

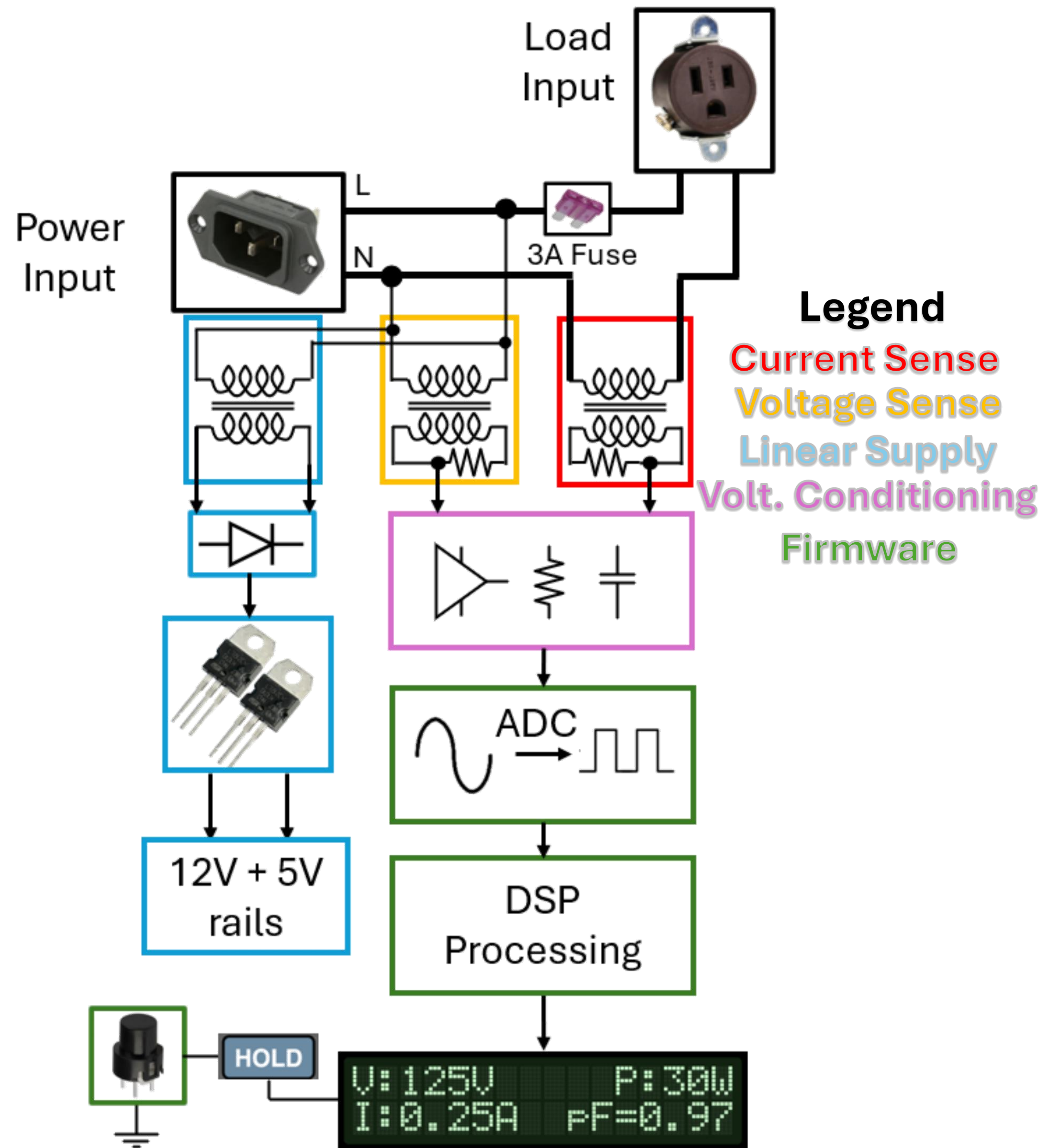
scan me!

