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 enda-

nger 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 mo-

dels, 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. Ba-

sed 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

V