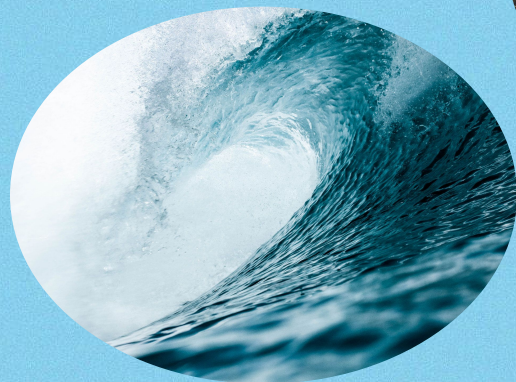


SmartFin

Ela Lucas, Jordan Reichhardt, Josephine Dominguez, Emily Thorpe



Ocean Health Metrics



Wave Height



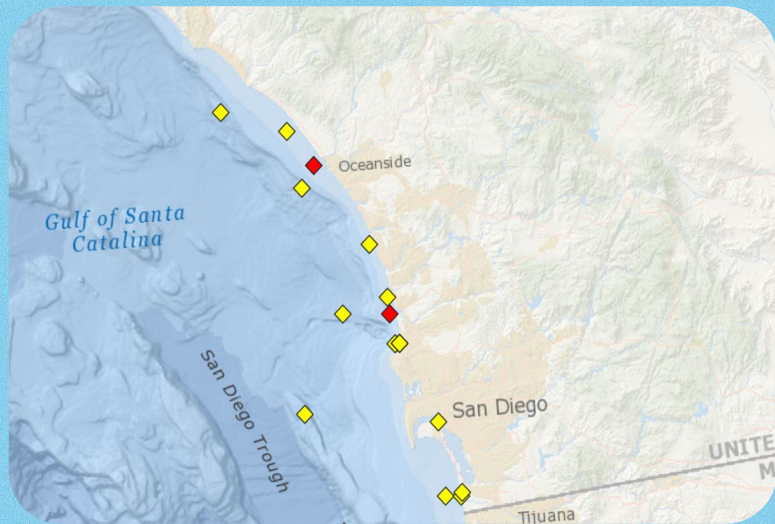
pH Level



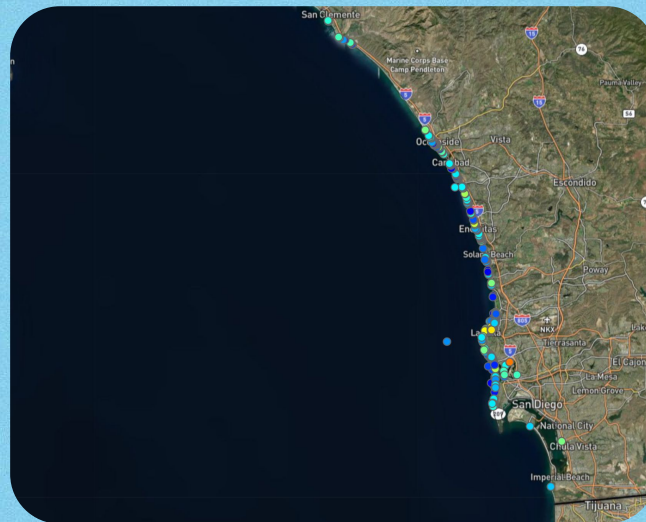
Salinity Level

Ocean Health Data

NOAA Buoy Data

