



# BITNG LAB UPDATE

Carl Demolder

Date 7/08/2021

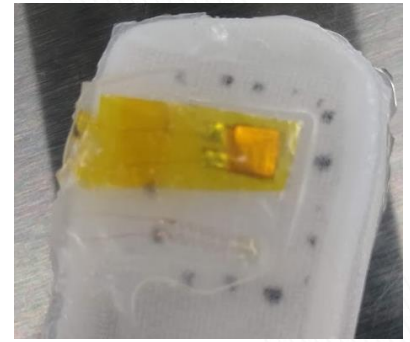
# Progress from last week

- Shriner's project
  - Strain sensor manufacturing
  - Temperature sensor calibration

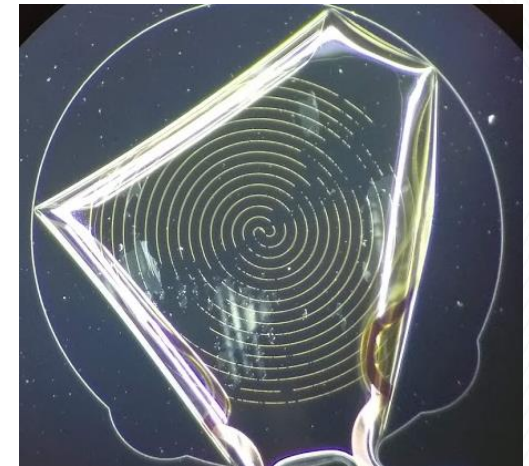
# SHRINER'S PROJECT

# Glove Assembly: Temperature

- Problem:
  - Temperature sensors are too fragile
    - Gold deposited spiral pattern breaks due to high strain when placing glove onto hand
- Possible Solution:
  - Place epoxy on spiral pattern to prevent high strain from breaking gold spiral pattern
- Result:
  - Epoxy did not prevent spiral pattern from breaking. Temperature sensors are too fragile to be placed on finger of glove.
- Path Forward:
  - Dr. YSK and Dr. Lim are going to analyze the manufacturing method for the temperature sensors



