Abstract

The development of technology allows us to perform image storage in digital form. Digital image has a file size that can be reduced or compressed.

One way to minimize of image is to perform compression of the image. The compression is using a fractal approach; compression of the image by finding a way of similarity of an image to reduce redundancy of the data storage. The fractal compression is using quad tree partitioning, where each image will be divided into four sections, and each section will be divided into four parts again and so on.

The process involves domain cells and range cells. Domain cells obtained from distribution of the image based on a certain level whereas the range cells image obtained from division based on quad tree. Both cells are then matched to find the self-similarity. There are four types of matches, namely the rotation with a reflection, rotation without reflection, reflection without rotation, and no rotation without reflection.

Performance seen from the compression ratio and PSNR, the smaller the compression ratio and the greater the value of PSNR, the result obtained better compression. Test carried out on four images: face image, scenery, buildings and fractal image. Based on test result, the appropriate match type compression is the rotation with a reflection. The average compression ratio that results in this study was 49.38

Keywords: domain cells, range cells, quadtree partitioning, fractal, image compression