Team #6
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Design Reviews

Reviewed by Team 7: Jack and Edward Sunday November 16, 2025
Jack as Reviewer:

- LED Resistor should be small
- Ground symbol instead of net label
- Adding an LED to the 3.3V rail
- Add in test points, Block diagram says battery

Questions:
Where are DIN and DOUT doing? What is that doing?

- It's the digital communication for the shield to the microcontroller. "That" Was the teensy audio shield that has built in functionality for ADC and DAC use with Teensy

What are the trace widths?

- 0.25 mm for data
- 1.0 mm for power

Edward as Reviewer:

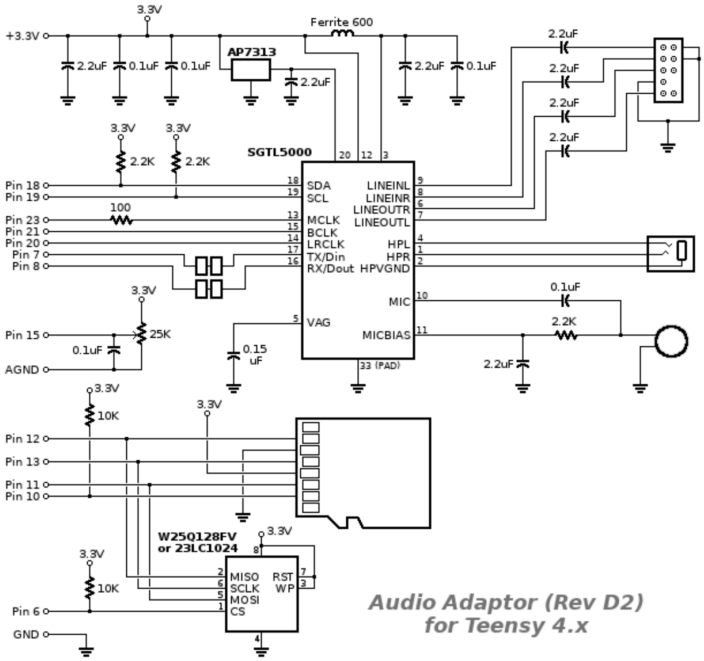
- Since it is only 1 page connect pins with wires instead of net labels
- Use labels for GND and 3v3 rails
- Make sure you hit SMD requirement for grade
- Rotary encoders examples should use a pull up resistor. They have them on the module
- GPIO's look like they are receiving the right thingies

Questions:
Does the audio shield have a blocking capacitor?
https://www.pjrc.com/store/teensy3_audio.html

- Yes on line in and out there are 2.2 uF caps

What schematic revision are you using for the audio shield?

Schematic, Rev D2



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Rotary encoders are you planning on using the “click”?

- The click needs resistors or something to pull the up. Planning on changing the toggle switches to rotary encoder clicks. Will use internal pull-ups in the code

Toggle switches are you using internal pull up resistors in your code

- YES? Code uses internal pull up for toggles

Can you plug in USB to boards to make sure they are the correct height?

- Yes. Board will be above the PCB enough to plug in.

Reviewed by Team 3: Alex and Jon Tuesday November 19, 2025

PCB Layout (Easy EDA so schematic and PCB too)

- Rotary encoders, LEDs, mounting holes, Teensy and audio shield
- Need test points on schematic/PCB
- All effects on at once when rotary encoders all clicked / toggled
- SMD leds

Functional Decomposition (Block Diagrams)

- I2C and I2S used for control and audio signals between Teensy 4.1 and Audio Shield
- Audio effects are reverb, tremolo, bass boosting. Not on block diagrams but effects work

Power

- One source only
- Power bank to Teensy 4.1 and use the 3.3V pins
- Using micro usb port on Teensy for power

Extras

- Silk Screen details on PCB are there
- Switched from Toggles to using rotary encoders as our toggles
- Don’t have bifurcation ability
- Mounting holes and enough space between components
- Flooded ground but still need vias
- Is the PCB big enough to fit everything? Yes and we could make it smaller but want to avoid making it too small and not work as well in case we need future modifications.
- Board looks good in 3-D as well
- The audio jack on the shield is the output and the input is the external audio jack.