

Team 28: Guitar Entertainment System

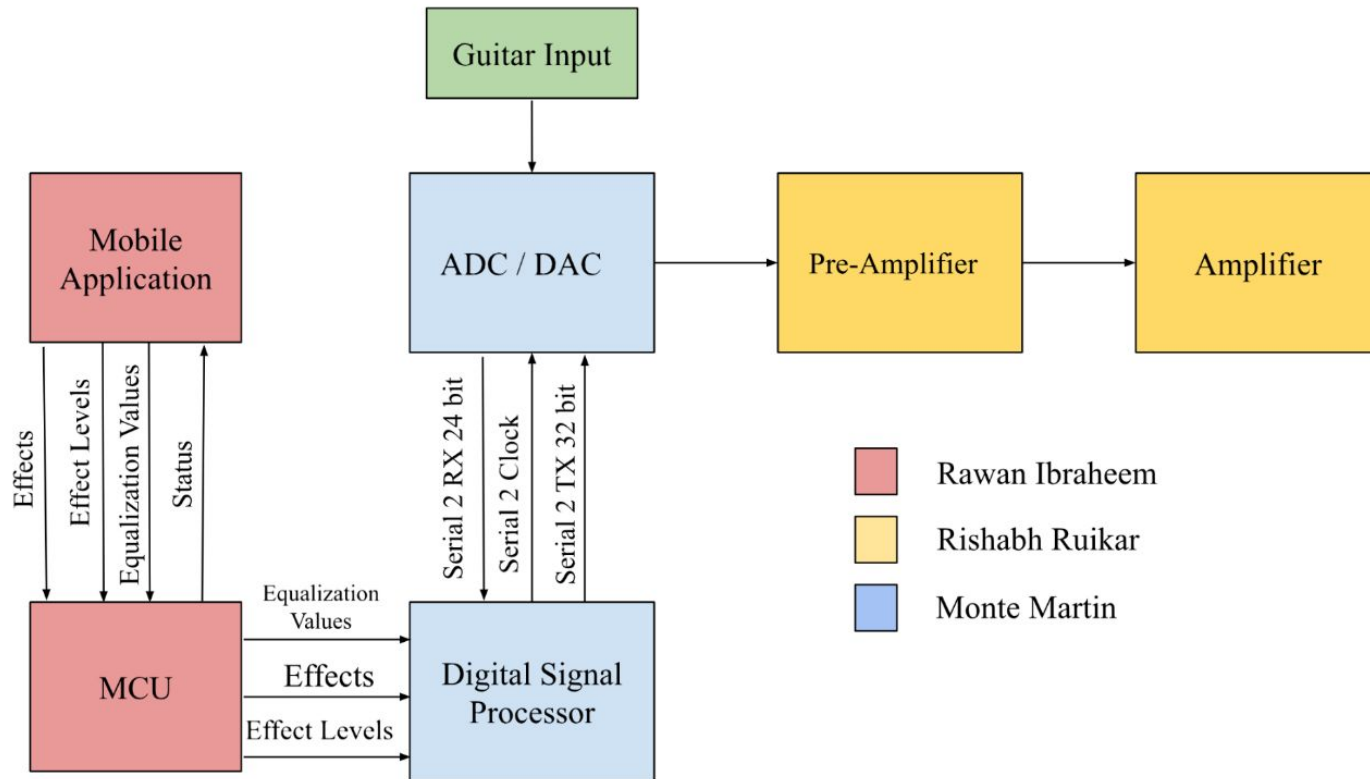


Figure 1. Guitar Entertainment System block diagram. The system will control guitar sound effects through a bluetooth connected Android application.

