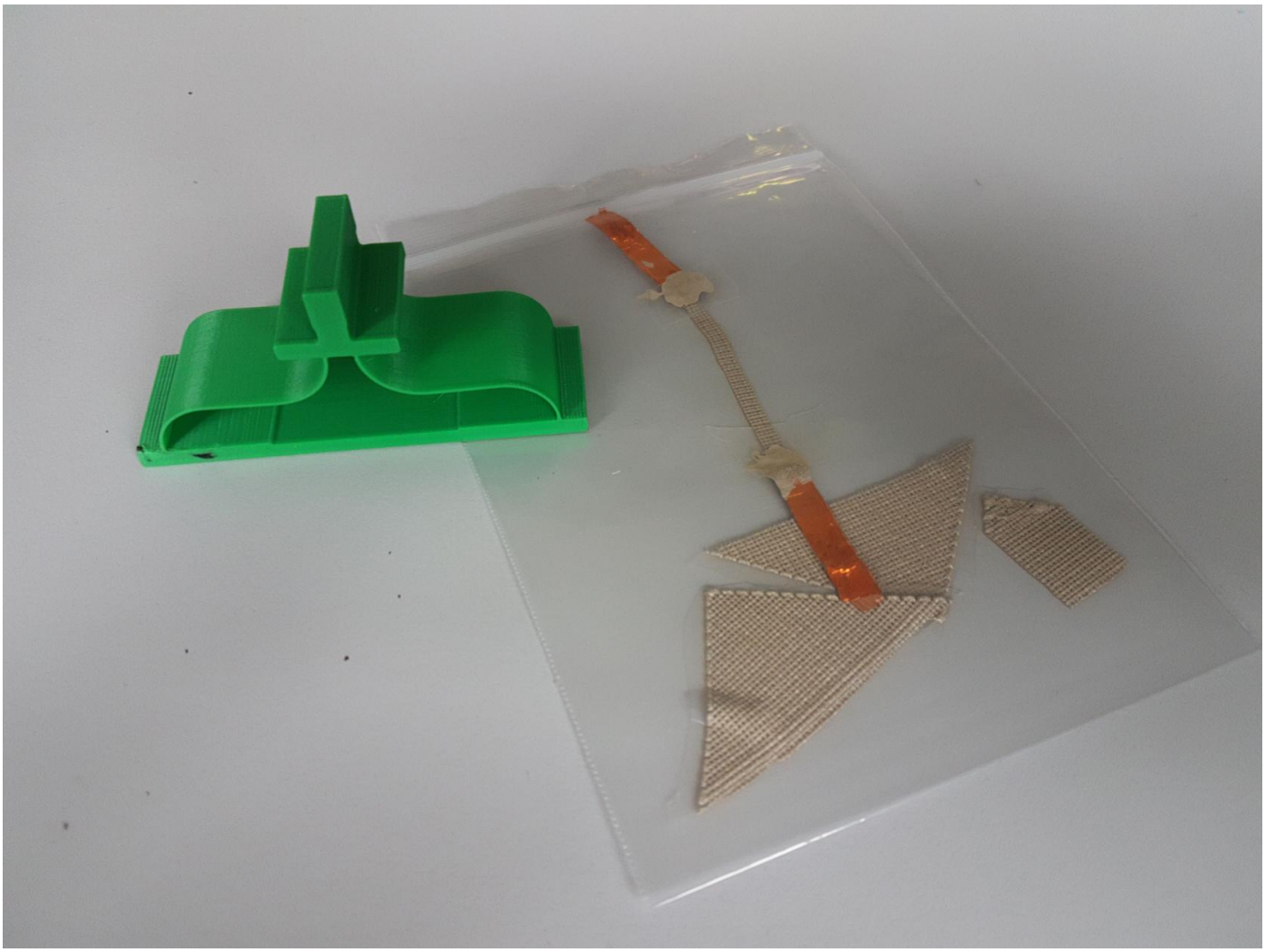
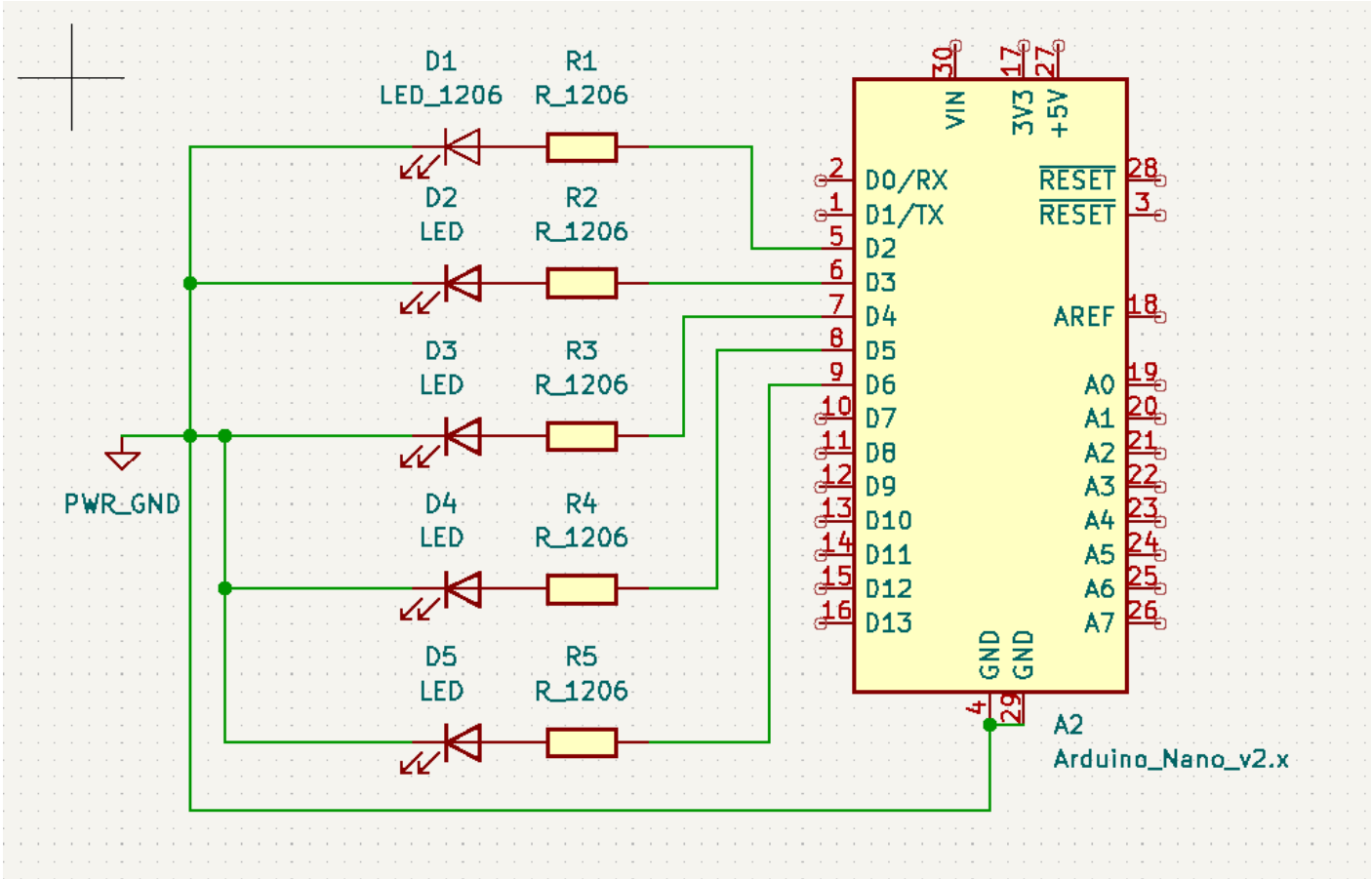
