Challenges

Here lies the Hurdles and Hills that have Stalled and Stunded the progress of our project.

Dustin: (initial brainstorm phase, incomplete)

Team:

PCB:

Routing
Orientation
Footprints, placed some then realized needed to change so had to re-route.

Hardware:

Dev board is easy to have errors after assembly.

- Bridging of pins without it being clear that is the issue.
- Lack of auto tester rig.

Pins 10 through 13 don't work as expected for the standard SPI arrangement. They appear to have too much capacitance. Next need to try pull up resistors on the pins to see if the signal works
Since we didn't get our hardware before the PCB was submitted we had to infer which pins would work for our peripherals without being able to test them.
We had to find the correct capacitance and resistor values for our buttons experimentally. Because we used VCC (3.3 V) as our input to our buttons we had to use the internal pulldown resistors of the ESP32's gpio pins. This meant that the capacitor and resistor values that worked for our device are much smaller than anticipated. We used a 0.1 µF capacitor while shorting the resistor that is in series with the button. This adjustment is necessary because otherwise, the button would repeatedly activate the interrupt and our software would repeatedly execute the related function.
The default storage/partition for the ESP 32 s3 is too small and had to be changed.
GPIO 45 & 46 ar strapping pins, therefore can be used for anything other than boot and reset.

Software:

Different libraries tend to clash. While we can get individual components to work appropriately on their own. Once we glue them together in software we keep running into crashes and bootlooping.
Several attempts to find the right libraries for the LCD and the correct versions so everything works together.