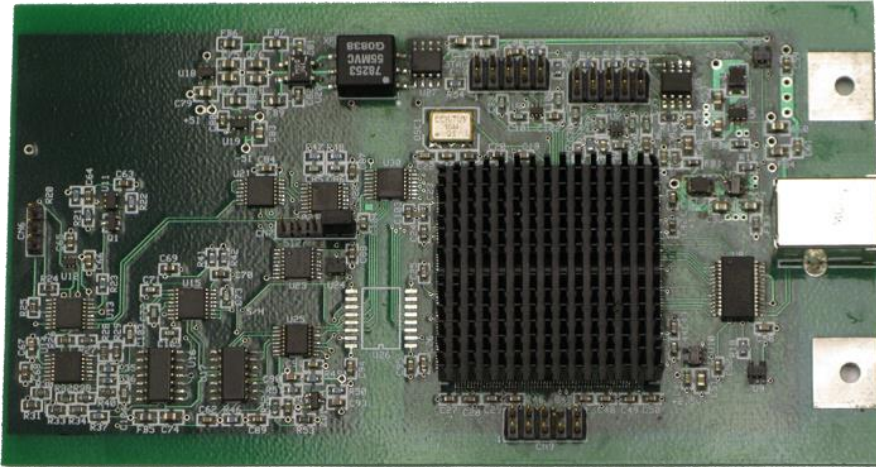


## Individual Stress Monitoring System



Prototype EDR device. Analog (left), HV isolation (ctr) and CPLD processor

## Operational Capabilities

Stress levels are monitored continuously by measuring Electrodermal Response over a spectrum of phase and frequencies (complex EDR). A single micro-electrode provides easy contact to a finger or palm.

- Performance is measured by accuracy of indicating stress in the monitored individual based on field testing.
- A small, very light monitor is easily fielded.
- Signal processing may also provide heart rate and respiration information.

## Technical Approach

- The principle of operation is based on continuous measurement of Electrodermal Response (EDR).
- A single micro-electrode is constructed of a flat but flexible material. This allows easy contact with the palm or a finger.
- A short cable connects to a wrist-mounted interface, which connects wirelessly to a monitoring system.
- Motion artifact at the electrode is the major noise source.
- Signal processing using Fourier Analysis provides complex impedance measurements over a spectrum of frequencies.

## Development/Team

- Our team includes principle investigator Scott A. Wilber, serial entrepreneur, 12 issued patents, multiple peer-reviewed papers; and Luis Araujo, Senior Electrical Engineer, programmer.
- Fourier Analysis provides a complex EDR measurement for every excitation cycle; 5 to 20 times a second.
- Additional signal processing development is required to overcome motion artifacts and bring out heart rate and respiration data.
- Continuous stress monitoring is highly desirable both in battlefield conditions and for pilots, truck drivers and in other critical areas.