



VSENS

Remote Monitoring System

Abdullah Ahmed | Kauri Mai | Forrest Zhou | Andrew Yanez | Rachit Gupta

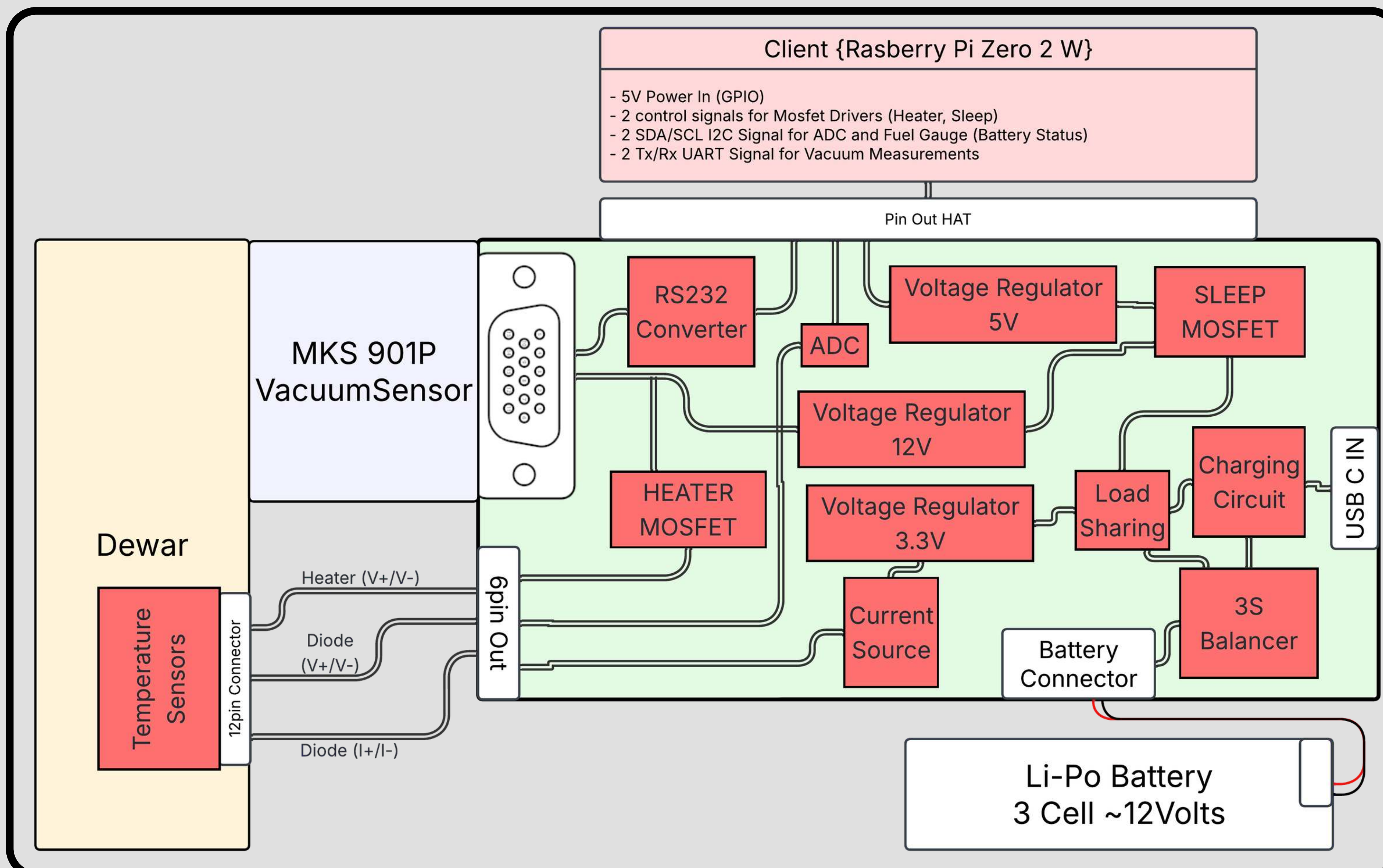
Problem

Cryogenic Sensor Test Units (STUs) are essential for developing infrared imaging devices and rely on high-quality vacuum conditions and cryogenic temperatures of 80 Kelvin. This is required to prevent ice formation and damage of sensitive equipment. As a result, a monitoring system is needed to alert users of vacuum levels and maintain optimal temperatures.

