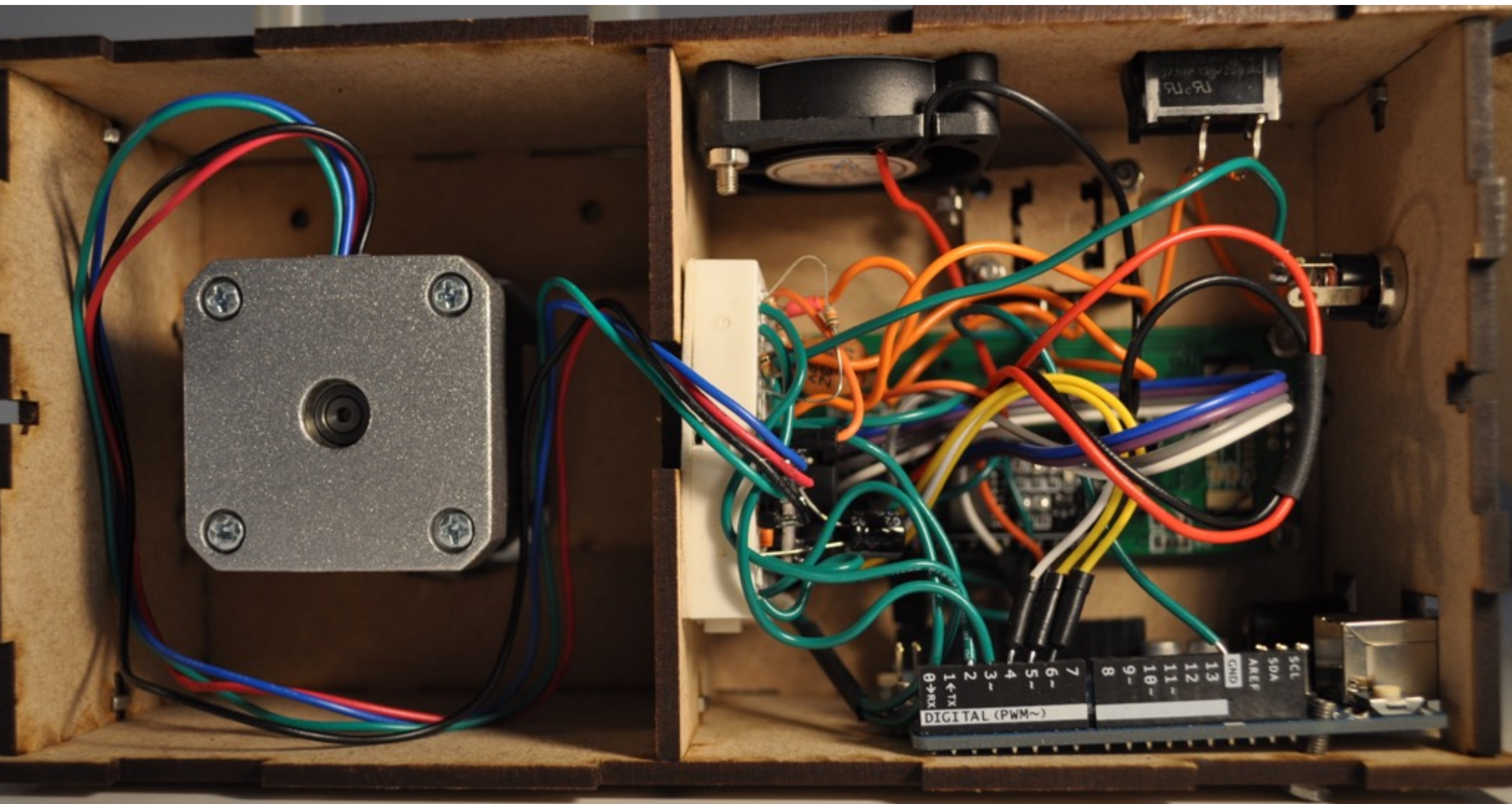


Stepper driver





Full assembly





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Demonstration

[http://www.youtube.com/watch?
v=rvNwhfQSCfg](http://www.youtube.com/watch?v=rvNwhfQSCfg)



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Coming up



Graduation Ceremony

- November 17



Assignment

- Answer the following questions in your documentation:
 - What does your project do?
 - What microbe / living thing do you use?
 - From what designs is it derived?
 - Which parts have been custom made, by what machine?
 - What are all the components and how much do they cost?
 - How is it assembled?
 - What can be improved?



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