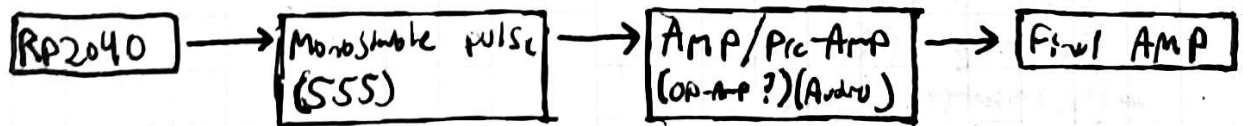


# Kyle Fox Engineering Journal - Senior Design 2023-2024

- 09/15: - Meeting with Dr. Brown about what system
- 09/19: - Group planning & discussion at work
- 09/21: - Solidifying tasks, using GIT, planning items for each  
or us to work on  
- Find IC, ADC, Hardware for system
- 09/26: - IC = Raspberry Pi Pico  
- Next to solidify ADC  
- Use one-shot pulse generator for pulse  
- Use charge circuit for amplifier
- 09/28: - Documentation [SDD SRS]  
+ Look into pulse amplifiers  
+ Look into ADC's
- 09/29: - Meet Dr. Brown again  
- 80 MSPS needed for ADC  
- Possible expansion of more inputs  
- Next Design check before purchase of items  
- Create a platform for him to send us - next file  
+ Design amplifier  
+ System Setup, Block Diagram



$$+ 1/54 \text{ kHz} \rightarrow 18.5 \text{ ns}$$

$$+ 1/500 \text{ kHz} \rightarrow 2 \text{ ns}$$

$$+ 555 \text{ minimum pulse}$$

$$0.5 \text{ ns} \rightarrow 500 \text{ ns}$$

10/03: - Wait  $\approx 7.5$  min to charge capacitor initially  
- 15 GPIO pins for Controller/display system  
- Stop button flow at 11V  
- Freqs controlled by I2C  
+ 5.6K & 3nF

+ Filter input to ADC  
+ Matching impedance for ADC  
+ ADC Buffer chip [FPGA]  
+ BNC connectors

10/05: - Presentation

10/10: - Looking over new ADC  
- Timing circuit

10/12: - Discussion of future plans

10/17: - Moving things to my lab  
- Discussion

10/18: - Meeting with Dr. Brown  
- Will use oscilloscope in future work, want design one

10/25: - Purchase planning  
- Work with oscilloscope  
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10/26: - SPI & SPD  
- Purchase list cleaning  
- Presentation prep

10/31: - Oscilloscope work

CH1
- Sine wave 50Hz, 400mV
CH2
- Pulse 50Hz, 4V, 0V offset, 200ns pulse width

- SRS & SDD Finalization V2  
2.3 & 4.3 sections

11/02: - Presentations

11/07: - Purchasing Items  
- planning RP Pilot Control  
- Addressing work on OS/USAPC

11/09: - Planning build Process

11/14: - Purchasing items with VRT  
- planning & RP2040 code

11/16: - Work on RP2040 code  
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