A DETAILED ANALYSIS OF THE DATA COMPRESSION TECHNIQUES IN IMAGE PROCESSING

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Abstract

An overview of computer technology in various fields has shortened the job of human beings but has also resulted in huge volume of digital data. Data compression helps us to reduce the given data size without missing the important information. The two types of compression are lossy and lossless compression. In this paper some of the lossy and lossless image compression techniques are discussed in detail. The rudimentary idea of image compression is to diminish the average number of bits per pixel necessary for their depiction. With the help of image compression, the storage space of images can be decreased and also the storage and transmission process is improved in order to save the channel bandwidth. As lossy technique is not reversible, recovering the real image using the lossless compression will be much useful. But in lossless technique the compression ratio is low when compared to lossy image compression technique. In this paper, it is discussed that the lossy techniques are better to compress the images which are given as an input in different image file formats.

Keywords- Compression Techniques, Cosine Transformation, Lossless Compression, Lossy Compression.

1. Introduction

Perception is defined as the process to receive and analyse the visual information by the researchers. When the same process is completed with the help of digital computer, it is called as digital image processing. Fig 1. shows the different stages of image processing scheme. Digital image processing [5] and analysis techniques are used today in a variety of problems. The thrust areas are Office Automation, Industrial Automation, Bio-medical, Remote Sensing, Scientific application, Criminology, Meteorology and Information Technology. Basic components of a general-purpose image processing system are digital computer, digitizer, sensor, operator console, mass storage and display. Four operations performed by this system are: image sensing, digitizing, processing and displaying. In general view of human's ancient enchantment with visual sensing, digital image processing is a recent development in the scientific field. It has been applied to practically every type of imagery. Pictorial displays are easy to interpret and carry huge information. The spatial distribution of image data are used for various transformations of images. The images can be compressed, filtered or the pattern of an image can be recognized.

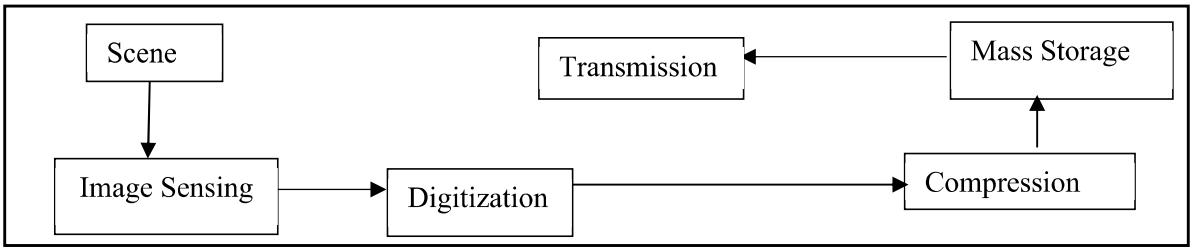

Fig 1. Different stages of image processing scheme.