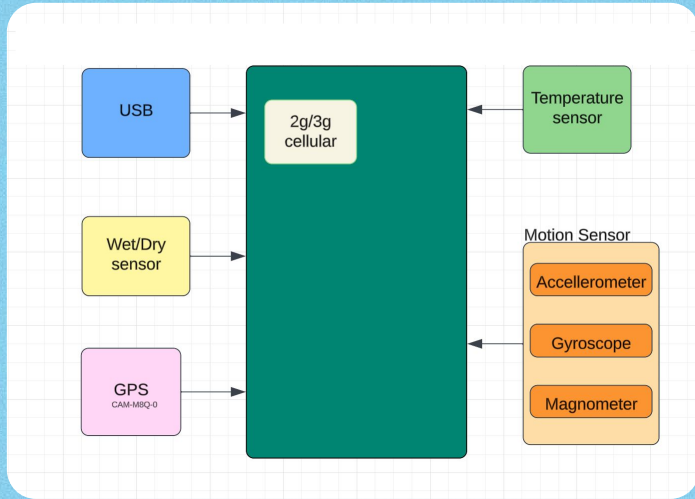


SmartFin Data

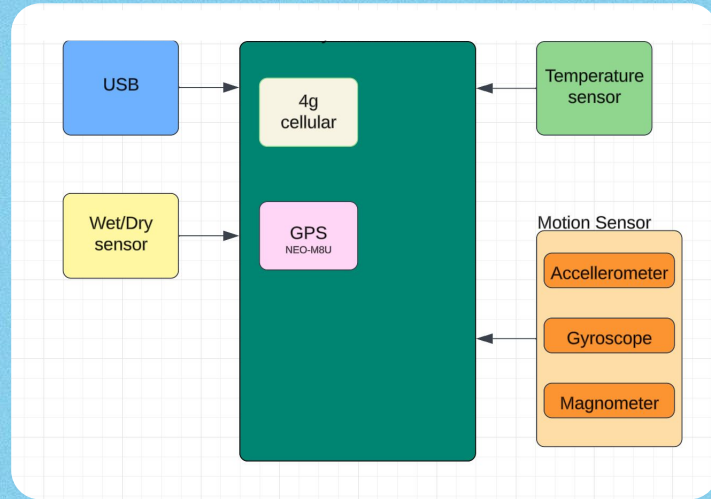


Transitioning from E-series to TSoM

E-series



TSoM



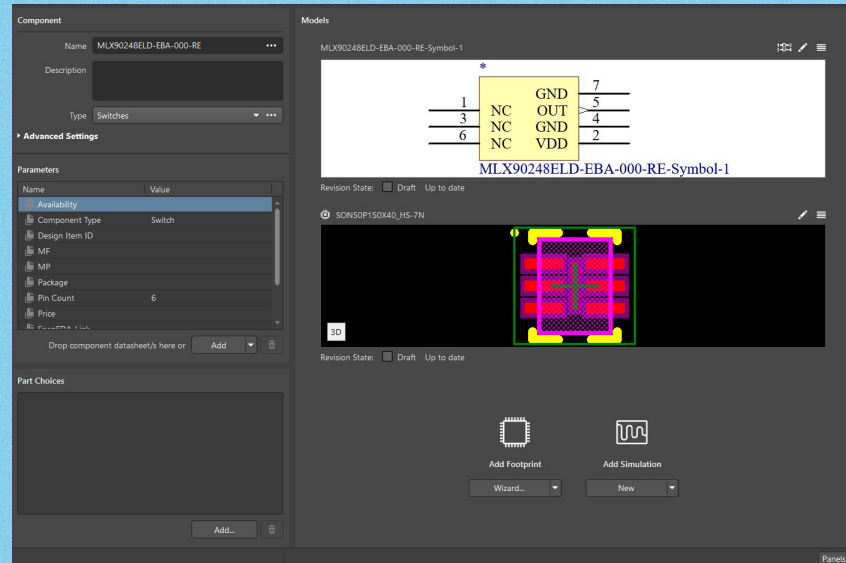
Transitioning from E-series to TSoM

- Porting over firmware from E Series to T-Som, reusing logic and rewriting firmware

