



Real-time online Cetane number estimation in jet fuels

A method to prevent in-flight engine failure due to fuel variation. The method employs real-time online Cetane number estimates of jet fuels used by compression ignition engines to enable control of engine performance.

IP Status: US Patent Issued; Patent No. 12,056,967

Applications

- Compression ignition engines using jet fuel
- Unmanned aerial vehicles

Technology Overview

Conventional Cetane number estimation methods lead to engine function interruptions that result from inaccurate Cetane number estimation. Researchers at the University of Minnesota have developed a method for real-time online Cetane number estimation in jet fuels used by compression ignition engines. Based on the engine model and results from a real-time combustion heat release analysis, the method estimates the fuel Cetane number and provides that estimation to the controller for generation of appropriate inputs, preventing in-flight engine failures due to jet fuel inconsistency. Controllers of unmanned aerial vehicles powered by compression ignition engines that use jet fuel stand to benefit from this technology.

Phase of Development

TRL: 4-5

The method has been successfully tested on a simulation and is scheduled to be tested on a compression ignition engine.

Desired Partnerships

This technology is now available for:

- License
- Sponsored research
- Co-development

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Researchers

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