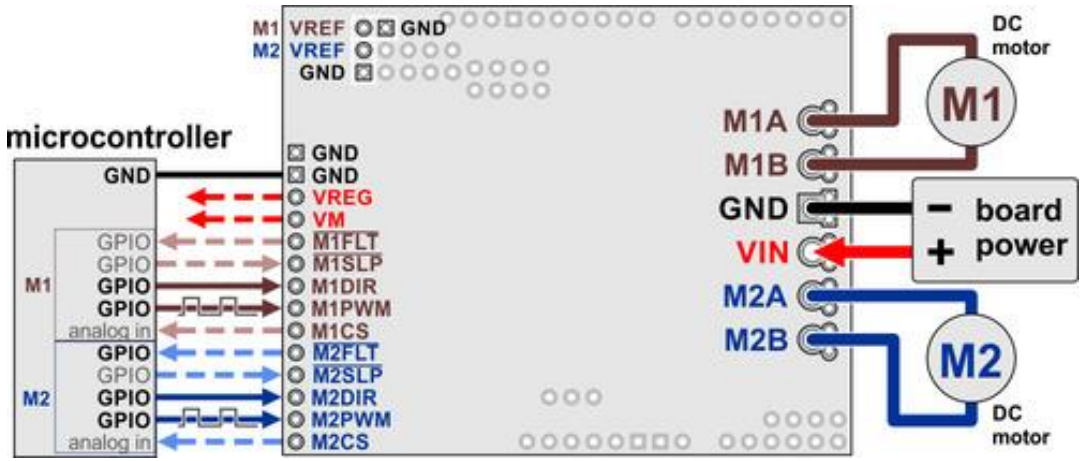
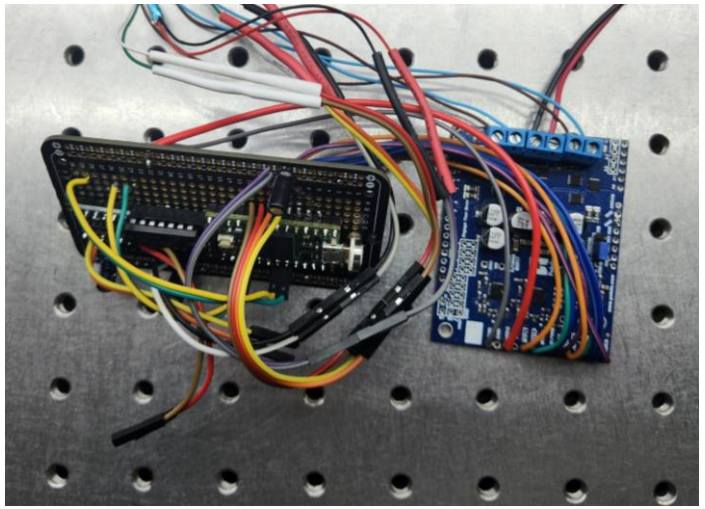
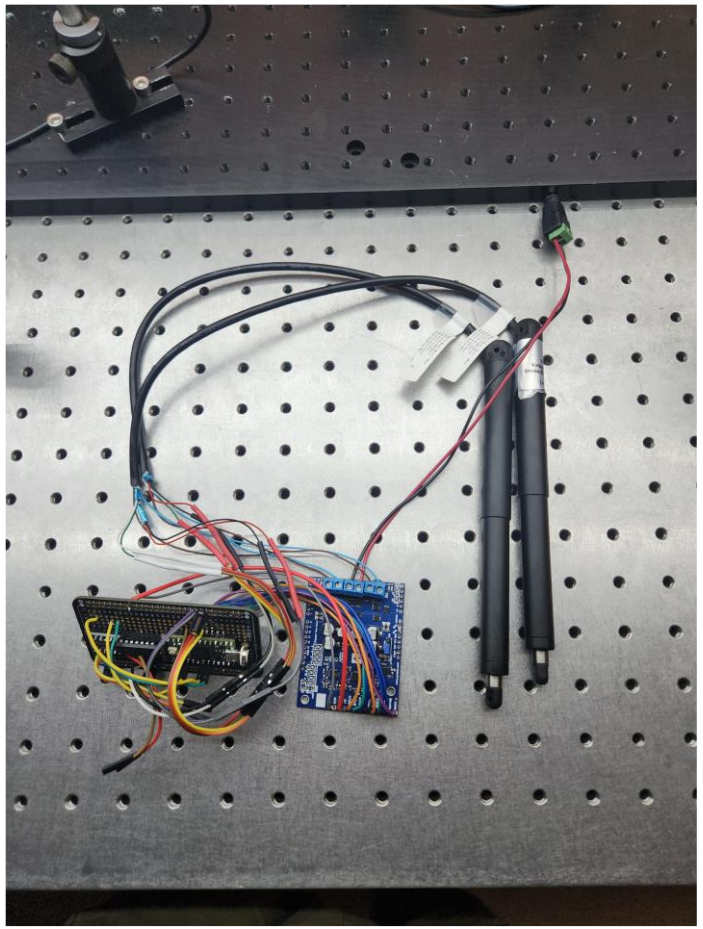
THz Lab Motion Controller

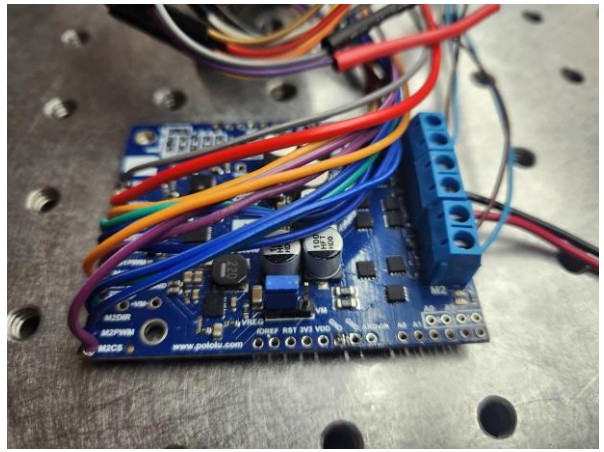
Parts List

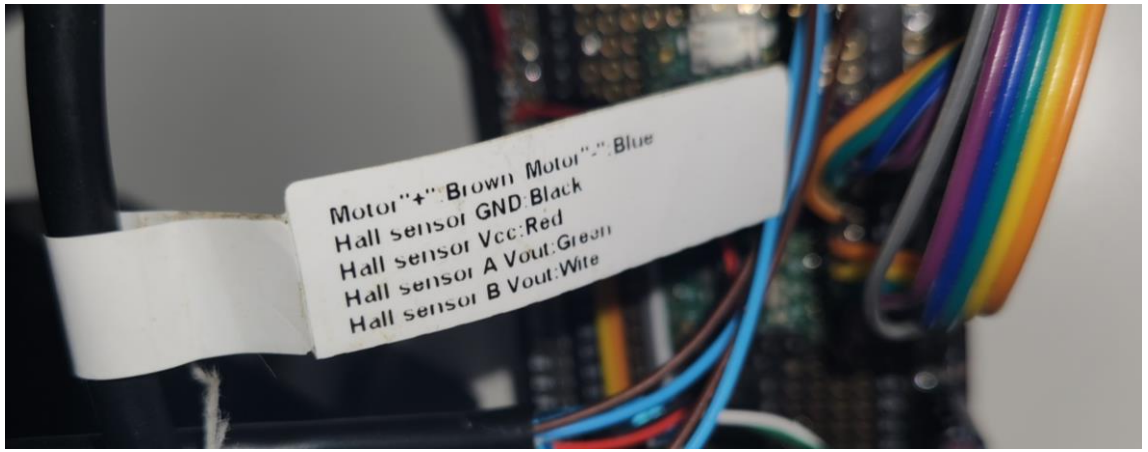
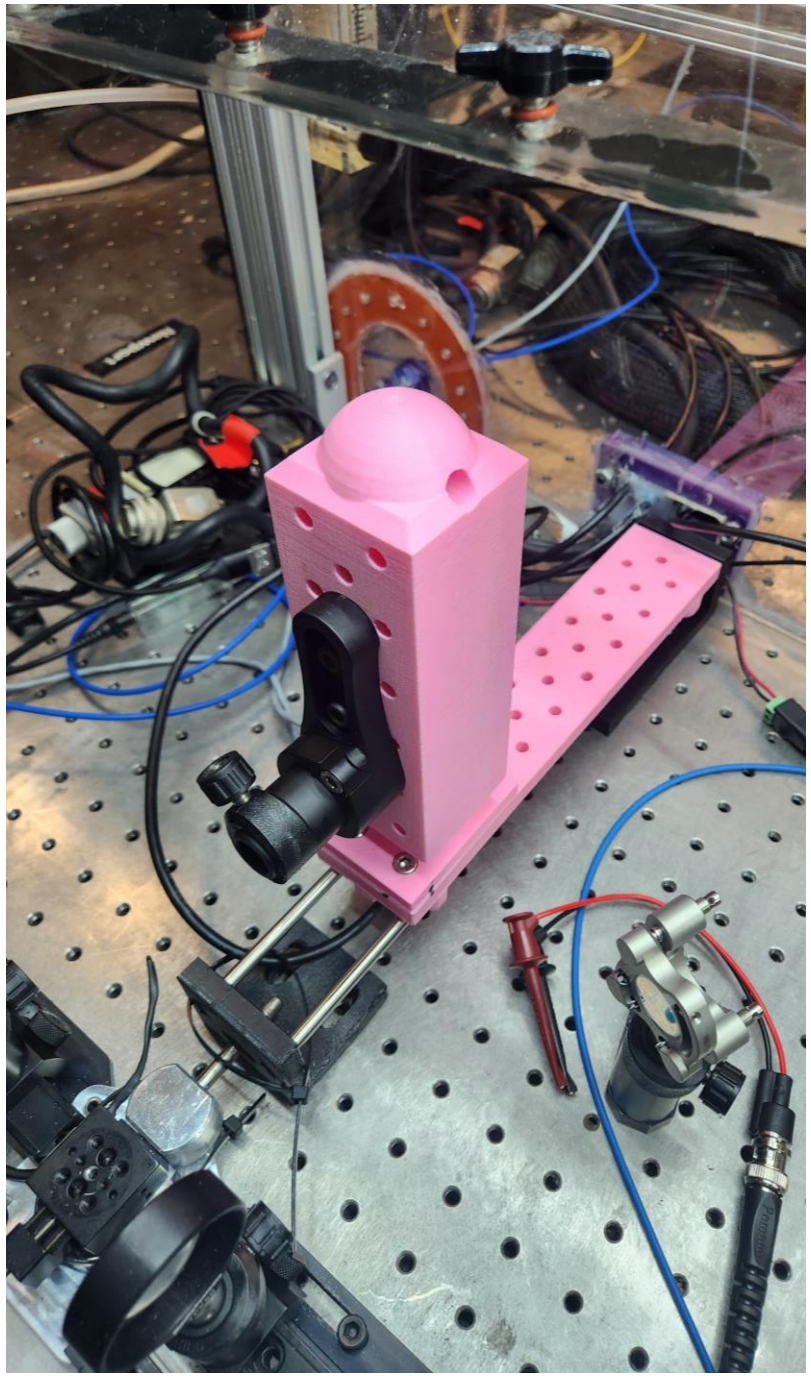
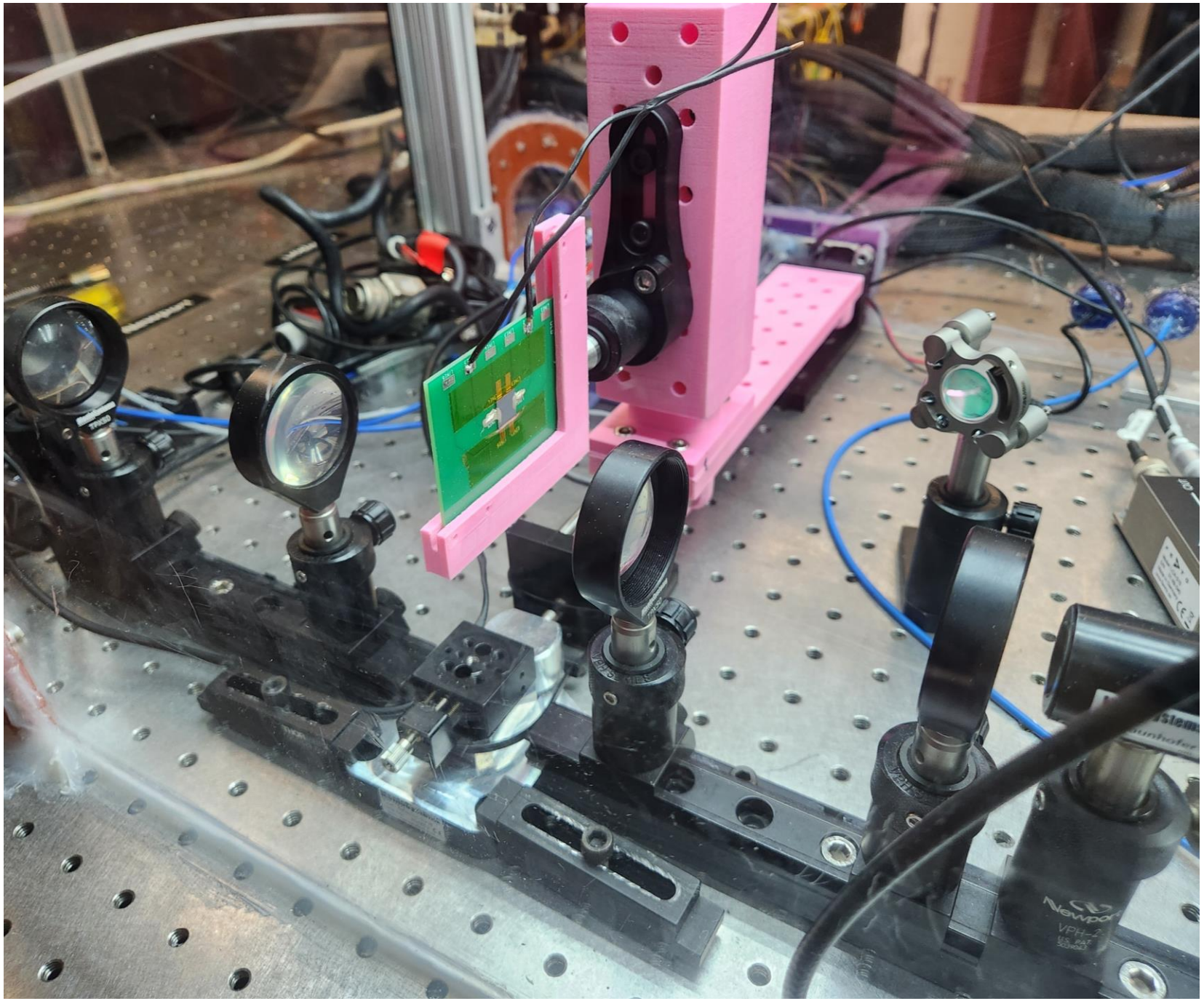