W.A.S. Wattage Analysis System

Project Description

The Wattage Analysis System [WAS] is a single-phase pass-through wattmeter targeting appliances running from a 105V AC to 125V AC line voltage. The WAS measures current draw from 0.50A to 2.00A, power draw from 50W to 250W, and power factor from 0.80 to 0.99. All measurements have a tolerance of $\pm 5\%$.

Design Overview

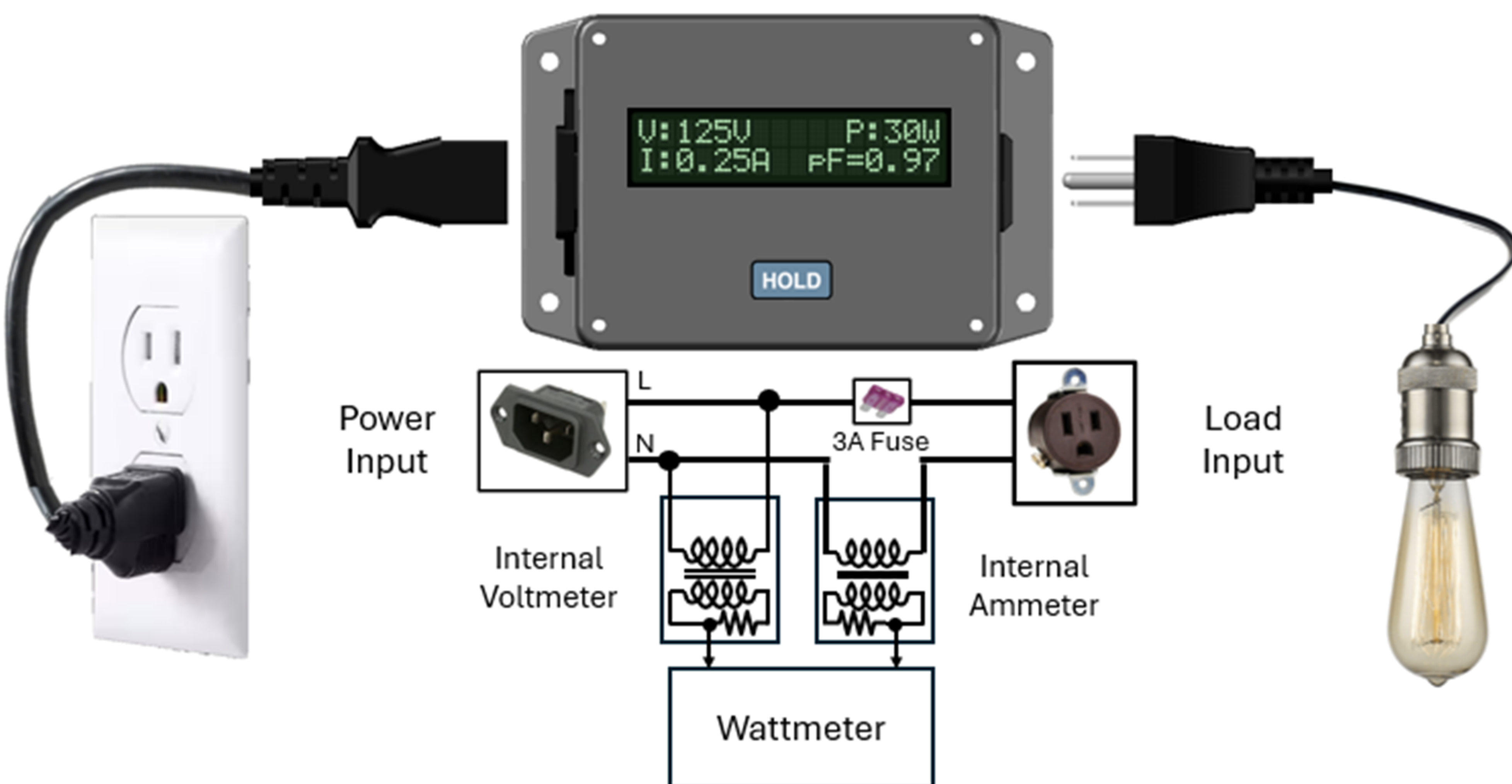


Operational Diagram for the WAS. Thicker lines correspond to higher current.

