



UTC Project Information	
Project Title	AI-Driven Drone Technology for Bridge Displacement and Vibration Monitoring
University	University of Nevada Reno
Principal Investigator	Jim La
PI Contact Information	hla@unr.edu
Funding Source(s) and Amounts Provided (by each agency or organization)	IBT- ABC-UTC funds : \$29,250 Match funds : \$35,750
Total Project Cost	\$ 65,000
Agency ID or Contract Number	69A3552348322
Start and End Dates	January 1, 2025 - Active
Brief Description of Research Project	This research proposes developing an autonomous drone system equipped with advanced AI algorithms and dual-camera configurations for precise structural health monitoring. The system utilizes a dual-camera setup (telephoto and wide-angle) to enhance measurement precision, while stabilization techniques and calibration methods minimize errors caused by atmospheric interference and lighting variations. Designed to autonomously detect and analyze bridge vibrations and displacements in real time, the system addresses the limitations of traditional methods such as GPS, sensors, and vision-based approaches, which often struggle with large-scale structures, environmental interference, and stability challenges. Real-world testing on bridges and tall buildings will validate the system's effectiveness, ensuring its reliability for large-scale infrastructure monitoring. The deliverables include the drone-AI system, best practices for deployment, and data analysis protocols, providing a scalable solution for infrastructure monitoring.
Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	The outcomes will be tracked and reported once they are identified.

Impacts/Benefits of Implementation (actual, not anticipated)	The impacts will be tracked and reported once they are identified.
Web Links <ul style="list-style-type: none">• Reports• Project website	https://abc-utc.fiu.edu/ai-driven-drone-technology-for-bridge-displacement-and-vibration-monitoring/