Quarterly Report – Public Page

Date of Report: October 10, 2006

Contract Number: DTRS56-05-T-0002

Prepared for: *US Department of Transportation, and Operations Technology Development Corporation*

Project Title: "Design, Construction and Testing of a Segmented MFL Sensor for use in the Inspection of Unpiggable Pipelines"

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For quarterly period ending: *November 30, 2006*

Progress to date: This project is focusing on the design, construction and testing of a prototype global MFL sensor system for ultimate integration into a robotic platform for the inspection of unpiggable transmission pipelines. The effort was initiated in December 2004 and at the conclusion of this eighth quarter in November 2006, the project has progressed well.

The major issue that faced the concept development phase, was the requirement that the sensor and entire robotic platform are able to pass through a plug valve and negotiate a mitered bend in a transmission pipeline. The restrictions imposed on the sensor in such cases are severe, and in the initial phases of the project work focused on developing a segmented sensor, each segment able to fit through the plug valve. In addition, the segments would be able to collapse in a reduced diameter shape to negotiate a mitered bend. However, during the early phases of this work a concept involving a global sensor was developed and implemented.

The sensor module was assembled and tested in the laboratory during the previous quarter. At the beginning of thios quarter, the sensor module was demonstrated to the funders at the headquarters of Invodane engineering in Toronto, Canada, on June 14, 2006. The demonstration was successful and established the ability of the module to negotiate a plug valve. The sensor has undergnone further extensive testing since then, as it awaits integration into the TIGRE robotic platform in February 2007.

The project now moves into its ninth quarter during which it will be delivered to Automatika Inc. for integration into the platform and testing as an integrated system. In addition, the effort to develop the sensor's Graphic User Interface (GUI) and control system interaction with the platform was initiated. GUI and control system development have progressed very well. Critical in this part of the project is the systematic and continuous interaction between platform and sensor developers to ensure minimum communication problems between the two systems after integration.