IMAGE COMPRESSION USING NEGATIVE FORMAT

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Abstract

This project deals with the compression of digital images using the concept of conversion of original image to negative format. The colored image can be of larger size whereas the image can be converted into a negative form and compressed, by applying a compression algorithm on it. Image compression can improve the performance of digital systems by reducing the time and cost for the storage of images and their transmission, without significant reduction in quality and also to find a tool for compress a folder and selective image compression.

***Keywords**: Image Processing, Pixels, Image Negatives, Colors, Color Models.*

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1. INTRODUCTION

In recent times, the storage of images has become ineluctable for almost every database. Many applications use graphics and sound intensively. Uncompressed images, audio and video data consume very large amount of physical storage. Banking people store millions of their customer's photos and signatures in digital image format. Users across the globe, access the World Wide Web every day for uploading and downloading images.

However the large amount of images that are being stored tends to increase disk cost and causes network congestion and also there is no tool for compress a multiple images at a single time.

1.1 Objective

1. To minimize the amount of storage space.
2. To increase the processing speed.
3. To improve the performance of digital systems by reducing the cost for the storage of images.
4. To compress a folder contains multiple image files.
5. To compress a selected image files.

2. IMAGE PROCESSING

A reflection might subsist amorphous as a two-dimensional occupation, f(x, y), where x along with y are spatial (plane) coordinate, and the amplitude of f at some duo of coordinate(x, y) is called the concentration or aged echelon of the figure at so as to peak. When x, y, and the amount ethics of f are all predetermined, distinct quantity, we christen the likeness a digital copy in the field of digital rendering.

3. PIXELS

The digital similes are serene of a predetermined numeral of essentials, apiece of which have an exacting locality moreover assessment. These rudiments are called representation rudiments, icon essentials, pels and pixel.

3.1 Image Negatives

Invalidate the power echelon of a copy make the comparable of a photogenic off-putting. This kind of dispensation is chiefly fitting for ornamental colorless (or) depressing feature entrenched in murky region of a representation, in particular as the black locale are conquered in dimension.[3] The unhelpful of a figure strength stage in the variety [0, l-1] is get by means of harmful change. The look is, S=L-1-r Where r, s are earlier & later transforming the pixel ideals.

3.2 Colors

Primary Colors,(R) Red, (G) green, (B) blue Human visible wavelengths for RGB

R-700nm, G-546, B- 435

The individuality normally old to differentiate single paint since one more are brilliance, shade and infiltration.

3.3 Chromaticity

Tint and Saturation taken together are called chromaticity.

3.4 Paint Model

The intention of blush replica is to assist the condition of flush in various standards. RGB-model for tint monitor and wide

category of redden tape Cameras. CMYK – sculpt pro go red publish. HIS – mock-up which communicates intimately with the person explains & knows color.

4. EXISTING SYSTEM

There are various compression methods such as .jpeg, .gif, etc. that are available in the market. However, large space digital images are still available storing more than 8-mega pixel camera photos. Hence, the necessity for a large storage space has become inevitable and there is no tool to compress a folder which contains multiple files.

5. PROPOSED SYSTEM

This project deals with the compression of digital images using the original image to negative format concept. The colored image can be larger in size, whereas the image that is converted into the negative format occupies fewer amounts of storage space and to find a new tool to compress a folder which contains multiple image files.

6. BASIC COMPRESSION METHODS

Golomb program, mathematics Coding, LZW code, Run-Length policy, Symbol-Based system, Bit-Plane regulations, chunk change rules, prognostic set of laws, Wavelet cryptogram.

6.1 Golomb Algorithm

Golomb convention is a lossless facts solidity technique by a ancestors of statistics firmness set of laws. Numerous signal codec's utilize a Rice code for forecast residue. In prognostic algorithms, such remainder lean to drop keen on a two-sided numerical sharing, with little deposit being additional recurrent than large filtrate, and the Rice code intimately approximates the Huffman[4] code for such a division without the slide of contain to broadcast the Huffman[4] table. One signal that does not match a geometric distribution is a sine gesture, because the discrepancy scum make a sinusoidal hint whose principles are not generate a geometric distribution (the uppermost and lowly dregs principles contain like soaring occurrence of occurrences, only the middle helpful and unhelpful remains happen fewer frequently).

6.2 Arithmetic Algorithm

In mathematics coding, a communication is fixed as a genuine digit in a gap from one to zero. Sums code classically has an improved density relation than Huffman [4] coding, as it produces a solitary sign quite than a number of separate codeword's. Math coding is a lossless coding method. There are a few disadvantage of reckoning convention. One is that the entire password must be conventional to create decoding the cipher, and if there is a dishonest small piece in the secret word, the whole note might turn into shady. Another is that there is a boundary to the accuracy of the integer which can be preset, thus warning the amount of signs to instruct within a secret code. There also live a lot of copyright upon reckoning programming, so the use of some of the algorithms also calls upon royals cost.