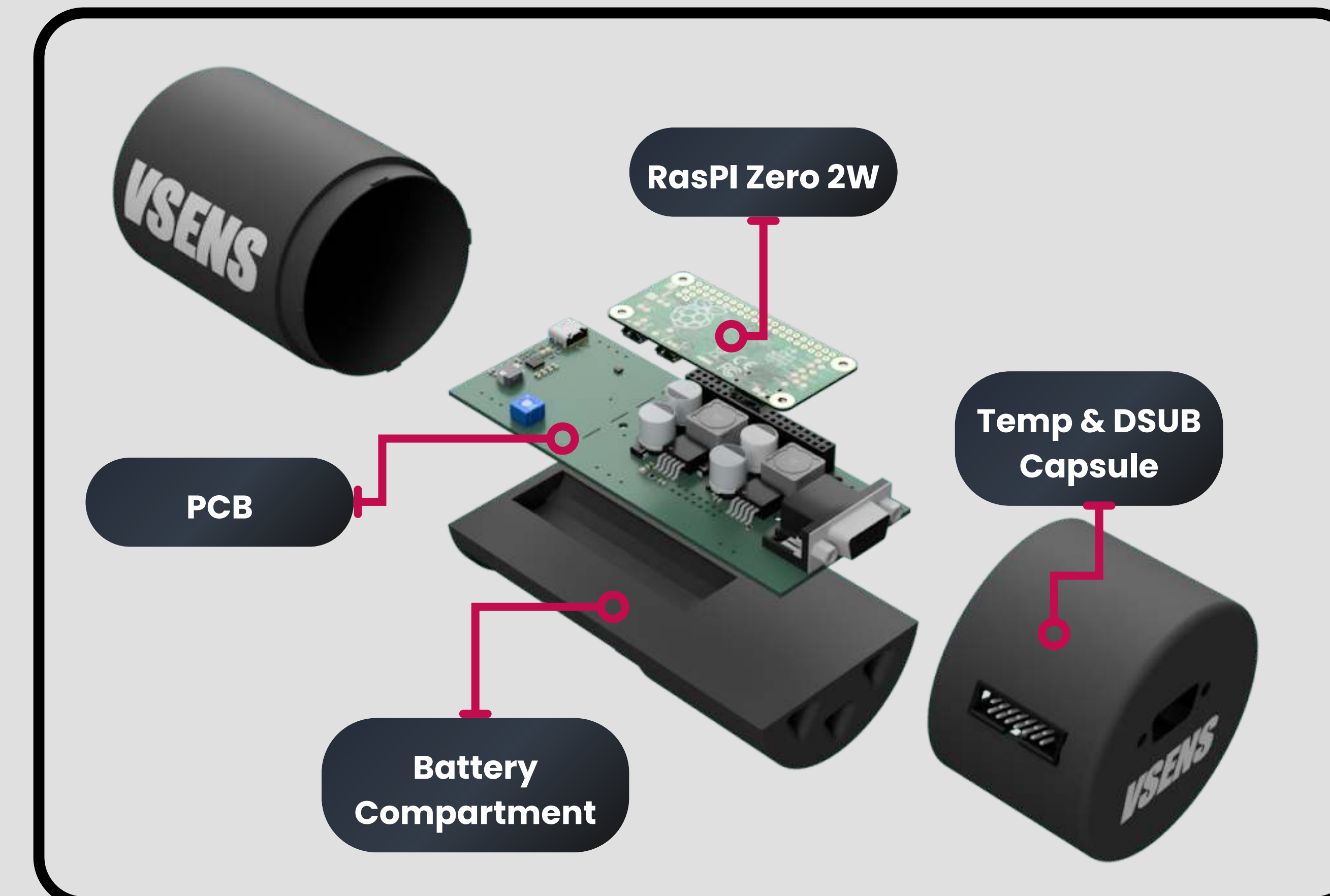
Solution

To meet this need, VSENS has developed a scalable, networked remote monitoring system utilizing a custom rechargeable hardware circuit that interfaces with each STU to control temperature and read vacuum levels. All data from these multiple unit are routed to an intuitive, centralized (GUI) dashboard and database, allowing users to easily visualize real-time metrics across the entire lab environment at once. Furthermore, users can control temperature, decide on setpoints, configure email alerts, and enable low power configurations.

