



GLOBAL LABORATORY FOR ENERGY ASSET
MANAGEMENT AND MANUFACTURING

INTEGRATED SOLID-STATE MOTION SENSOR FOR SOLID STATE LIGHTING (SSL)

R&D PROJECT

INDUSTRY PARTNERS:

- > Texas Tech University
- > yearONE, LLC
- > Carillon LifeCare Center
- > Brookdale Assisted Senior Living Center

PROJECT TERM:

- > Ongoing

INDUSTRY PROBLEM:

- > Critical need to increase energy efficiency and safety
- > Overcome technical and design barriers to issues that limit performance
- > Passive infrared (PIR) and ultrasonic motion sensors require a direct line of sight between the sensor and occupants, and are insensitive to low levels of vibration or airflow
- > All current lighting control solutions have limited performance in detecting stationary subjects, which poses challenges when users are sitting or sleeping
- > None of the existing lighting technologies can monitor subtle life signs, such as respiration and heartbeat

SOLUTION:

- > A novel, integrated, smart-radar-sensor that can be used for the following:
 - Non-contact vital sign detection
 - Gesture analysis and control
 - Structural health monitoring
 - Motion-based security monitoring
- > It impacts indoor energy efficiency by accurately locating users and identifying their life activities without any body-worn tag
- > It will easily penetrate into various markets because of the following features:
 - Completely solid-state compatible
 - Low-cost integration
 - High detection sensitivity
 - Large dynamic range

**Information referenced from yearonellc.com*