ABSTRACT

Detection of objects in the ground is an activity that continues to be developed until now. Ground Penetrating Radar (GPR) is a radar that can detect objects in the ground. At this time, many areas have landmines in them, which could also endanger human safety. GPR is a tool that can be used to detect landmines. Landmines are made of various materials, one of which is plastic. Landmine that made from plastic are pretty difficult to detect because of their low signal response.

In this thesis, an experiment to detect landmines buried in the ground is carried out. GPR is modeled with a Vector Network Analyzer (VNA) in the detection process, which uses an antenna with a bistatic configuration. The frequency range used by VNA is 300 kHz - 8 GHz. In the experimental process, the steps taken include making test media, testing the GPR system, data collection, data processing, and finally analyzing data processing results. In this final project experiment, data collection and data processing were carried out using the A-Scan to C-Scan method.

In the experiments implementation, the landmine modeling used was two models, M-16 with an iron case and PMN-2 with a plastic case. The M-16 model was buried at a depth of 2.5 cm, 5 cm, 10 cm, while PMN-2 was buried at 2.5 cm. Based on the results, the depth of the landmine, the diameter of the landmine, and the position of the landmine in one field of the land box are obtained.

Keywords : *Ground Penetrating Radar(GPR)*, *Vector Network Analyzer(VNA)*, *Landmine*