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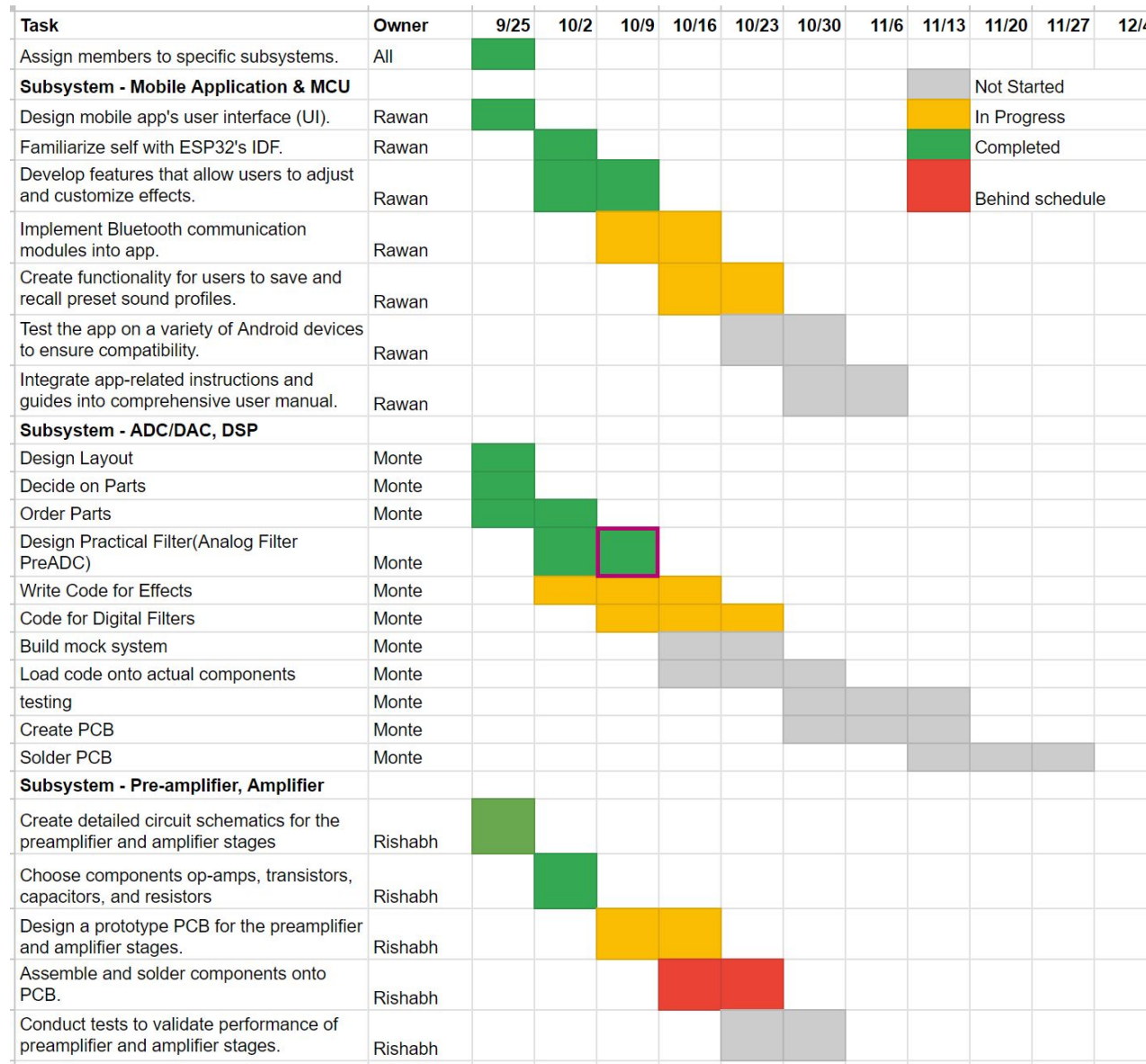


Figure 2. Timeline showing status of tasks.

Amplifier

Rishabh Ruikar

Accomplishments since the last presentation 12 hrs	Ongoing progress/problems and plans until the next presentation
<ul style="list-style-type: none">● Finished all digital simulations, and tweaked all relevant values (resistor and capacitor) to my liking● Added potentiometers for equalization	<ul style="list-style-type: none">● Have a completed PCB by next presentation, ideally have it ready for fabrication by 10/23