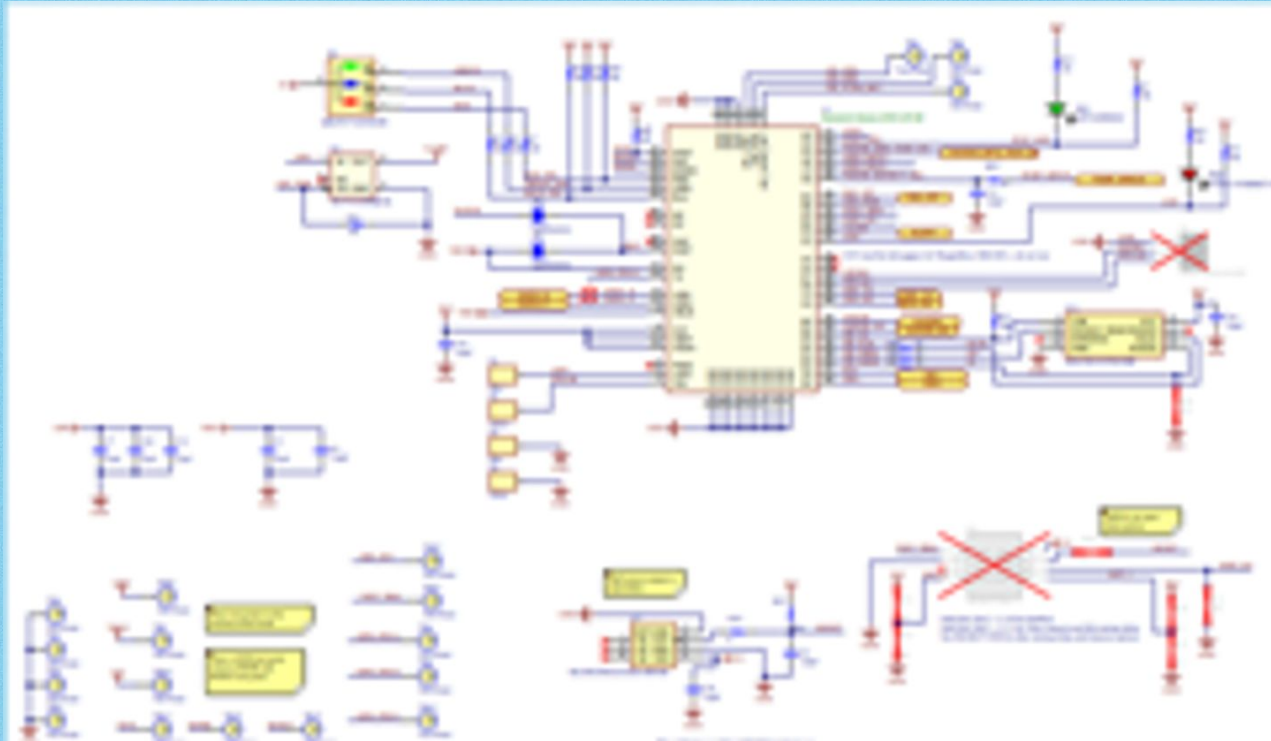


Altium Development

- Previous library did not exist
 - LEGO analogy - recreate components
- Schematic to footprint
- Updated circuitry to reflect T-SoM

