CHAPTER 3
RESEARCH METHODOLOGY

1. Collecting the data

The writer collects the USG images data from several random people. The obtained data can be in 2 or 3 dimension.

2. Testing and programming

The writer uses jupyter with python2 language in making this program. He uses library opencv, library numpy, library math, and library copy. First, create a program to upload the USG images file and a program to change the images into grayscale. Second, create a program to see the size and the pixel size of the images. Third, create a program to proceed the USG images filtering with predetermined algorithm which is Midpoint Filter and Harmonic Mean Filter. Fourth, create a program to make a copy from the pixel results that have been filtered, so it can be saved in JPEG format using deep-copy from library copy. Fifth, create a program to measure the level of error from the images that have been filtered using MSE (Mean Square Error) and measure the accuracy of the filter process using PSNR (Peak Signal to Noise Ratio).

3. Measuring the result of reduction and graphing

The images result that has been reduced will be measured by MSE and PSNR to get know the level of accuracy in reducing the noise in USG images. MSE and PSNR results in which USG images will be stored in excel, so the writer can make the graph to analyze it.