- Microcontroller $25 : Teensy 4.0
- Driver ($60) :
  - Pololu Dual G2 High-Power Motor Driver 24v14 Shield for Arduino
    - https://www.pololu.com/product/2515
    - Drives up to 2 motors
- Actuators ($135 each) :
  - FA-BS16-11-12-60
    - https://www.firgelliauto.com/products/micro-actuators?variant=39514433552455
    - 11 lb (50N) of force, 12V supply with 60 mm stroke


M1 VREF
M2 VREF
GND
GND
microcontroller
GND
GND
VREG
VM
GPIO M1FLT
GPIO M1SLP
M1 GPIO M1DIR
GPIO M1PWM
analog in M1CS
GPIO M2FLT
GPIO M2SLP
M2 GPIO M2DIR
GPIO M2PWM
analog in M2CS
M1A
M1B
GND
VIN
M2A
M2B
DC motor
M1
− board
+ power
M2
DC motor








Motor"+":Brown Motor"-":Blue
Hall sensor GND:Black
Hall sensor Vcc:Red
Hall sensor A Vout:Green
Hall sensor B Vout:Wite

Teensy Pin	
1	M1 Sleep
2	M1 Direction
3	M2 Sleep
4	M2 Direction
5	M1 Hall Sensor A
6	M1 Hall Sensor B
7	M2 Hall Sensor A
8	M2 Hall Sensor B
A0	M2 Current Sense
A1	M2 PWM
A4	M2 Fault
A5	M1 Fault
A8	M1 PWM
A9	M1 Current Sense