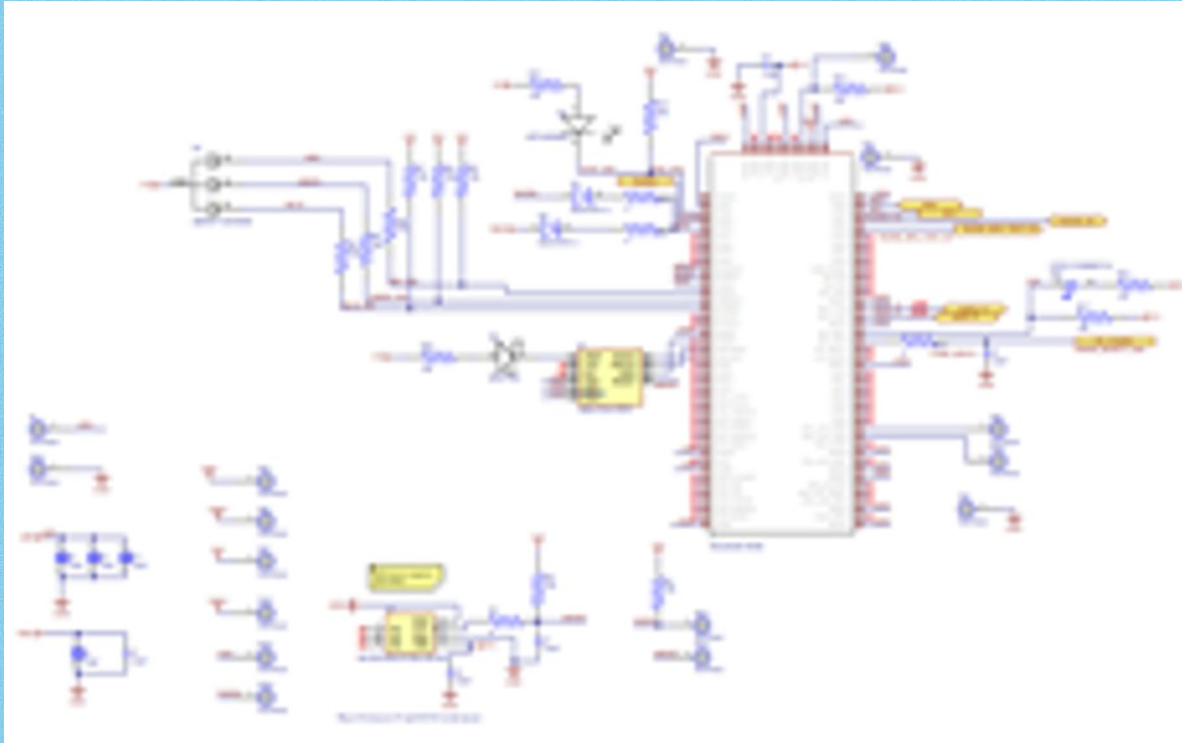


E-Series



Redacted schematic for public display

T-SoM

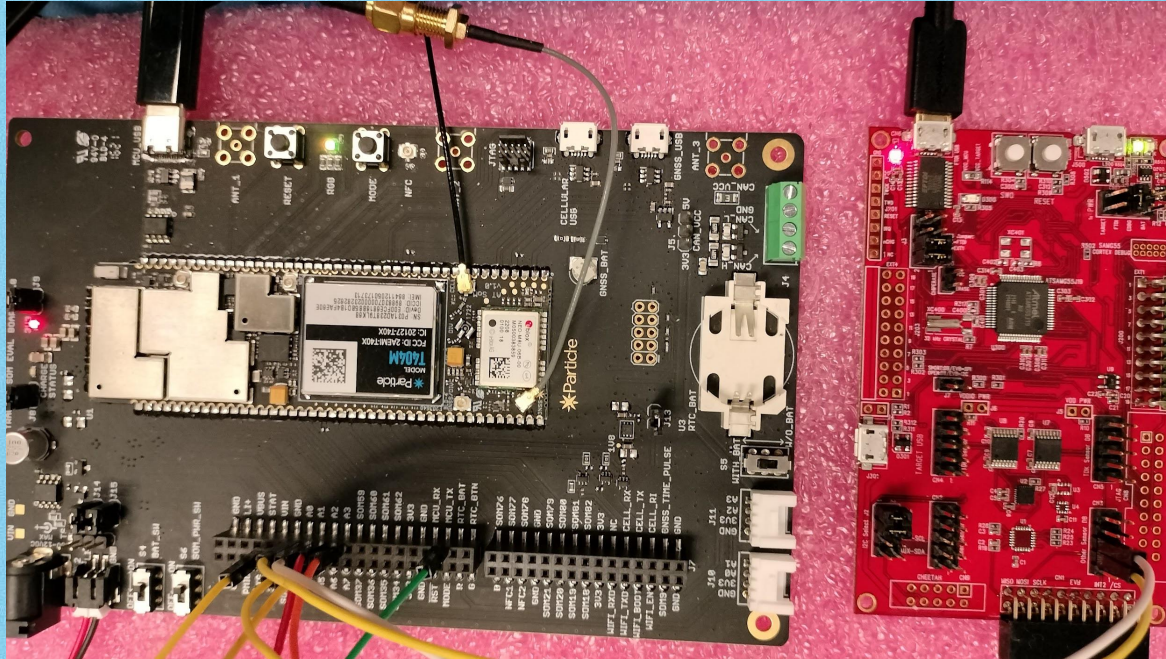


Redacted schematic for public display

Sensor Development

- Current sensors
 - GPS, Wet/Dry, Accelerometer, Temperature, Gyroscope, Magnetometer
- Some sensor code stayed the same, such as temperature and wet/dry, making integration easier
- Others, such as GPS and Accelerometer/Gyroscope, had to be rewritten fully with the assistance of outside code libraries

