ABSTRACT

Ground Penetrating Radar (GPR) is one type of radar that is used to investigate the conditions below the surface without having to dig up and destruct the land. Transmitter antenna emits electromagnetic waves into the ground and then the signal will be reflected back by the underground object and received by the receiver antenna. Received signal was processed in the signal processing in order to produce an image of the conditions below the surface that can be easily read and interpreted by the user. Signal processing itself consists of several stages of the A-scan signals which include repair and detect one-dimensional objects, B-scan for two-dimensional data processing and C-scans for three-dimensional data processing.

This final assignment will conduct the processing of B-scan data to obtain information about the shape of underground objects. B-scan data survey results from GPR devices that have been realized, prepared by the method of image processing. With the basic principle that the image is a function of two variables and then apply the gradient method to identify the shape of the underground object. Shape of the detected objects includes a square, triangle, or circle.

From the implementation of the processing stages performed, it is obtained that B-scan images required preprocessing, predetection and denoising, and detection. For B-scan data survey results that are already available, the processing stage has been successfully determine the shape of underground objects, which can distinguish between a square and not square, which is then classified into a triangle and circle.

Key words: GPR, B-SCAN, image processing, object shape