Acknowledgements

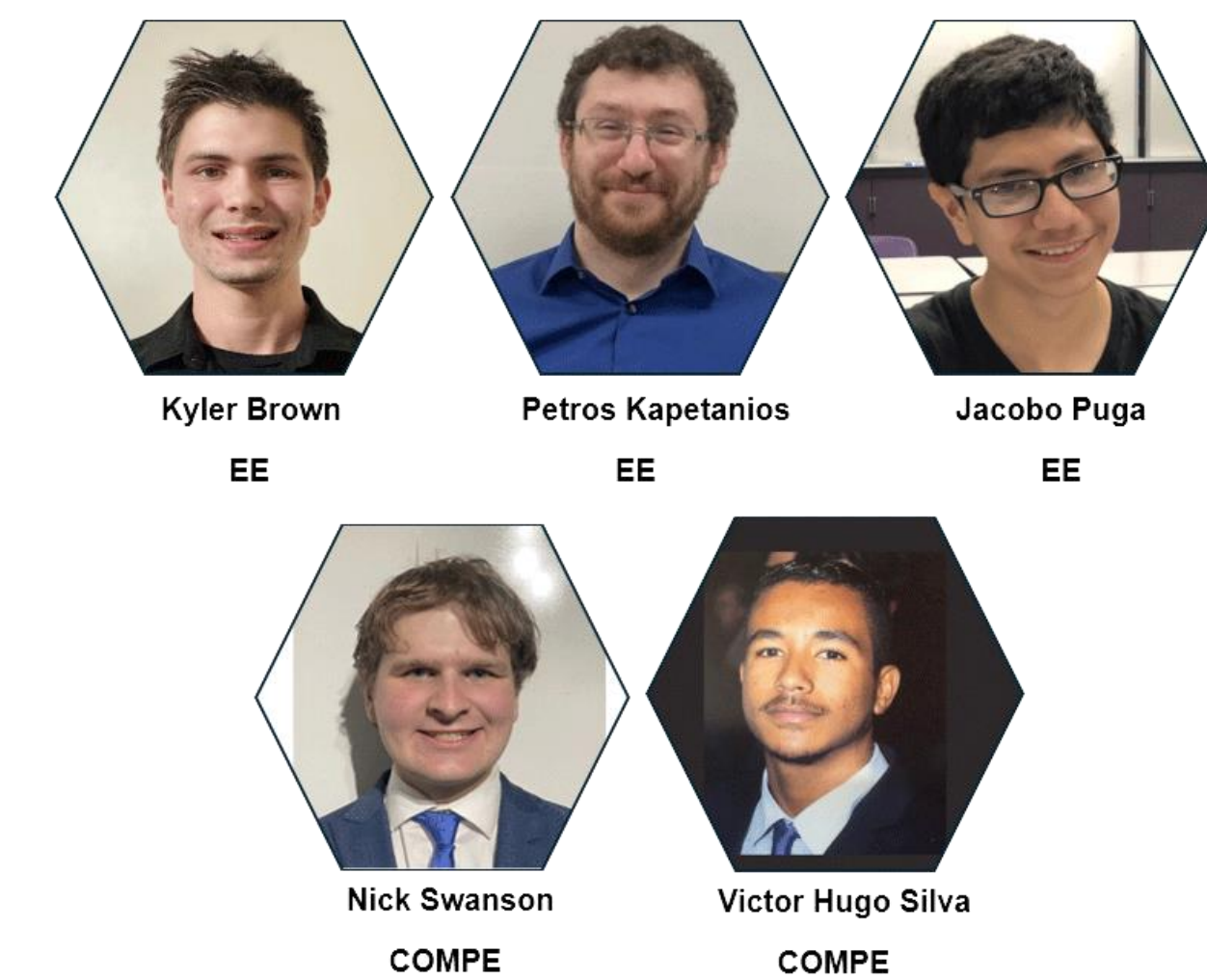
Special thanks to Professor Barry Dorr and Mark Bruno for their guidance and input as we designed, tested, updated, and completed our project.

