



EPIC-3, Project 5

Unmanned Aircraft Systems with Advanced Image Processing for Electric Utility Inspection and Operations

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EPIC-3, Project 5 Objective and Approach

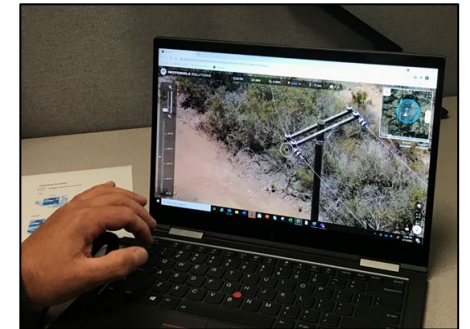
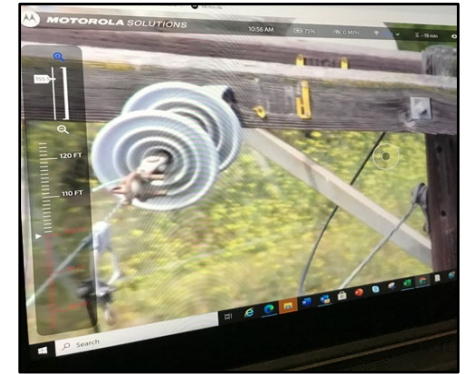


Project objective:

Demonstrate and evaluate new unmanned aircraft systems (UAS) sensors for assessment of infrastructure (i.e., equipment, lines and structures) and what sensors best supply a necessary file format and metadata to deliver data for ingestion and processing within a future artificial intelligence platform

Project approach:

- Demonstrate new applications of unmanned aircraft systems
- Evaluate concepts for instrumentation and monitoring of power system equipment using enhanced imaging on unmanned aircraft systems and sensor technology
- Evaluate potential unmanned aircraft systems applications to increase reliability, safety and cost efficiency in power system operations



Unmanned Aircraft Systems (Project 5)



Use Cases and Status

- **Aerial Telepresence:** Issues identified that may be resolved with new 5G network
- **Public Safety Power Shutoff / Wildfire Mitigation Program:** Identified 7 hard-to-access areas for Public Safety Power Shutoff patrols using unmanned aircraft systems (USA). Adopted for commercial use
- **Coronal Camera:** Licensed thermographers trained on UAS with integrated Coronal Camera
- **Tethering:** Adopted for commercial use
- **Sense and Avoid UAS:** Can sense and avoid thin power lines and guy wires. Short flight time. Hard to see, when flying beyond 1000 ft. Viable solution for on-the-spot inspections
- **Line Pulling:** High value determined and now in commercial use
- **Fixed Wing Patrol UAS:** Not to be pursued further. Hard to launch/land; large clear areas needed
- **UAS for Confined Space Inspections:** High value determined and now in commercial use

Policy Support and Customer Benefit

- Safety increased--Unmanned Aircraft Systems can access environments that would be hazardous to humans
- Effective tool for use in vegetation management and wildfire mitigation
- Avoided emissions and need for public evacuations that are associated with helicopter flights
- Time savings in flight planning and authorizations
- Avoided costs and risks of human travel into isolated locations
- Cost savings for confined space inspections
- Operating cost savings flow through to lower ratepayer costs