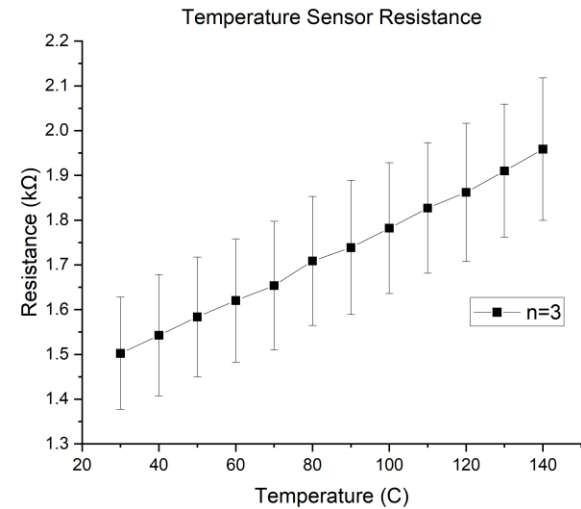
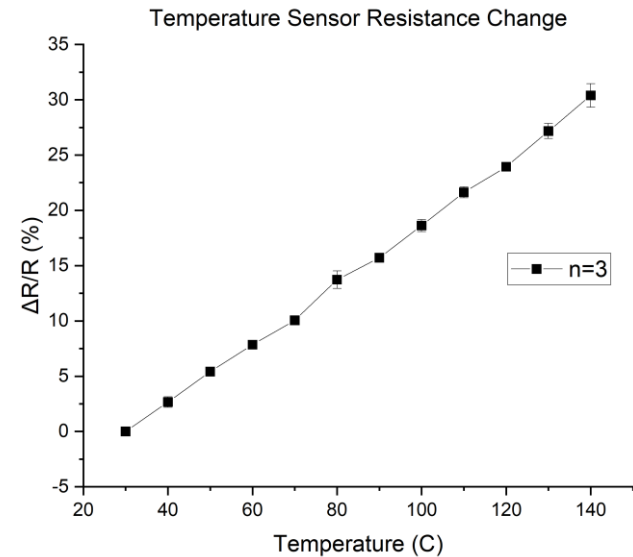
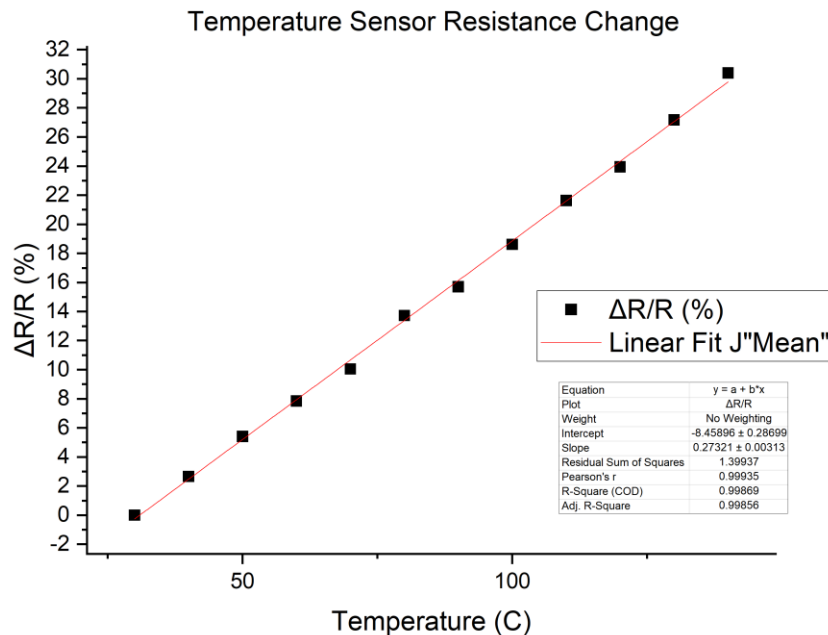
temperature sensors  
Mounted on glove



Broken temperature  
sensors

# Temperature Sensor

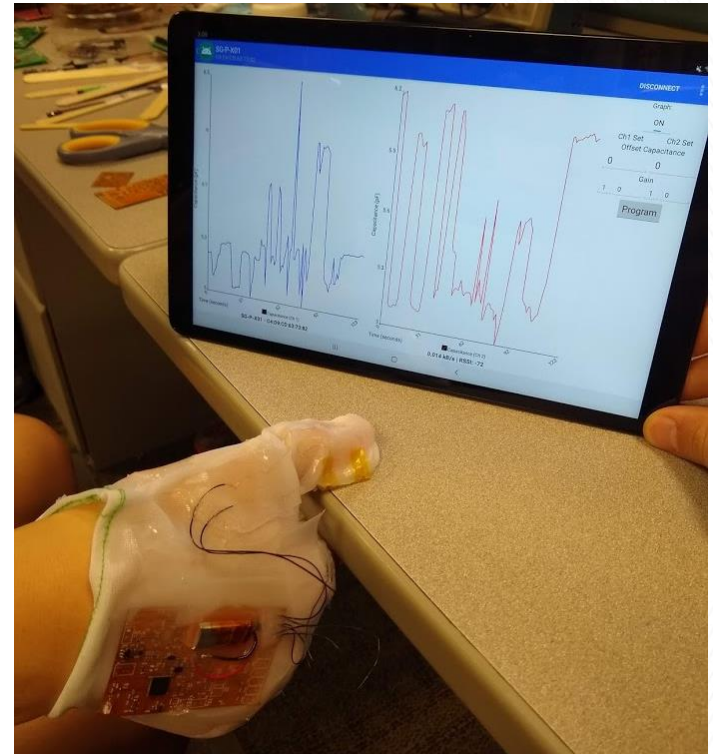
- Calibration method:
  - Encapsulated in PDMS
  - Sensor placed on hot plate
  - Temperature verified with IR thermometer