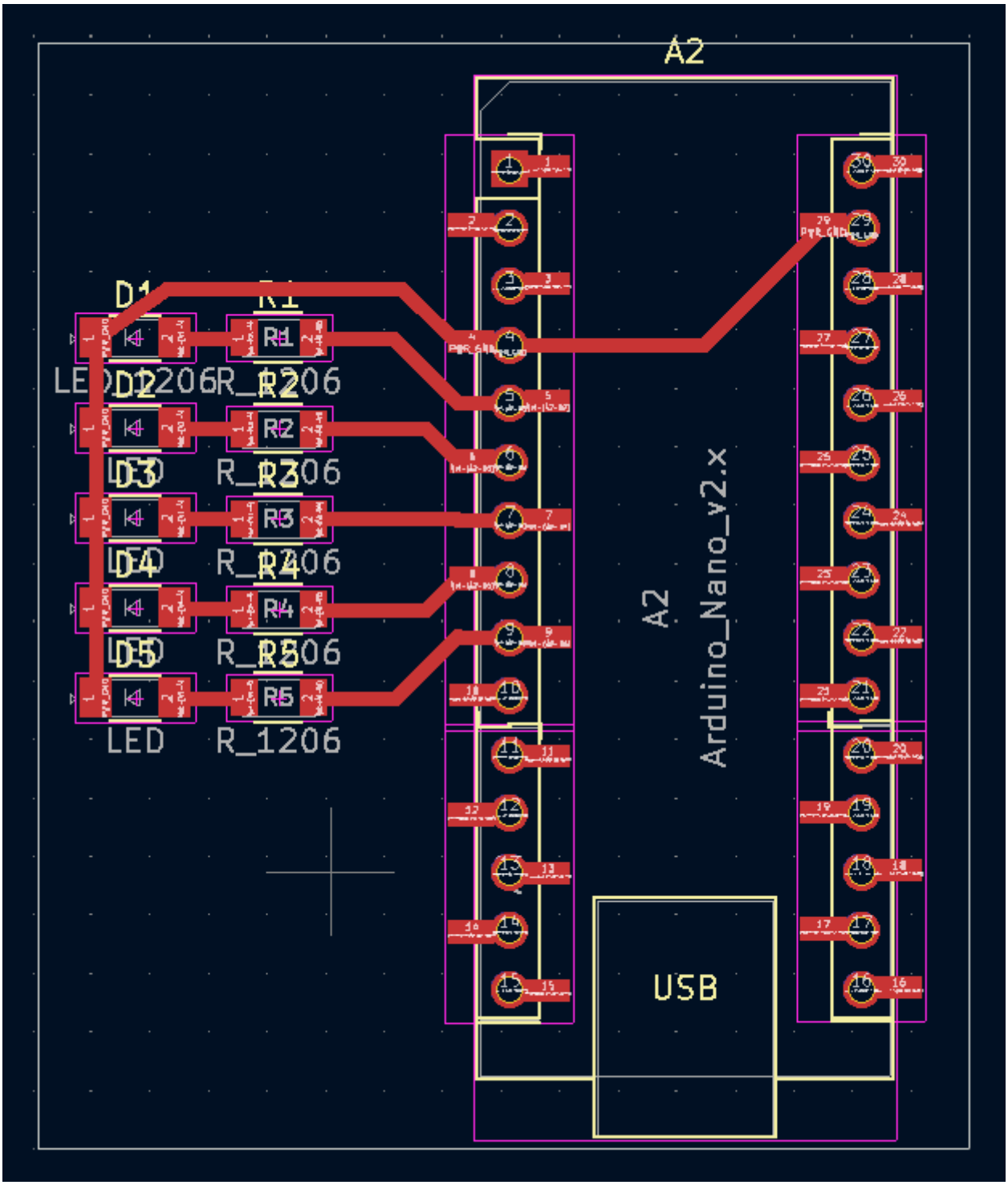
Stretch-Sensor

