

ABSTRACT

Increasing number of population in Indonesia affects the needs for regional expansions and infrastructures development. The infrastructure development proceed needs to go through many stages, especially for areas where data was not properly collected beforehand. There are many cases of planting PGN gas lines, PLN cable networks, and culverts that do not comply with the established standards. To prevent damages to the channel in the development process, it can be anticipate by identifying regional infrastructure. It is hoped that the identification process of regional infrastructures can help related parties to carry out development more effectively. The identification process can be assisted using a Ground Penetrating Radar (GPR) which could detect objects below the ground surface.

In this Final Project, an experimental analysis be carried out by modeling conditions that resemble the situation in the field. Data collection apply Ultra Wideband frequencies (UWB) that allows precise distance measurement and high-resolution imagery results. GPR be modeled with a tool, namely Vector Network Analyzer (VNA) which functions to transmit and process the transmitted signal.

The A-scan method was used to detect channels with cavities of 5 cm and 15 cm. In the A-scan method, both models can be detected according to the size of the channel being modeled. The B-scan method used can show the boundaries of the medium in a 2-dimensional image. The C-Scan method displays a visualization of the detected object position.

Keywords: GPR, UWB, VNA, *Hollow Channel*.