

**UNIVERSITI TEKNOLOGI MARA**

**A COMPARISON OF COLOURED IMAGE  
COMPRESSION METHODS**

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## ABSTRACT

The idea of image compression is not new. There has always been an interest in economical and efficient communication. Image compression is a method of eliminating redundancies should be built in normal language representation. Image compression is minimizing the size in bytes of a graphics file without degrading the quality of the image to an unacceptable level. The reduction in file size allows more images to be stored in a given amount of disk or memory space. It also reduces the time required for images to be sent over the Internet or downloaded from Web pages. A few techniques or methods can be used to compress an image. Segmentation Based Coding, Directional Filtering Based Coding, Recognition Based Coding, Fractal, Wavelet and JPEG are famous techniques in image compression. This research explores three comparative methods, which are widely used. They are Wavelet Method, Fractal Method and JPEG Method. The main objective of this research is to find the best method for colour image compression between Wavelet, Fractal and JPEG using three parameters which are compressed file size, compression ratio and peak signal noise ratio. Image compression system has been developed using C++ Builder and 200 data from the Internet was using with different file sizes (range between 359 Kb to 725 Kb) were used for system testing purposes. Are four phases involved in this research are data collection, designing, development and testing and evaluation phase. On finding shows that Wavelet method is the best method for colour image compression compared to Fractal and JPEG.

## **Candidate's Declaration**

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi Mara. It is original and is the result of my own work, unless otherwise indicated or acknowledged as referenced work. This topic has not been submitted to any other academic institution or non-academic institution for any other degree or qualification.

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# CHAPTER 1

## INTRODUCTION

### 1.1 Introduction

This chapter cover the introduction of image compression and identifications problem regarding compression. Thus to study and compare the variants techniques involved this project were conducted. Project objective and scope was explained in detail to make sure this research has high value. The project requirements and framework involved were also discussed.

### 1.2 Background

Recent advance of digital image technology, coupled with breakthroughs in the price and performance of digital hardware and firmware, have driven fast growing imaging business application, resulting in an ever increasing need for the storage and transmission of images.

Image compression is the technology of image data rate reduction to save storage space and reduce transmission rate requirements. Image compression offers of solution for diverse imaging applications requiring a vast amount of data to represent digital images ( G. K Wallace, 1991)

These applications include document imaging management systems, facsimile transmission, image archiving, remote sensing, medical imaging, entertainment, High Definition Television (HDTV), broadcasting, education and video conferencing.

The latest advancement of technology with the renewing of variety of telecommunications, image compression has become an important arena, which must be improved widely. This is because time and cost has become the measurement for each event that takes place. Through compression, cost and time can be reduced in telecommunication. Compression methods can solved the problem exist in sending and receiving information through telecommunications medium. There are varieties