We are working on a little circuit for testing a material developped by M.Sc. Han Yang:



4

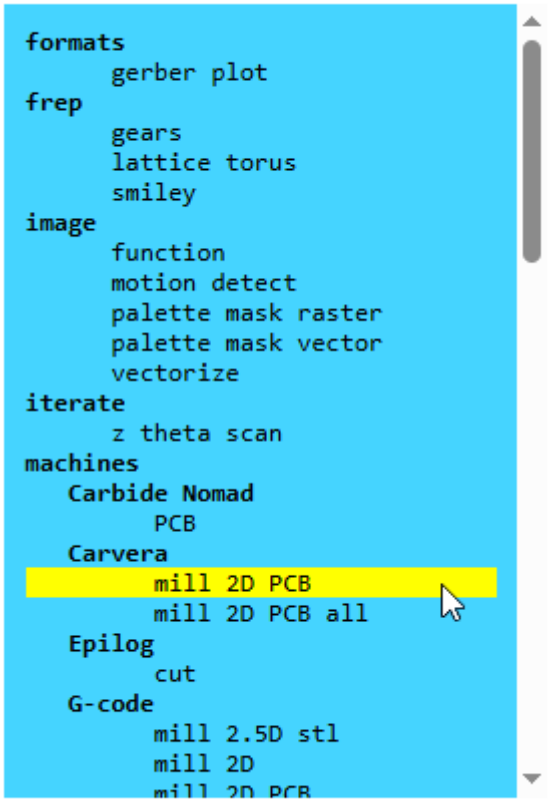

D1
LED_1206
R1
R_1206
D2
LED
R2
R_1206
D3
LED
R3
R_1206
D4
LED
R4
R_1206
D5
LED
R5
R_1206
PWR_GND
30
VIN
17
3V3
27
+5V
2
D0/RX
1
D1/TX
5
D2
6
D3
7
D4
8
D5
9
D6
10
D7
11
D8
12
D9
13
D10
14
D11
15
D12
16
D13
28
RESET
3
RESET
18
AREF
19
A0
20
A1
21
A2
22
A3
23
A4
24
A5
25
A6
26
A7
4
GND
29
GND
A2
Arduino_Nano_v2.x