Project Overview

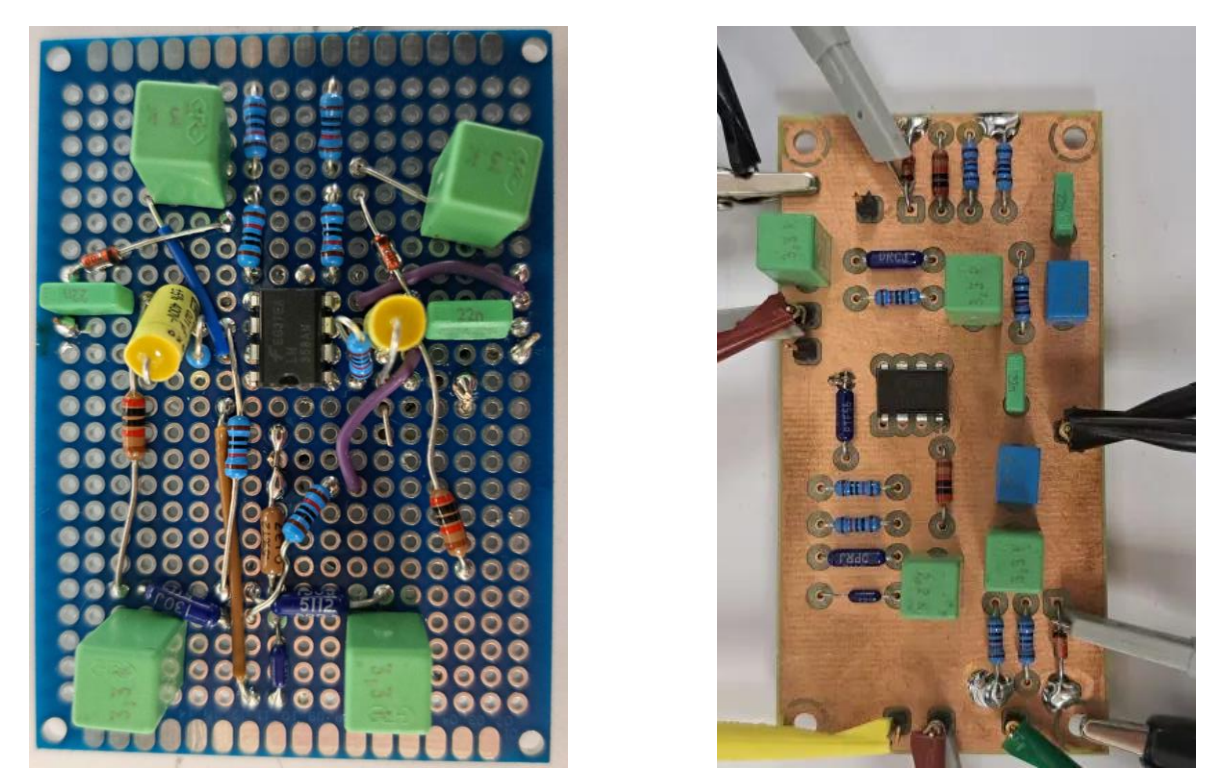


Project Overview. An IEC C13 connector is plugged into the IEC C14 power socket on the left, and a low-power appliance is connected into the NEMA 15-5 receptacle on the right. The WAS refreshes the screen once a second, and the information can be held by pressing the HOLD button below the screen.

