

LEAD ORGANIZATION: GE

PROJECT: Disposable and Adjustable Vital Sign Monitoring Device

ABSTRACT

GE Global Research (GE), in partnership with Binghamton University (Binghamton), DuPont, University of Massachusetts Amherst (UMass) and Georgia Institute of Technology (Georgia Tech), will advance the state-of-the-art in Flexible Hybrid Electronic (FHE) manufacturing to enable integration of stretchable/conformable functional components with high-performance miniaturized electronics modules to demonstrate clinically relevant, multi-parameter, wearable, wireless patient vital sign monitors. These devices will support 3-Lead ECG, reflective SpO₂, respiration rate and core body temperature sensing on a continuous basis for 72 hours. The team will develop FHE workflows to enable device disposability (towards widespread adoption), conformability (for patient comfort) and foldability (for adjustment to different body shapes and sizes).

In the field, such wireless devices could continuously assess and communicate the condition of patients and are crucial components of the move towards digital, mobile health monitoring. We envision that widespread adoption of disposable wireless devices has the potential to radically transform care-giving in clinical settings. Implementation of continuous patient monitoring could make practices such as spot-checking patient vital signs during hospitalization obsolete. Furthermore, earlier patient discharge may become possible through earlier and safer patient mobilization enabled by wireless monitoring. Beyond clinical applications, development of FHE manufacturing capabilities to create low cost, high performance wireless sensor systems is of broad interest to commercial and Department of Defense (DoD) end-users and is one of the critical missions of NextFlex.