# Glove Assembly: Pressure

- Progress:
  - Mounted pressure sensors on glove
  - Encapsulated in EcoFlex
- To-Do:
  - ~~Mount Flex PCB on back of glove~~
  - ~~Solder wires to Flex PCB~~
  - ~~Test glove capabilities~~



Pressure sensor on  
Glove testing

# Firmware Development

- Firmware progress through Github:
  - Created nRF52 library holding to following:
    - Sensor drivers
    - Software drivers
    - SDK
    - Soft device
  - Created nRF52 project template:
    - Each repository will represent a new PCB
      - Contain the following:
        - Firmware
        - PCB
        - Assembly instructions
        - Operation instructions

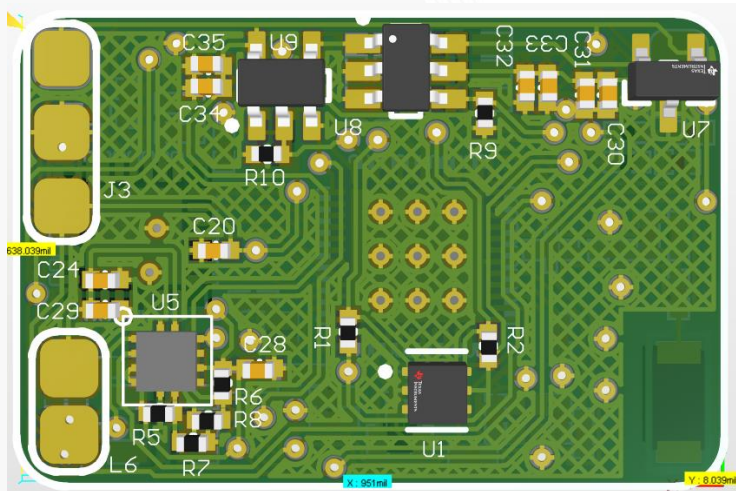
# Firmware Development

- Firmware progress through Github:
  - Created nRF52 library holding to following:
    - Sensor drivers
    - Software drivers
    - SDK
    - Soft device
  - Created nRF52 project template:
    - Each repository will represent a new PCB
      - Contain the following:
        - Firmware
        - PCB
        - Assembly instructions
        - Operation instructions

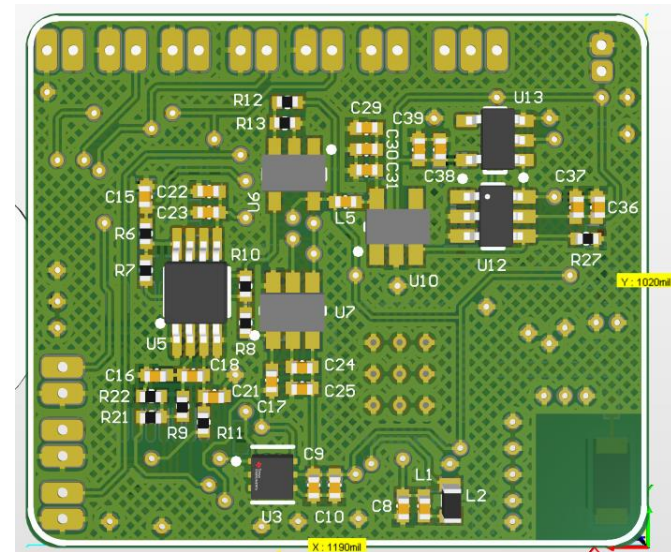


# Flex PCB: Procurement update

- Flex PCBs Arrived: 7/2



Low Power ECG X02



Wearable Sensor Glove X02

# PATH FORWARD

# Path forward (7/06/21 – 7/12/21)

- Shriner's Project:
  - Sensor glove assembly:
    - Strain sensor – Christine
- Shinjae Firmware:
  - ADS1299
  - ADS1292

# APPENDIX