

Quarterly Report 5– Public Page

Date of Report: Dec 23, 2020

Contract Number: 693JK31910017POTA

Prepared for: U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (DOT/PHMSA)

Project Title: Improving Subsurface Non-metallic Utility Locating Using Self-Aligning Robotic Ground Penetrating Radar

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For quarterly period ending: Dec 31, 2020

Project Goals:

The goal of the project is to develop a semi-autonomous robotic platform that uses conventional GPR but non-conventional scanning methods to enhance the probability of detection, enhance data quality, and automate the classification of detected targets. At the end of the project, a pre-commercial system will be demonstrated, and performance improvements will be determined.

Work Performed:

The detailed design of the robotic antenna sub platform was completed. Collision avoidance sensor selection was completed, and sensor coverage planning was also completed. The fusion algorithm for localization was developed.

Results and Conclusions:

The robot design should be able to accommodate all the necessary sensors and be able to provide support for moving the antennas. Collision avoidance sensors provide adequate performance.

Plans for Future Activity:

- Complete testing of localization algorithm
- Begin fabrication of antenna sub-platform
- Test the fabricated antenna sub-platform