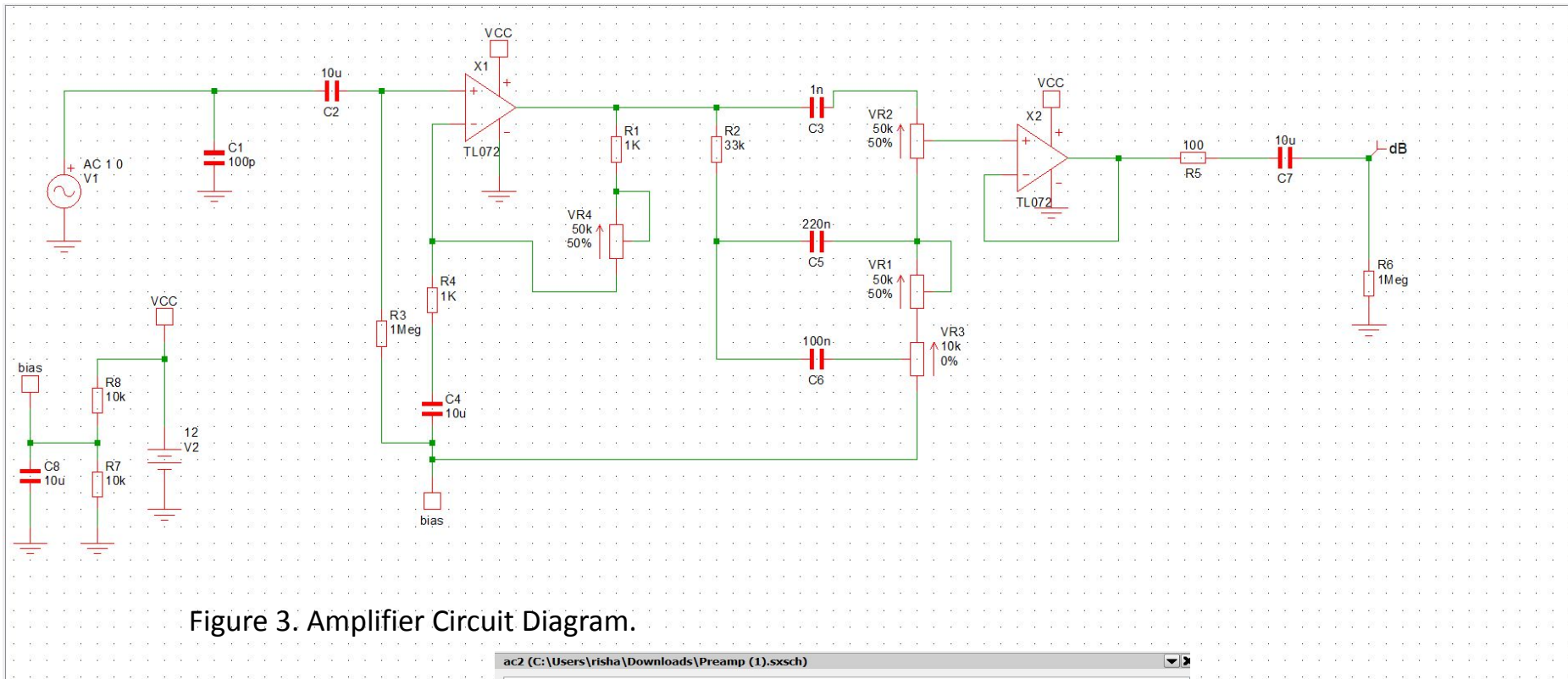


Figure 3. Amplifier Circuit Diagram.

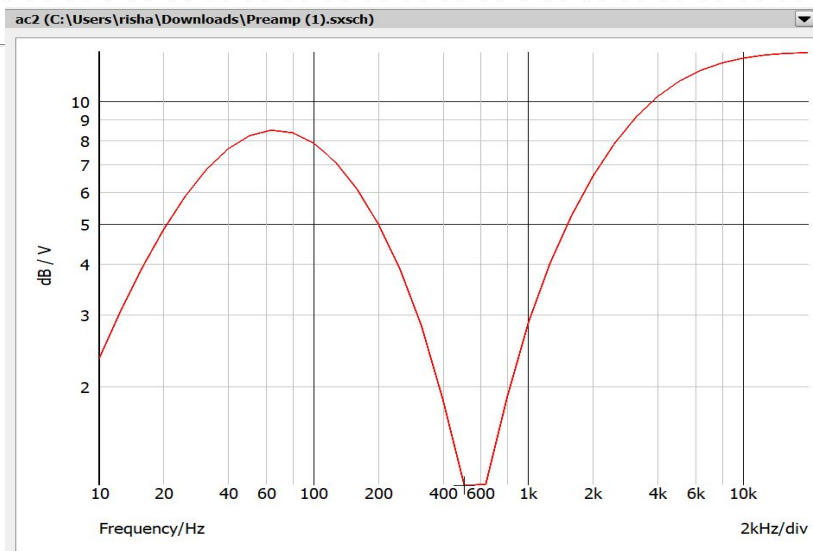


Figure 4. Amplifier AC Simulation Graph (400-1kHz represents muddy frequency).

