Providing Data Analytics Using UAVs for Oil and Gas Pipeline and Assets

Status: Filled

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Sponsor(s):

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Project Description

Background

Oil and gas companies are required to know the class location (how many dwellings are in the area) of their pipeline. This is need for several important design considerations, as detailed in CSA Z662 - 11 (Canadian standards Association's Oil and Gas Pipelines Systems). They also need to comply with these regulations to be able to operate with approval from regulatory boards. They additionally require general surveillance of their pipelines and assets, as well as the ability to have an aerial view of certain machinery and equipment during construction and commissioning of major/sensitive projects.

Our proposal is to use UAVs for the purpose of pipeline surveying, class location identification, and auxiliary functions needing their unique competitive advantage. It would be a cost-effective method of applying mostly readily available drone technology, combined with our own design of the frame and programming, to bring a fully autonomous system capable of flying over an area of interest via a pre-determined GPS route or manually operated by our certified pilot, collecting aerial information via video footage which with the built in program can analyze in real-time the processed images, counting the number of houses in the vicinity. It could also seamlessly combine several photos into an orthophoto-mosaic to provide the big picture of any area or scene.

Timeline

Month 1
Extensive research and documentation into high level design of all components including mechanical, electrical and software.
Extensive research into legal considerations and operational requirements.

Month 2
Complete high level design including mechanical, electrical and software.

Month 3
Order necessary components.
Begin building and coding, building in stages and continuing to test and check design as progress is made.

Month 4
Test, iterate and optimize design.

Month 5
Test, iterate and optimize design.

Month 6