

## **Printed Electronics for Aerospace and Buildings**

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### **Abstract**

The Applied Physics group at United Technologies Research Center (UTRC) is developing printed electronics methods, materials and acumen to spearhead proliferation of direct write, additive and automated high volume manufacturing methods throughout United Technologies Corporation's (UTC) business units and product offerings. UTRC and Pratt and Whitney are advancing direct write methods for in-situ measurement of critical engine parameters which previously could only be estimated. Work in novel functional materials formulation and supporting process development are enabling integrated sensing, validation and electromagnetic functionality in components across UTC Aerospace Systems in new ways which are only just beginning to be explored. High-volume, printed electronics techniques for flexible and in-mold applications are poised to transform the wearable electronics and automotive / white-good touch control industries.

The UTRC team is leveraging and evolving these techniques for implementation in buildings and aircraft environments empowering seamless manufacturing, packaging and human interactions with UTC's future products and systems. Advanced additive electronics manufacturing and packaging techniques will change the way we make and interface with our machines and UTRC is working as part of broad community to effect those changes. As a member of NextFlex (and other national manufacturing institutes), UTRC is teaming to develop autonomous printed electronics sensor platforms designed to help ensure the well-being of our people and perishable cargo.