DSP/ADC/DAC

Monte Martin

Accomplishments since the last presentation <12> hrs	Ongoing progress/problems and plans until the next presentation
<ul style="list-style-type: none">• Selected designs for ADC input Buffer, Reference, and Clock, and created schematic footprint• Selected Hardware Configuration for DAC, as well as schematic footprint	<ul style="list-style-type: none">• Currently finalizing schematics and beginning PCB work• Coding effects and the DSP

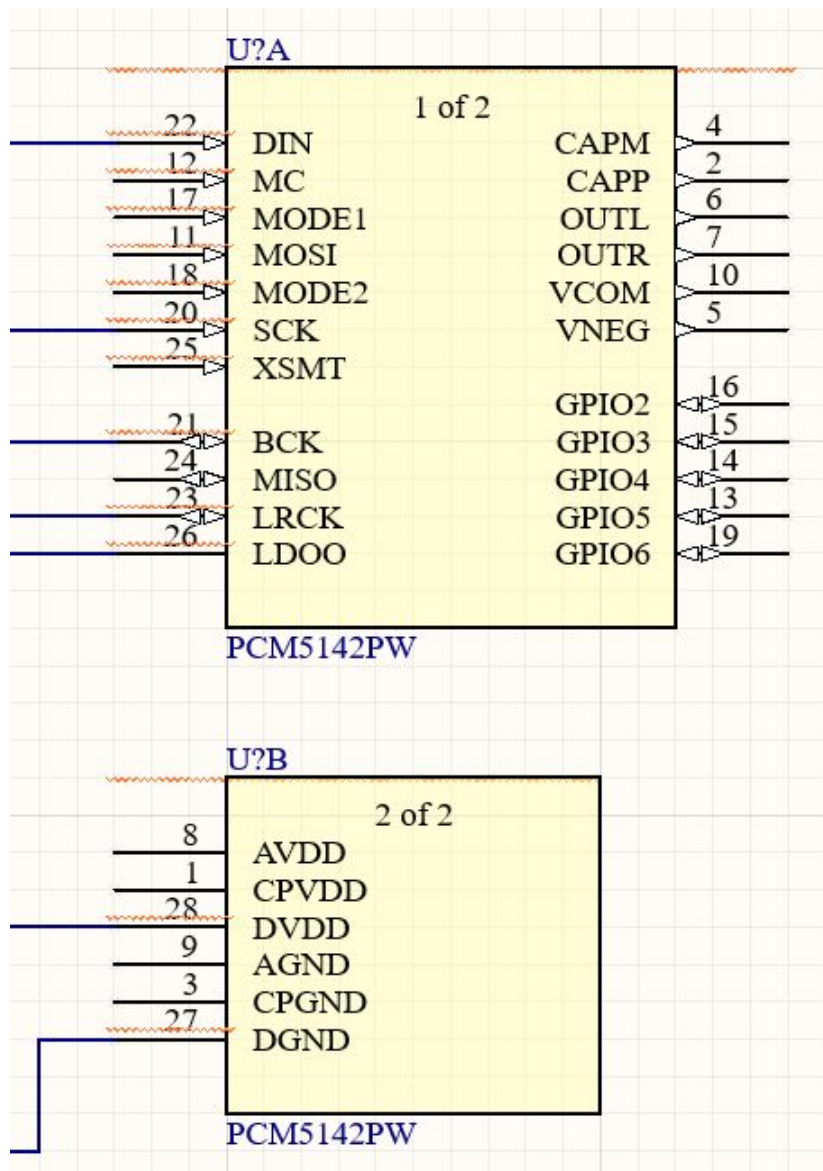


Figure 5. DAC Schematic Model.

