

ABSTRACT

In this technological era, humans cannot be separated from technology. Radar is a device that is widely used in the military and aviation. Since the second world war, Britain has used radar to track enemy aircraft that are attacking. The radar itself serves to detect objects that are around the radar. In previous studies, radar has been used to detect cracks such as walls and self-driving cars that allow vehicle drivers to drive their vehicles without having to drive (autopilot). Judging from previous studies, this study aims to detect the level of corrosion of metal-based objects that are experiencing corrosion and to plot reflective signals from the plate so that it can be visualized.

In this study, the primary data used from the measurements in the field are then processed using Fast-Fourier Transform and data visualization using surface plotting techniques. Based on data measurements that have been made, each data has its signal level value. These signal levels will be plotted one by one using surface plot techniques so that they are visualized into colors that will indicate the threshold level of the signal so that there will be differences in reflected signals from corroded and still good objects.

The results of this study are the results of testing random objects to determine the level of corrosion. The level of accuracy generated in this study was 33,3% in detecting the level of corrosion of the objects tested. As well as an analysis of the effect of the measurement distance of the object and the level of corrosion on the magnitude of the object being tested.

Keywords: *FMCW, Radar, FFT, Heatmap, corrosion, corrosion detection*