Dr. Liu's Feedback

- Concern about structure design
    - Stiffness is very important
    - Can't be too strong or too weak
    - If the deflection is too small, the measurement will get lost in the noise
    - If the deflection is too large, the cutting accuracy is lost
    - Centrifugal force and cutting forces come into play
- Circuits aren't a major concern
    - Bandpass filter
        - Static dynamometer: bring the whole thing to the lab to test for frequencies need to filter
        - Us: we will need to test
            - Can design the filter by adjusting the resistors
            - Make the design easy to adjust
    - Digital filter will be easier to adjust the band
        - Will contribute lag - not good for real-time

Cutting Force Calculations

- Where do the deflection values come from?
    - Manually set; used to calculate cutting force
- What direction is the deflection in? It's not just in one direction…
    - Tangential direction.
- Is the displayed cutting force the full force or just one component?
    - Just one component
- Cutting force is used to estimate the deflection of cutter during milling in Dr. Liu's studies.
- Assuming what we have is OK, how do we use the deflections we got to choose the right design stiffness?
    - We used the calcs to find the max deflection for the max acceptable reduction in cutting force. Then use that deflection to calculate system stiffness.
- Develop a correction factor, set-up deflection range
- Run finite element to model structure and apply a load
- **The four arms are the most important part**
    - Design them so that we can vary parameters and observe effects on deflection
    - Strain gauge sensitivity needs to be tested
- **Send Dr. Liu our UIDs for lab access**
- Wants relative error within 20 to 30 Newtons for cutting force