Supercon 2022 East Van Badge Addon

@TomKeddie

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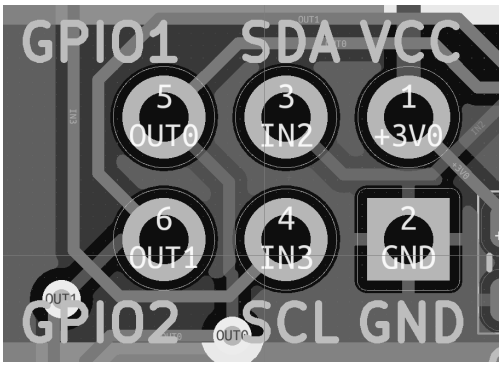
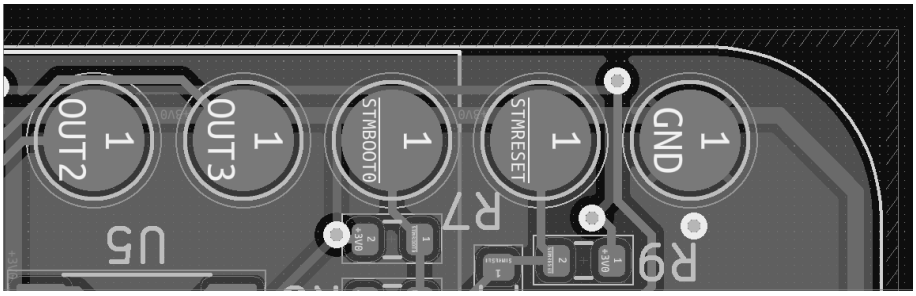
General Notes

- You've been given a random piece of hardware by a random guy. No warranty implied, use at your own risk.
- **PLEASE REMOVE ANY AA batteries from the badge before powering using the 18650 or USB-C**
- **There is limited clearance between the battery +ve and speaker ground, please don't remove the hot glue.**
- Schematic is on the rear of this sheet
- As per schematic the power for the speaker amp can come from the 3V regulated supply or the raw 18650/usb power. This is selected by a solder jumper near the speaker (defaults to 3V).
- If the speaker is too loud, replace one of the wire links to the speaker with a small resistor
- The stm32 watches the OUT0-3 pins and updates the display on change. The display shows the current value and the last 3 values. It is somewhat debounced by the scan of the multiplexed display.
- The dip switch numbering is a little odd, use the label on the silk and ignore the text on the switch. Up is low down is high.
- Kicad and stm32 source can be found at supercon2022.tomk.in
- The shunt on the top is used to select which output the speaker is connected to (OUT0 or OUT3). To disable the speaker you can remove it.
- Mechanical design was done off a picture of the badge so the alignment is a little off but workable
- 18650 protection circuit is a little problematic, can be hard to reset
- There is no charging circuit but it is safe to have both the 18650 and the usb connected, the usb will take precedence as it is a higher voltage.
- Board was designed in a rush so there are lots of little things that could be better (as above!)
- SAO pinout is illogical



STM32 Notes

- Test point pinout is reasonable



- To reprogram the stm32 you need to hold boot0 high whilst powering on or resetting the board
- As per schematic on reverse side, SWCLK is connected to OUT3 and SWDIO to OUT2
- STM32 reset is connected to badge reset