Arkansas Department of Transportation

Transportation Research Committee

RESEARCH PROBLEM STATEMENT

DATE: 09/10/2017  PROJECT AREA: Special Projects

TITLE: Explore the Capabilities Unmanned Aerial System (UAS) to Solve Transportation Infrastructure Issues

PROBLEM STATEMENT:
The capabilities of UAS in solving infrastructure management and maintenance problems is huge, and its scope is increasing day by day. Multiple US agencies and international organizations are getting the benefit of the use UAS by monitoring structural health of infrastructures such as bridges, surveying construction zone, implementing safety precautions, and managing assets. However, due to the existing federal, state and local rules and regulations, which are complex in nature, there has been limited use of the technological advancement of the UAS. The main goal of this study is to develop research opportunities that enable ArDOT to evaluate and implement applications of UAS for transportation infrastructure assessments and other related tasks ranging from vehicle accident investigations to bridge infrastructure, construction safety and roadway assessments. ArDOT will benefit from this research by acquiring access to well-documented knowledge of new data collection and assessment methods that have the potential to reduce transportation infrastructure assessment costs while also increasing the safety of agency staff collecting the needed data. With implementation of UAS into infrastructure assessment, ArDOT will be forefront on new applications of this rapidly evolving technology.

OBJECTIVES:
Specific objectives are given below:
1. Review existing literature on the use of UAS for transportation research
2. Document regulatory requirements for use of UAS by ARDOT and contractors.
3. Review of current and upcoming UAS platforms and remote sensors
4. Conduct field case studies to demonstrate UAS applications

FORM OF RESEARCH IMPLEMENTATION:
1. A report containing the regulatory and technological requirements of the UAS along with experimental and verification data from pilot projects.
2. A one-day workshop to train users on the developed system.

Estimated Project Duration: 24 months

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