TSOM Eval Test Bench



Integration

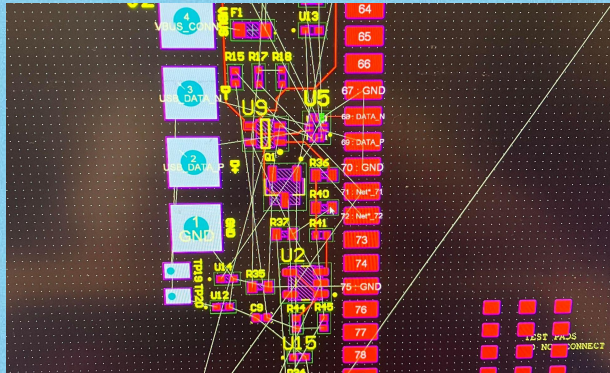
- Firmware integration of sensors
 - Upload and Data storage components had to be rewritten, as the T-SOM uses a different onboard filesystem than the E-Series
 - Overall “ride” data collection logic largely stayed the same from firmware v2

```
COM4 - PuTTY
Starting state: CLI
Smartfin FW v3.1.0
FW Build: Aug 22 2023 14:06:46
>
```



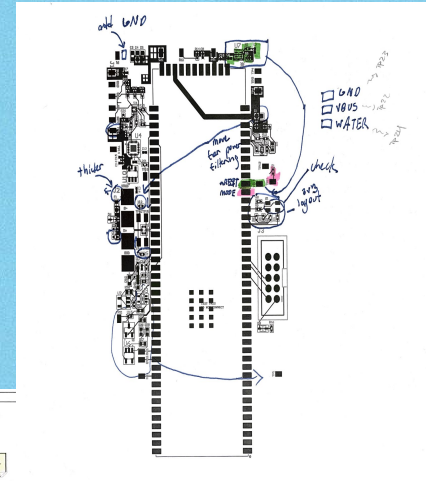
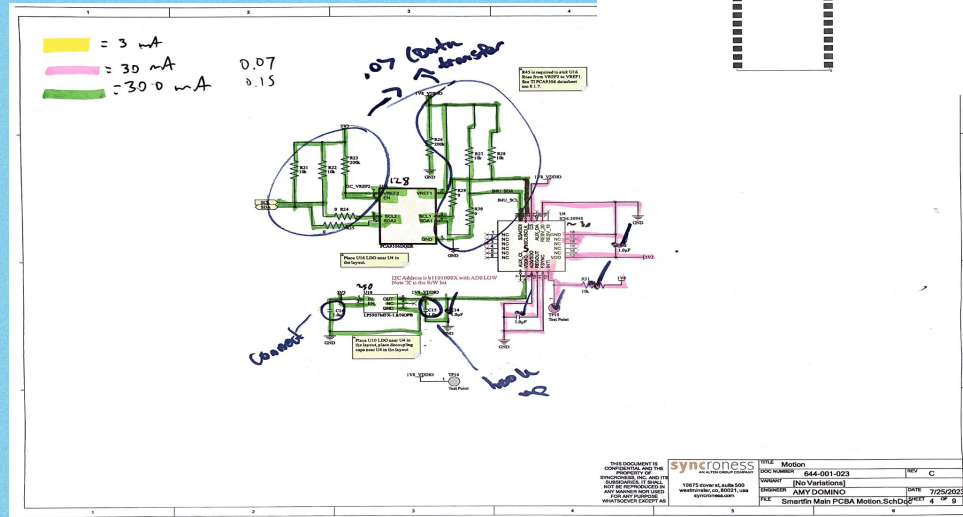
PCB Design

- Conversion from schematic to footprint
- Laying out wires, “routing”
- Design Rule Check

