IMAGE COMPRESSOR

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Abstract – *The Project aims at developing a highly advanced image compressing application on android platform. Which will use powerful image compressing algorithm to compress images without losing quality. Image compression is a technique that can reduce the storage space of device. Moreover it is helpful to increase storage and transmission process performance. Image compression reduces the image fidelity, when an image is compressed at low bitrates. Hence, the compressed images may suffer from block artifacts. The prime focus of image compression technique is to reduce the number of the image pixel elements without affecting the original image. It can be achieved by removing the redundancy present in the image.*

Thus In this project we come up with an idea of developing an android application in which the user can click images on phone or select an existing image and compress it into small size without losing much of image quality using Jpeg image compressing technique.

Key Words: Jpeg Compression, Image Compression, android Image Compressor, small size image, image compressing application.

1. INTRODUCTION

People like to share all kinds of images on social media. Whether they are eating, drinking, swimming, partying, dancing, and even accidents, sharing images on social media is the new norm. With so many images being posted, it quickly eats into your bandwidth, especially if you are on a limited plan.

According to Brand Watch, Internet users have an average of 7 social media accounts. Over 3.2 billion images are shared every day. Let's take a minute to process that. Needless to say, if you are using Facebook, Twitter, Instagram, Flickr etc., you are sharing images and by the end of the month, it can eat well into your bandwidth.

By reducing high-resolution images with lower ones that take up less space but deliver same quality will also free up space on your Smartphone.

In past phones used to have very less memory and every images taken in a smartphone was too big In size that required high processing power to interpret the image and if someone tries to open a high resolution image in phone it took very high processing power to do so which results in laggy behavior of the phone which was undesirable for a phone to be so slow for processing a simple image file, For that reason we came up with the idea of making an android app that could compress images in phone itself and save in memory which are light weight in memory and processor and which is easy to be stored and can be shared.

With the inclusion of Android Go Devices in the market which aims at providing an android smartphone in cheap price rate by reducing specifications, for such people image compressor can be very useful, because such phones have limited storage and ram so by compressing images one can save space on phone as well as the phone does not have to take load for viewing light weight images

1.1 RELEVANCE

It is smart move to use image compressor apps to reduce the image size before sharing it. This will not only save on your bandwidth but also bandwidth of people who are going through your feeds. It's a win-win situation really.

The Project aims at such group of people who cant afford a powerful device to store their basic needy images and still want to gain that equality in online society. The solution is the image compressor by using this many people who were at some point of time seems so back in society they can get now come forward with full potential and bring light inti their social life.

The application is made so light weight and less memory consuming that any one can install it on their devices and use it with out need of much of ram or memory and it does not even affect your storage, so we developers can say its quite a handy application and easy on your phone.

2. LITERATURE SURVEY

2.1. Existing System

As of now we are aware of image compressing software which compress images losslessly by using the following traditional way.

Image compression systems are composed of two distinct structural blocks: an encoder and a decoder. As shown in the fig 1, the encoder is responsible for reducing the coding, inter pixel and psycho visual redundancies of input image. In first stage, the mapper transforms the input image into a format designed to reduce inter pixel redundancies. The second stage, quantizes block reduces the accuracy of mapper's output in accordance with a predefined criterion. In third and final stage, a symbol decoder creates a code for quantizer output and maps the output in accordance with the code. These blocks perform, in reverse order, the inverse operations of the encoder's symbol coder and mapper block. As quantization is irreversible, an inverse quantization is not included.
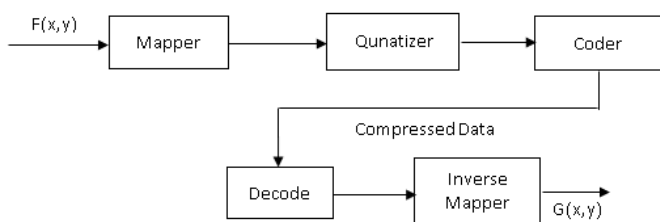

Fig 1: Existing System

2.2 Proposed System

The Application will compress image by lossy image compression and since we know that it uses the jpeg compression technique and which is easily supported in android library for that It will perform following steps

(A. SCALING) resolution to 800X600 (aspect ratio of 4:3 is maintained). For instance, if an image is 1280X768, it is scaled down to 800X640 while images with lesser resolution are untouched.