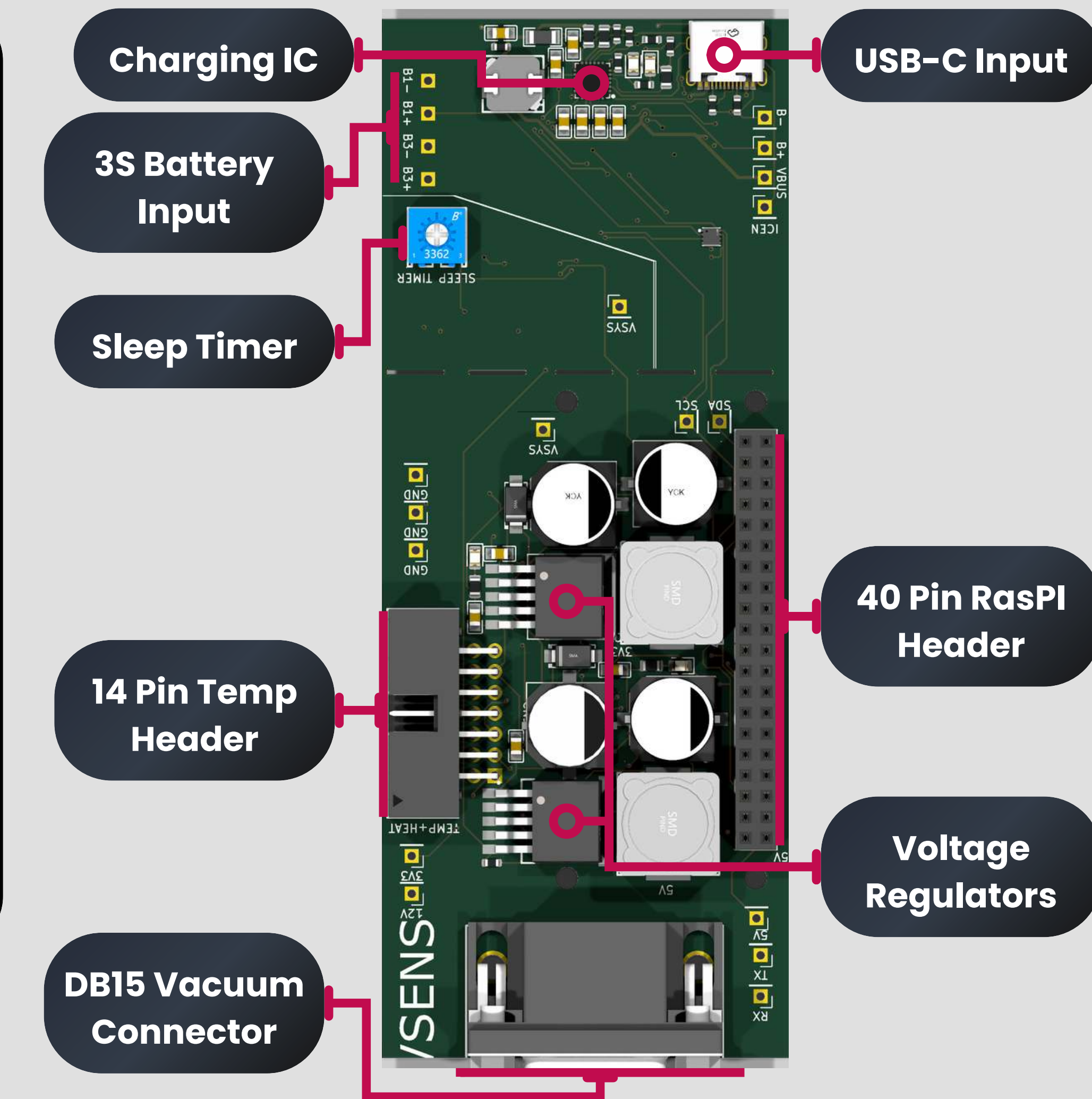
Block Diagram



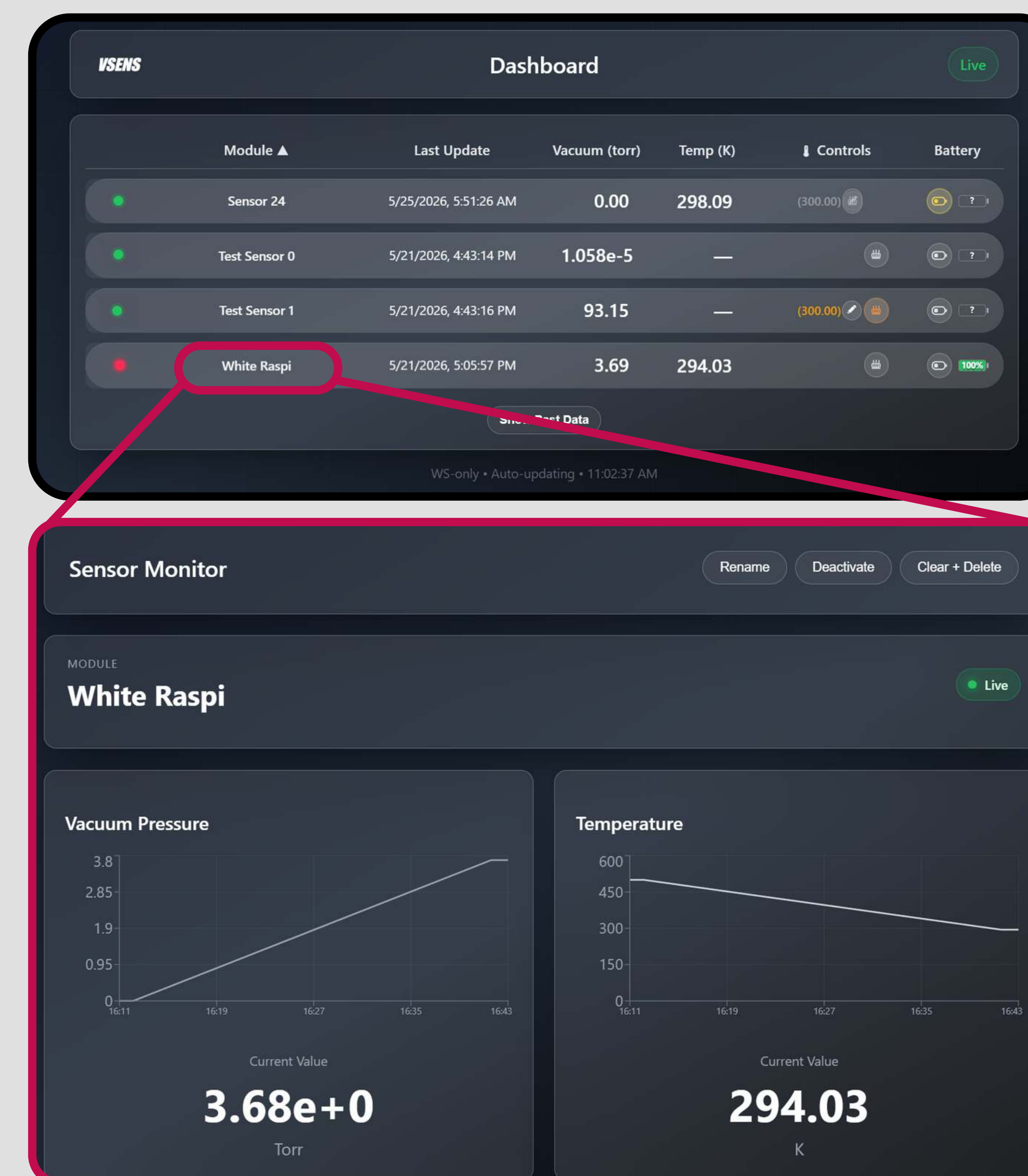
Hardware



PCB



User Interface



Final Product



UCSB

Acknowledgements:

Special thanks to Professor Isukapalli, Lucas Liang, Kenton Veeder, Nishant Dhawan, Alex Russell, Greg Pierce, Ritesh Bhatt for your help.

Senseker