Identification and Significance of Innovation:
The significance of the NASA STTR Phase II Project can be summarized in two major topics: (1) Investigation and prototyping of a Surface Acoustic Wave (SAW) strain sensor and (2) Investigation and prototype of an enhanced SAW Wireless Transceiver system to improve interrogation range which is applicable to this efforts interrogation of prototype strain and temperature sensors. The strain sensor topic included the investigation and prototype design and fabrication of two SAW strain sensors requiring investigation of; device parameter extraction, prototype device embodiments such as multi-track device design, and enhanced sensor coding capabilities.

Expected TRL Range at the end of Contract (1-9): 4

Technical Objectives and Work Plan:

The results of this Phase II effort will be an advanced Transceiver and SAW strain sensors with enhanced software controlled features capable of interrogating a higher number of sensors.

- Investigate and prototype a SAW strain sensor
- Prototype improved SAW temperature sensors
- Prototype an enhanced wireless transceiver with software definable and controllable enhancement options to achieve better range extension and faster processing speeds.
- Prototype Transceiver for multiple sensor operation using spatial diversity and coding diversity.

NASA and Non-NASA Applications:

- Vehicular monitoring
- Aircraft Health and Status monitoring
- Unmanned space craft monitoring
- Environmental Remote sensing and monitoring
- Military aircraft health and monitoring systems
- Public Transportation Agencies Structures monitoring
- Strain monitoring in rotating shaft where slip rings are not viable
- Hazardous Environments monitoring

Firm Contacts:
PI: Michael Keefe
Phone: (321) 254-7300 x 2247
Email: Michael.Keefe@mnemonics-esd.com