Meet the Team

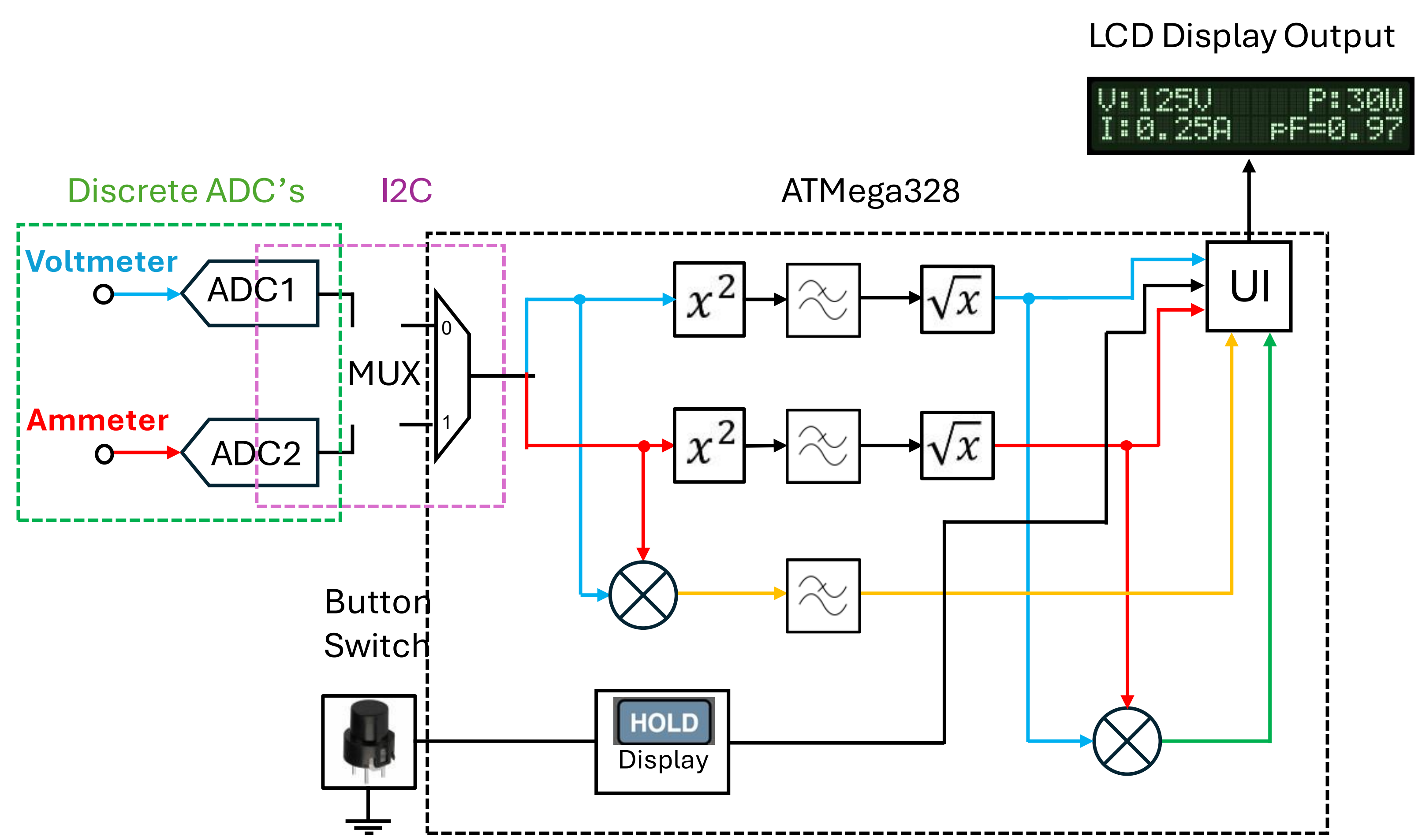


Prototype Boards



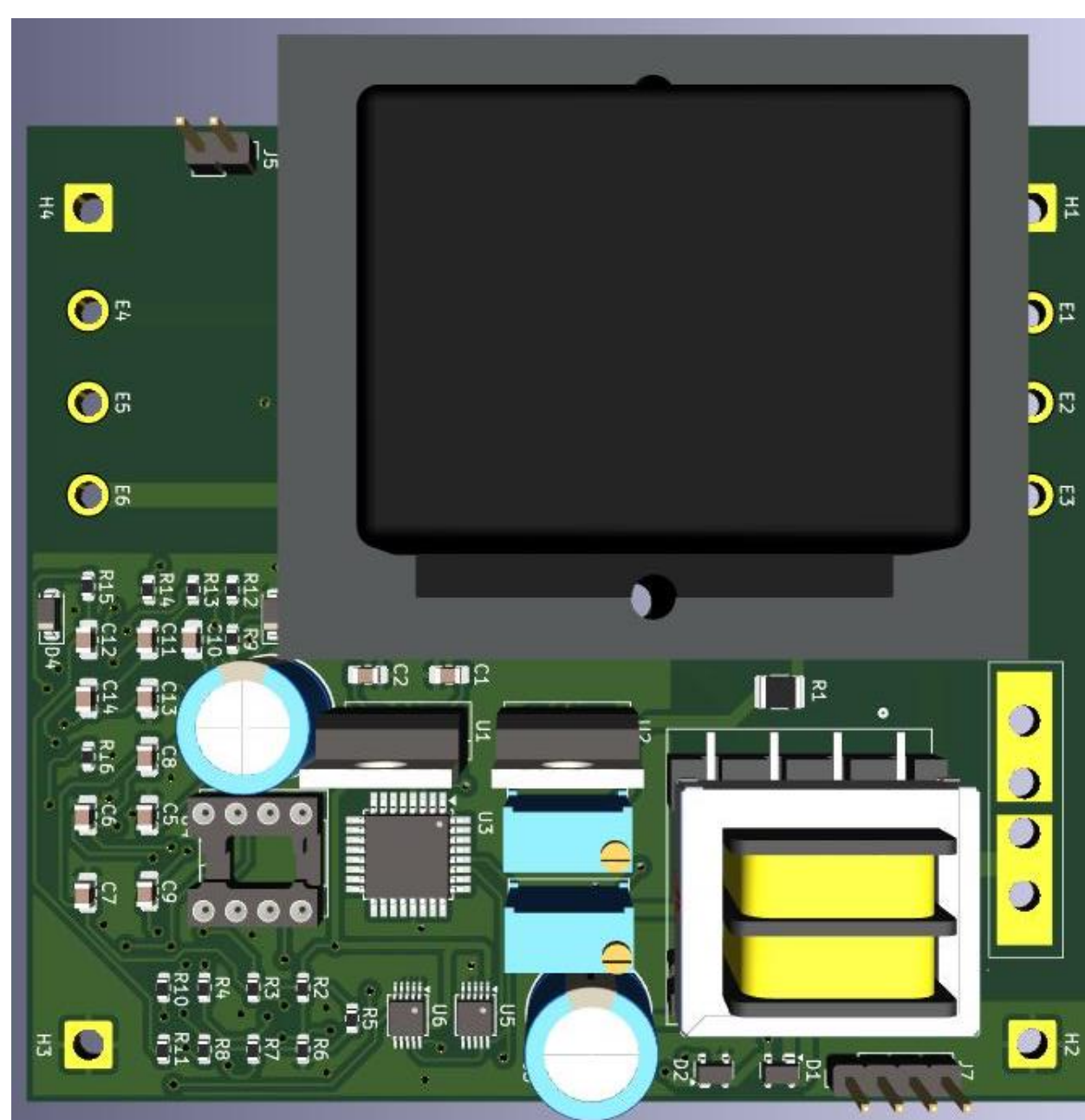
Voltage Conditioning subsystems. The early test board is on the left and rapid prototype PCB is on the right.

Signal Processing Strategy



Firmware process diagram for the WAS. Blue is associated with voltage, red with current, yellow with power, and green with power factor.

PCB Design



CAD Rendering of the PCB