FUNDING DETAILS

An AI-driven Multi-sensor Data Fusion Platform for Methane Leak Detection and Repair (LDAR)

With its partners, SensorUp will develop and demonstrate an Artificial Intelligence (AI)-driven multi-sensor data fusion platform to enable GHG emissions reductions in oil and gas operations and improve efficiency, quality, and safety of Leak Detection and Repair (LDAR) practices. Through successful integration, aggregation, and fusion of heterogeneous methane emissions data from disparate methane sensors into a coherent sensor web, trained AI models will not only detect but also predict fugitive emissions. This will have a global impact and position Alberta as a leader in methane emission management by creating an international open standard for methane emission data interoperability. The open standard plus sensor library codes developed will automate labor-intensive and error-prone methane data wrangling tasks, and benefit all methane sensor operators, service providers, oil and gas operators, and regulators.

RECIPIENT:

SensorUp Inc

PARTNERS:

Open Geospatial Consortium, Cenovus Energy, Natural Resources Canada, Fraunhofer Institute
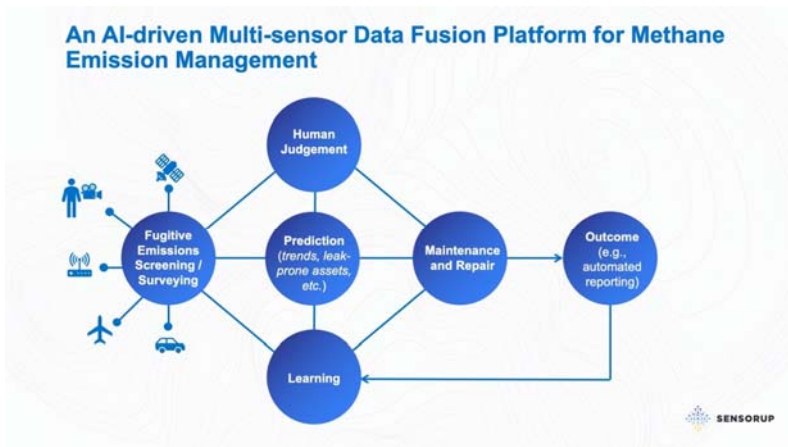
TOTAL BUDGET:

$811,000

AI FUNDING:

$446,050
(TIER- ERP)

An AI-driven Multi-sensor Data Fusion Platform for Methane Emission Management

PROJECT DATES:

FEB 2021 – JAN 2023

PROJECT TRL:

Start: 6
End: 8

APPLICATION

The target market for the technology developed is GHG emission management. Initial focus is in oil and gas operations, to help improve the efficiency, quality, and safety of Leak Detection and Repair (LDAR) practices.

PROJECT GOALS

The key goals of the project are:

- Developing a new international open standard for methane emission data exchange and an associated sensor standard library
- Developing a coherent sensor web to integrate, aggregate and fuse heterogeneous methane emissions data from disparate methane sensors and leverage to train, improve, and operationalize innovative AI models to identify/quantify and predict fugitive emissions
- Validating utility and operability of the system in real-life field scenarios in automating the labor-intensive and error-prone methane data wrangling tasks to the benefit of methane sensor operators, service providers, oil and gas operators, and regulators

BENEFITS TO ALBERTA

The successful implementation of this technology could result in:

- Reduction in GHG emissions
- Commercial use of innovative Artificial Intelligence (AI) and Internet of Things (IoT) technologies
- Training of High-Quality Personnel (HQPs)
- Creation of high-quality jobs in software development and data science

4 Publications

4 Students Trained

33 Project Jobs

180 Future Jobs

1 New Product/Service

*Enables Emissions Reductions

CURRENT STATUS

JAN 2023

This project developed an end-to-end integrated MethaneHub that assimilates data from satellites, drones, vehicle-based systems, and other Optical Gas Imaging (OGI) devices. SensorUp also created and published a new international best practice standard for methane emission data interoperability in partnership with the Open Geospatial Consortium. The new methane data sharing best practice standard, and the software developed by the project automate the labor-intensive and error-prone methane data wrangling tasks, and benefit all methane sensor operators, service providers, oil and gas operators, and regulators.