FUNDING DETAILS

Automated Wildfire Monitoring: AI-Enabled Drone Surveillance

The project proposes to develop an autonomous drone-based monitoring system that can be used BVLOS (beyond visual line of sight) in support of wildfire management. It will analyze video streams in real time using onboard AI that can automatically task the drone to loiter and gather additional information about potential wildfire occurrences. The system will provide accurate assessments of hotspots and fire threats to enable quicker and more effective decision-making. This will help to reduce the exposure of firefighting personnel to dangerous conditions and allow for more targeted and efficient use of resources.

RECIPIENT:

Petroleum Technology Advisory Council

PARTNERS:

AIRmarket, Alberta Wildfires

TOTAL BUDGET:

$816,220

AI FUNDING:

$250,000

PROJECT DATES:

JUN 2024 – JUL 2025

PROJECT TRL:

Start: 7

End: 9

APPLICATION

The proposed drone-based system is intended to support wildfire management decision-making and fire-fighting operations in Alberta by leveraging state-of-the-art technologies. The system will automatically gather and analyze fire data in real time and provide information that can be used to ensure safer working conditions and improve the efficiency and effectiveness of asset deployment.

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PROJECT GOALS

The key goals of the project are to:
- Conduct semi-automated flight missions to identify and locate wildfire activity by conducting BVLOS drone operations in a live wildfire scenario
- Deploy ground-based infrastructure to provide reliable RTM services in designated wildfire airspace
- Develop an interface between the onboard computer vision application and the drone's autopilot system to produce automated suggestions for mission control
- Establish computer vision models for detecting fire and/or smoke activities from both visual (RGB) and infrared (IR) video streams with > 75% accuracy.

BENEFITS TO ALBERTA

The successful implementation of this technology will help to:
- Enhance safety, improve operational effectiveness and reduce costs of wildfire management.
- Safeguard natural resource industries operating within Alberta's vast boreal forests.
- Bolster the resilience of municipalities and indigenous communities against the threat of wildfire.

1 New Product/Service

5 Project Jobs

CURRENT STATUS

JUL 2024

The project has been initiated and activities are now underway.