

ROBUST FREQUENCY ESTIMATOR FOR GROUND PENETRATING RADAR



The invention is a method to create an underground area profile by using the signals of a ground penetrating RADAR.

THE INVENTION

This technology provides a method to accurately determine number of relaxation frequencies from a reflected Ground Penetrating Radar (GPR) signal. The determination of the relaxation frequencies helps identify the number and variety of objects buried underground, enabling the formation of an underground profile that maybe usefull for a range of different applications.

MARKET NEED

GPRs have a variety of applications including but not limited to military surveillance, archaeological expeditions, oil and gas explorations and soil studies. Due to the wide range of civil and military applications, the global GOR market was valued at USD 144.5 Million in 2018, expected to grow at a CAGR of 4.1% from 2019-2028¹.

APPLICATIONS

The technology has direct application in underground exploration in the oil and gas sector, the archaeological field and through the wall imaging for military and civil applications.

COMPETITIVE ADVANTAGE

The technology can accurately determine the magnitude, and the number of relaxation frequencies from the received GPR reflections. Determining the magnitude and the number of relaxation frequencies helps determine the number of different materials buried underground. In more advance application, the size and the actual location of the buried object can also be estimated.

MARKET READINESS

The technology has been mathematically formulated and simulated on a computer using test data to validate its application.

LOOKING FOR A DEVELOPMENT PARTNER

Development partner is needed to perform the following tasks:

- Provide access to the actual GPR data to test the speed and operation of the technology on actual data.
- Help in setting up a hardware implementation of the technology and testing the system for real-time data.

PATENT PROTECTION

A U.S. patent has been issued with USPTO number: US9851438.

ABOUT KFUPM

King Fahd University of Petroleum & Minerals is a leading educational organization for science and technology. KFUPM Innovation & Industrial Relations is the IP management and technology licensing office tasked with taking innovation from lab to market place.

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1. Global GPR market to undertake strapping growth, Jan 2019