DEVELOPMENT OF COMPUTER GRAPHICS ALGORITHM FOR MANIPULATION OF IMAGE FILE

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ABSTRACT

This project explores the software development of image data compression and decompression techniques. Two techniques implemented here are Huffman coding technique and Run Length Encoding technique. The development of computer graphics and image processing techniques in many applications related to scientific, engineering and medical fields cause an interest to combine graphic techniques and image processing techniques[15]. The other purpose of this project is to manipulate the decompressed images by development of computer graphic using C++ in windows environment. The software has the ability to manipulate the images of common format like PCX and BMP.

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FOR MANIPULATION OF IMAGE FILE

CHAPTER 1

1. **INTRODUCTION**

The term image in this project refers to two dimensional light intensity function F(x,y) where x and y denote spatial coordinates and the value of F at any point (x,y) is proportional to the brightness (or gray level) of the image at that point[8]. The main parts of image processing: capture, acquisition, processing, communication and display are shown in Figure 1. An image captured by camera is first digitized. The digital image produced will be sent into temporary storage and the computer calls up and execute image processing programs from a library. The stored capturing images will then be compressed to reduce the amount of data required to represent a digital image for the purpose of transmission through telephone network. The first modem is used to convert digital signal into carrier signal that enters the telephone line. The next modem will convert that signal back into digital form. The compressed image data is then expanded to its original image and analysed in the computer.

The main focus of this project is surrounded by the double dotted line in Figure 1. In order to compress the image data, a number of useful image compression techniques followed by its algorithm and C code will be developed. The expanded images data will then be manipulated by development of computer graphics algorithm. These images become useful when they are in a