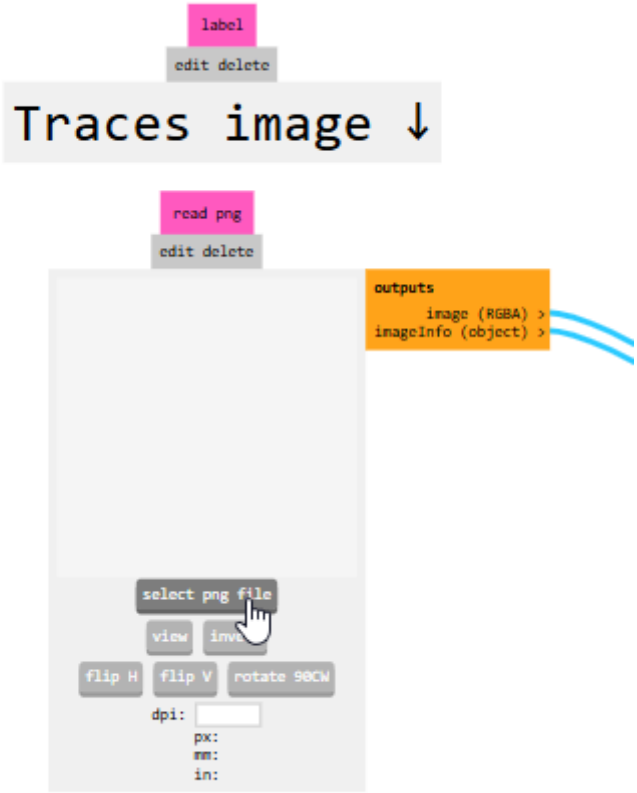


Measurement with Multimeter:

Initial state	110 - 170 Ω	
slight stretching	350 - 500 Ω	
Higher tensile force	1kΩ	(unstable)
Approximately limited state	9-15 kΩ	(unstable)

https://modsproject.org/https://modsproject.org/
rightclick --> program --> open program --> carvera mill 2D PCB


formats
gerber plot
frep
gears
lattice torus
smiley
image
function
motion detect
palette mask raster
palette mask vector
vectorize
iterate
z theta scan
machines
Carbide Nomad
PCB
Carvera
mill 2D PCB
mill 2D PCB all
Epilog
cut
G-code
mill 2.5D stl
mill 2D

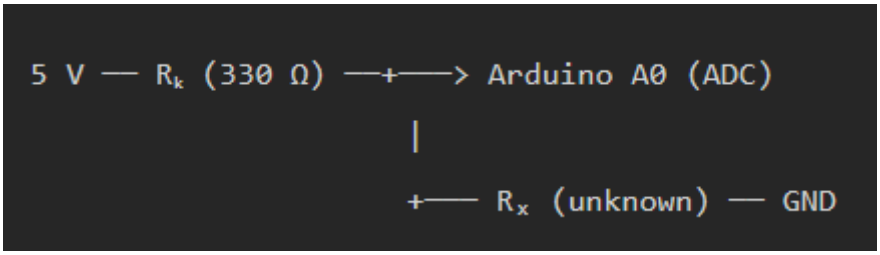

label
edit delete
Traces image ↓
read png
edit delete
outputs
image (RGBA) >
imageInfo (object) >
select png file
view
flip H
flip V
rotate 90CW
dpi:
px:
mm:
in:

tool 1: 4
tool 1 diameter (mm): 0.2
cut depth 1 (mm): 0.12
max depth 1 (mm): 0.12
offset number 1: 6 (0 = fill)
offset stepover 1: 0.5 (1 = diameter)

tool 2: 2
tool 2 diameter (mm): 1.1
cut depth 2 (mm): 0.6
max depth 2 (mm): 1.75
offset number 2: 1 (0 = fill)
offset stepover 2: 0.5 (1 = diameter)
calculate

first test: https://www.hackster.io/ddami/5-blinking-leds-c29889

https://chat-ai.academiccloud.de How can I measure a resistance between 110 ohms and 1 kOhm with a arduino Nano using a Voltage divider?



We tried Rk=330Ω (values too high) Rk=220Ω (values even higher) Rk=1kΩ (ok!)

Sensor

Revision #6
Created 2025-10-01 14:08:38 UTC by Ferdi
Updated 2025-10-10 14:04:22 UTC by Han