(B. COMPRESSION) Next comes the compression. Any JPEG library (openJPEG, libjpeg, etc.) would support compression. It involves the following steps:

1. Color transformation - RGB to Ycbcr (y - brightness, cb and cr-color).
2. Scale down chroma components as human eyes are less sensitive to fine color than fine brightness.
3. Image (Y, cb, cr) is split into 8X8 blocks and undergoes DCT
4. Quantization - Rounding off (This matrix controls the compression ratio). File size reduces drastically if compression ratio is higher and so the quality of image reduces.
5. HuffmanEncoding.

(Decoder) - involves all the above steps in the reverse order except quantization as it is irreversible (hence jpeg is the lossy compression technique).

By Jpeg image compression we will achieve a reduction in the file size 1280×1024 (153 KB) to 800×640 (84 KB) with 50% quantization.

The image is firstly color spaced and quantized to dct image compression then the jpeg formatting is done after that Huffman encoding is implemented into the Image and thus the image is compressed. The below diagram shows how compression works and various stages through which the is image is passed to get the compressed image
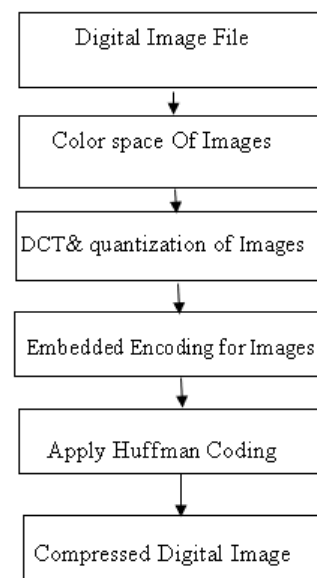

Fig 2: Proposed System
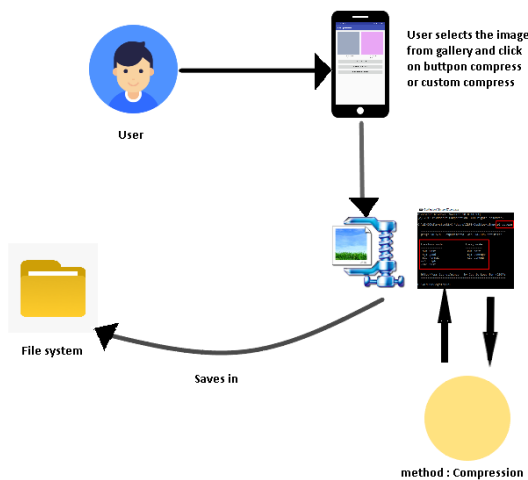
3. SYSTEM ARCHITECTURE

Fig 3: System Architecture

3.1. Implementation System

To get started, launch the app.

You will see two views in the main activity.

Below the views there will be three buttons select image, compress, custom compress.
Choose select image, it will navigate you to your albums.
Browse an image to compress.
The app will detect and display the size of the image.
There will be two options that one can perform simple compress and custom compress.
When you press compress the activity compress is triggered and the selected image is compressed and will stored into your directory.
When you press custom compress after selecting your desired image first the image resolution is changed to 800 x 640 ratio and then it will be compressed thus achieving more compression and will be saved to your directory.

4.CONCLUSION

As is described above, Image compressor is a great application to compress large sized images and store a greater number of images. So, we conclude that by using compression master we can save lot of storage space in our device and similarly can be used in various social media platforms that require low res images leading to optimal use of this application thus increases Productivity of the user.

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