

A Non-Invasive System for Home Monitoring of Fluid Status in Patients with Heart Failure

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Clinical Challenge

To accurately measure and consistently monitor fluid status in patients with congestive heart failure in an effort to minimize the frequency and duration of re-hospitalizations.

Every year, over one million patients are hospitalized for congestive heart failure, costing the US healthcare system close to \$29 billion. Almost one in two patients are readmitted to the hospital within four to six months of discharge and up to 50% of early readmissions can be prevented if symptoms are recognized early enough for preventative care to be administered.



Solution

A non-invasive mat that measures impedance and heart rate through direct contact with the user's feet.

- The mat consists of four electrodes and two force sensitive resistors. The back two electrodes are used to drive current while the front two electrodes sense voltage in measuring impedance.
- Once the force sensitive resistors detect that the user has stepped on the mat, impedance and heart rate are measured.
- The results of the reading are then transmitted wirelessly via radio to the user display and uploaded real-time to a physician web interface for remote monitoring.

Competitive Advantage

- Simple solution for predictive diagnostics
- Non-invasive, user-friendly and easy-to-use
- Promotes high user compliance through effortless home integration
- Automatic measurements
- Real-time user and physician monitoring