6.3 LZW Coding

LZW is the first letter of the names of the scientists Abraham Lempel, Jakob Ziv, and Terry Welch, who industrial this algorithm. The dimension of records frequently increases to a huge degree when it contains lots of boring report or neutral similes. LZW firmness is the top method for dropping the volume of documents contains extra recurring statistics. LZW density is quick and easy to affect. Since this is a lossless compression technique, not any of the inside in the folder is missing during or after compression. The decompression algorithm always follows the compression algorithm. LZW algorithm is well-organized because it does not need to go by the string bench to the decompression code. The board can be recreated as it was during compression, by the input brook as records. These avoid placing of big rope conversion chart with the density data.

6.4 Run Length Coding

Run-length encoding (RLE) is an extremely easy shape of facts solidity in which run of information (that is, sequence in which the equivalent data worth occur in a lot of successive data essentials) are store as a solitary data rate and tally, quite than as the unique dash. This is the majority helpful on information that contains many such runs: for example, easy Explicit descriptions such as icons, line drawing, and animation. It is not helpful with annals that don't have loads of run as it might very much add to the dossier size. Run-length indoctrination performs lossless data solidity and is glowing right to palette-based iconic images.

6.5 Symbol Based Coding

In sign- or token-based policy, an illustration is represent as a set of regularly happening sub-images, called secret language. Each pictogram is store in a mark lexicon and the picture is oblique as a put of triplets where each (xi,yi) pair specifies the location of a symbol in the image and a token it is the address of the symbol (sub-image) in the dictionary. Therefore, each triplet represents an instance of a dictionary symbol in the image. Like many other compression methods, symbol-based decoding is significantly faster than encoding. The symbol bitmaps and the triplets can be further compressed.

Finally, only exact symbol matches are allowed, the compression will be lossless. Symbol-based coding is implemented in JBIG2 compression. That segments an image into overlapping and (or) non-overlapping regions of text, halftone, and generic content.

6.6 Bit Plane Coding

The bit-plane systems is base on rotten a multilevel (monochrome or color) representation keen on a sequence of dual metaphors and compress all twofold image by one of more than a few well known binary looseness methods. However, this approach leads to the situation, when small changes of intensity can have significant impact on bit-planes. For instance. Bit-plane coding is implemented in JBIG1 and JPEG-2000 standards.

6.7 Block Transform Coding

The block change coding is a reveres, linear change that maps each non-overlapping block (sub-image) of a fixed size keen on a put of alters coefficients, which are then quantized and hinted. For most images, an important digit of the coefficients contain tiny scale can be roughly quantized (or entirely surplus) through small image bend. This property is particularly important in comparison [2] with other sinusoidal transforms.

6.8 Predictive System

In predictive conventions, in order by now send or offered is use to forecast outlook principles, and the variation is coded. As this is complete in the likeness or spatial area, it is fairly effortless to apply and is gladly tailored to narrow image character. Gap beat Code lilt (DPCM) is one exacting paradigm of analytical coding.

6.9 Wavelet Coding

Wavelet firmness is a shape of numbers looseness fit right for image compression [2] (audio and video compressions). Distinguished implement are JPEG 2000, DjVu and ECW for at rest imagery, REDCODE, CineForm, the BBC's Dirac, and Ogg Tarkin for cartridge. The aim is to pile up image figures in as petite hole as likely in a box file. This compression can be either lossless or lossy.

7. SYSTEM DESIGN

The original image is loaded and it is filtered to a gray-scale image. The gray-scale image is then compressed using Huffman coding technique. The obtained output is then decompressed to retrieve the gray-scale image. Finally, the gray-scale image is converted back to the colored image and it is displayed (FIGURE 4.3.1). The compression ratio is obtained from the actual size of the original image and the size of the final image.

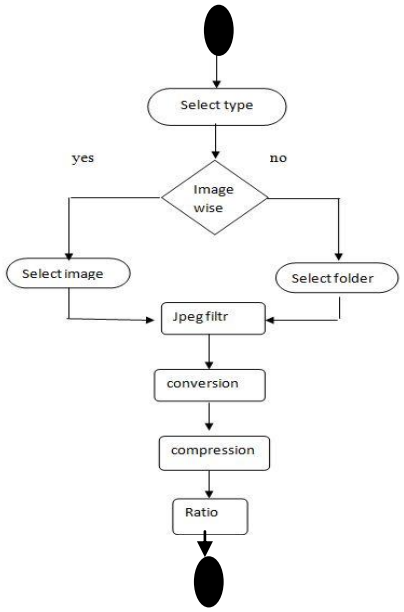

Fig 1: Activity Diagram

7.1 Data Flow Diagram

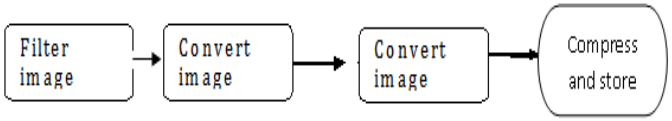

Fig 2: Data Flow Diagram

8. CONCLUSIONS

This project deals with the compression of images from the original image to negative format. The colored image can be the larger in size whereas the image can be converted into the negative form then it occupy very less amount of storage space. So the compression techniques can be used to reduce the image size as lossless. The main thing to be considered is in real time systems negative to positive images can be possible only by machines and there is no specific conversion software of positive to negative images for compression.

This positive to negative compression product can minimize the storage space and it brings back to its original image when it is required and also it compressed a multiple files in the folder as well as selective multiple images.

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