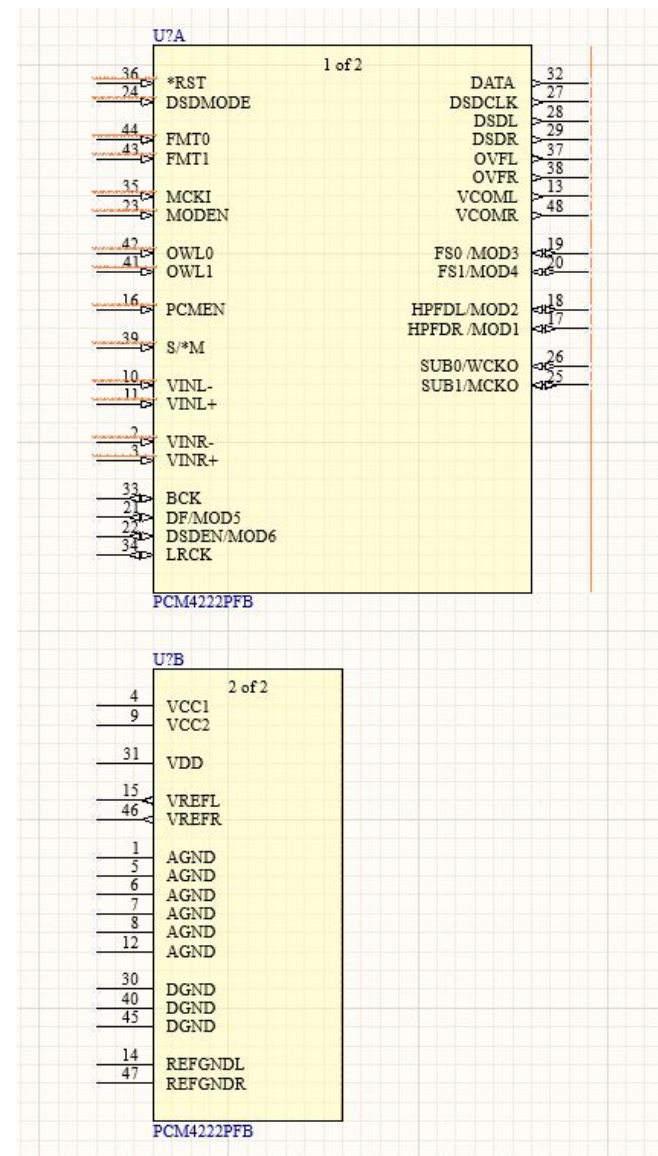


Figure 6. ADC Schematic Model.

Application and MCU Code

Rawan Ibraheem

Accomplishments since the last presentation 15 hrs	Ongoing progress/problems and plans until the next presentation
<ul style="list-style-type: none">- Ran app on emulator without crashing- Fixed navigation issues, changed from navigation graph to a different method- Implemented functionality for all effects- Ran the effects on emulator to ensure the slider, save, and close buttons work	<ul style="list-style-type: none">- Implement Bluetooth communication modules into app.- Create functionality for users to save and recall preset sound profiles.

The device uses 1-14% CPU on a Pixel 7 and uses an average of 197.4 MB of memory. It is expected to use more memory as users add and save sound effect profiles.

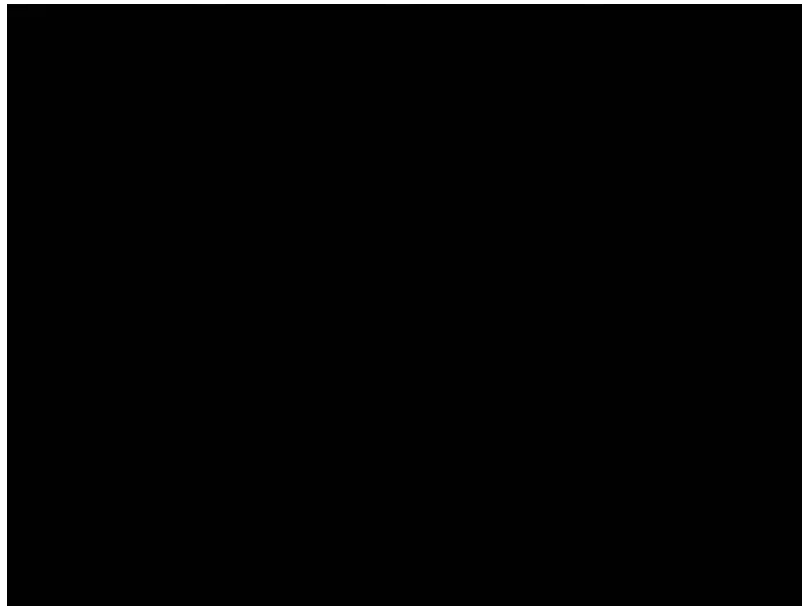


Figure 7. Application simulated on Google Pixel 7 in Android Studio.

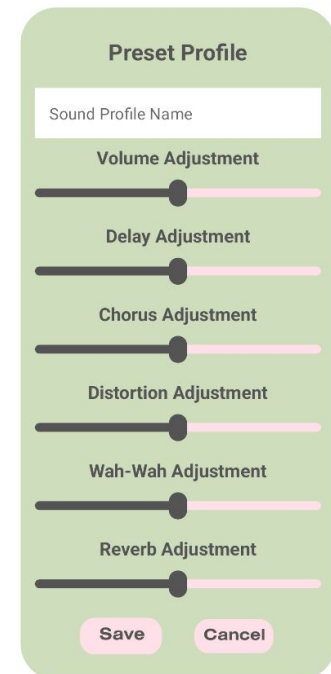


Figure 8. UI element for creating a sound effect profile.