BITNG LAB UPDATE

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Date 7/22/2021

Progress from last week

- Shriner's Project:
  - Strain sensor
    - Graphene and carbon black ink – Nathan

- Shinjae Firmware:
  - ~~ADS1299~~
  - ADS1292

SHRINER'S PROJECT

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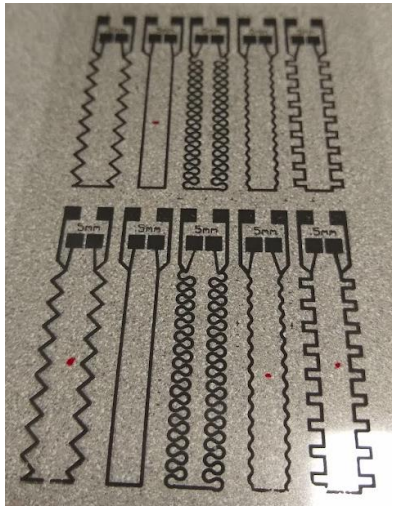
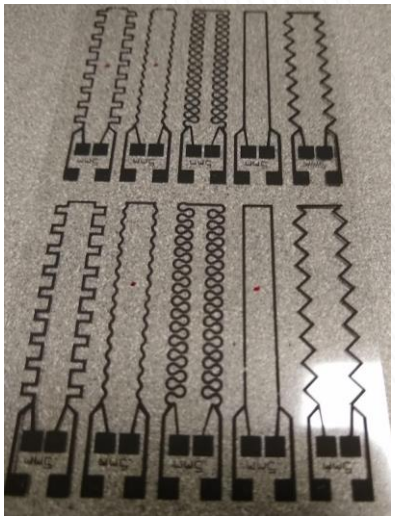
Screen printing: Strain Sensors

- Carbon Black
  - $\Delta R/R\ \% = 2.72\%$
- Graphene
  - $\Delta R/R\ \% = 4.4\%$



Carbon Black



Graphene

- Goal:
  - Increase $\Delta R/R\ \%$

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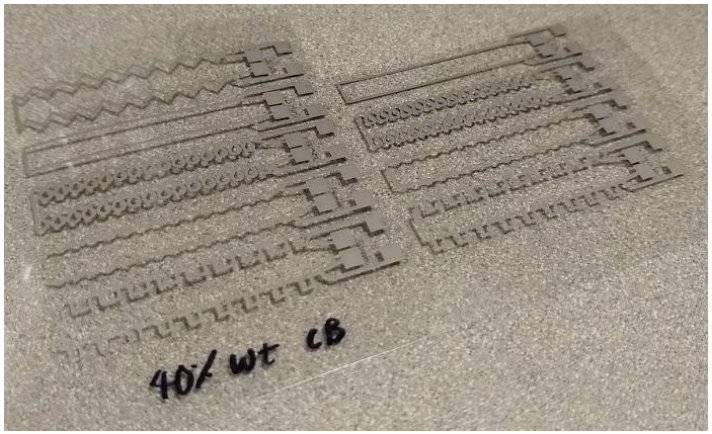
Screen printing: Strain Sensors

- Possible solutions:
  - Hybrid mixture: GF = 8 - 68
    - Carbon Black
    - AgNP
  - Hybrid mixture:
    - Non-conductive Carbon ink (high R)
    - Conductive carbon ink (low R)



Carbon Black with AgNP

- Next Steps:
  - Going to research different inks that have a larger resistance change due to bending

Reference: “Highly sensitive screen printed strain sensors on flexible substrates via ink composition optimization” 2019

Firmware Development

- ADS1299
  - Initial firmware driver finished
  - Need board from Shinjae to verify firmware

- ADS1292
  - Need to finish firmware driver
    - 50% completed

PATH FORWARD

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Path forward (7/19/21 – 7/26/21)

- Shriner's Project:
  - Strain sensor
    - Explore more sensitive inks
- Shinjae Firmware:
  - ADS1299
    - Test with hardware to verify firmware
  - ADS1292

APPENDIX