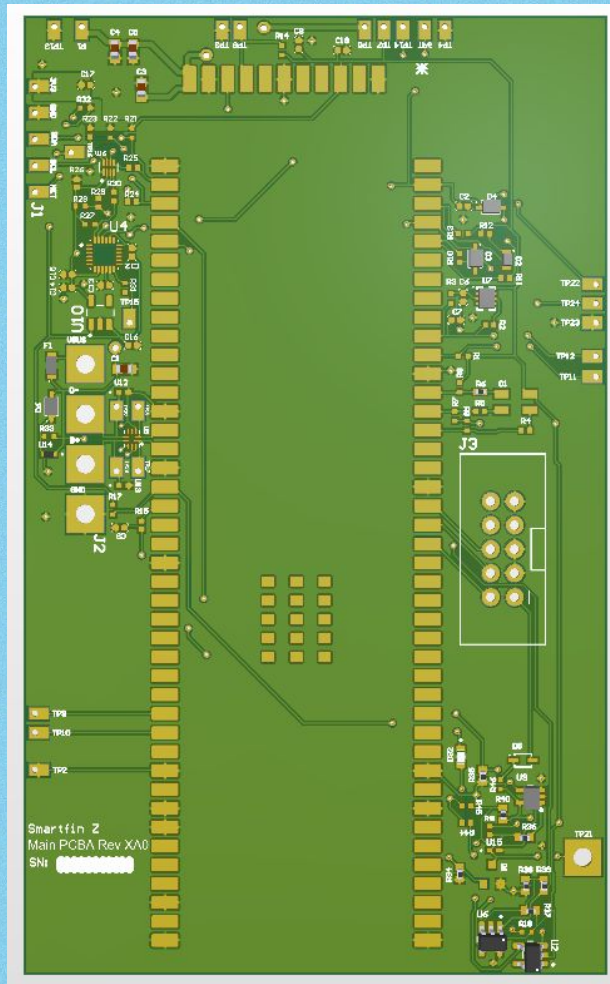


PCB Editing

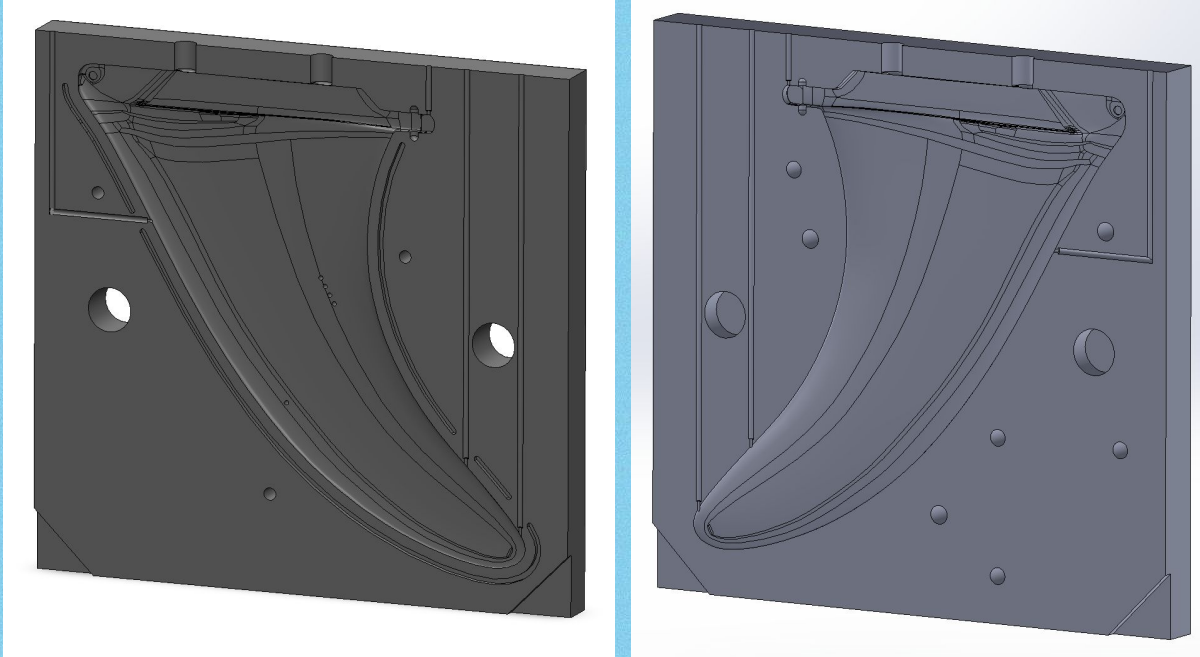
- Lots of paper!
- Important layout considerations
 - Amperage
 - Size
 - Component location
- Iterative process, used version control



Final Board



SmartFin Mold Design



Future Plans

Contact Us

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