

ABSTRACT

Radar or abbreviated in English, namely Radio Detection and Ranging, is a system of electromagnetic waves used to measure the distance, altitude and speed of an object. The main use of radar is as a means of detection and imaging of an object. The radar used in this final project is SAR or Synthetic Aperture Radar for short. SAR provides high resolution with outstanding characteristics that do not degrade with distance. The distance will weaken the strength of the radar reflection which can increase the noise in the image.

In analyzing the results of imaging, the process of reconstruction or image formation on the object is very important. In this final project, a Radar Imaging simulation or image formation on an object by a SAR radar simulation will be made with the help of MATLAB software. The method used for the image reconstruction process is backprojection, which takes the matrix data from the previous radar projection process as input and all data related to the projection process that is useful for completing the imaging process on the object. By using SAR simulation the image reconstruction process will be efficient and get the right results.

In this final project, an image reconstruction simulation test has been carried out on stationary objects using the Backprojection method. Where the stationary object used in this test is a three kilograms gas cylinder. With the Backprojection method, the results of two-dimensional image reconstruction are perfect for the coordinates of the SAR raw data. The analysis process of this test refers to the reference of the previous final project which only analyzes from the SAR simulation not the real radar.

Keywords: Radar, Radar Imaging, SAR,