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Removing Redundancy from the Image Using Buffering Mechanism

Suman Kumari, Sona Khanna , Taqdir
Department of Computer Science and Engineering, Guru Nanak Dev University RC, Gurdaspur, India

ABSTRACT

The redundancy is a problem which remains when we talk about the concept of image processing. Redundancy is present when image contain some repeated value of pixel. There are number of techniques which are used to resolve the problem of redundancy. In the proposed system buffer method is used in order to resolve the problem of redundancy. The problem of redundancy is considerably reduced when the concept of buffering is used. The proposed method we will use buffer in order to store the pixel values which can be compared against the other pixel values which present in buffer and to reject them if they are repeated. So, by proposed method the redundancy from the image is eliminated.
Keywords: Redundancy, image processing, image, buffer, pixel, buffering.

I. INTRODUCTION

The redundancy problem will cause image to blur. This blur portion of the image will cause the problem during the encryption as well as decryption process. The clarity of the image will be reduced if the redundancy is present within the image. There are several techniques which are introduced in order to reduce the redundancy and to enhance the quality of the image. This can be accomplished with the help of buffering method. Within the buffer the pixel values which are already plotted are stored. When the new pixel is being plotted then it is compared with the old pixel which is plotted. If the values matches than the new pixel is rejected. This method will cause the redundancy to be reduced from the image.

Various types of redundancy which is present within the image are:

Psycho-visual Redundancy: It is a redundancy corresponding to different sensitivities to all image signals by human eyes. Therefore, eliminating some less relative important information in our visual processing may be acceptable.

Inter-pixel Redundancy: It is a redundancy corresponding to statistical dependencies among pixels, especially between neighboring pixels.

Coding Redundancy: The uncompressed image usually is coded with each pixel by a fixed length. For example, an image with 256 gray scales is represented by an array of 8-bit integers. Using some variable length code schemes such as Huffman coding and arithmetic coding may produce compression Image compression is important for web designers who want to create faster loading web pages. Image compression also saves lots of unnecessary bandwidth by providing high quality image fraction of file size. Image compression is also important for those people who attach photos to email which will want to send the email more quickly. For this bandwidth cost is saved. Image compression is more important by compression image for digital camera users and people who saves lots of photos their hard-drive, store more images on our hard disk thus saving the memory space. Images transmitted over the internet are an excellent example of why data compression is important. Suppose we need to download a digitized color photograph over a computer's 33.6 kbps modem. If the image is not compressed, it will contain about 600 kilo bytes of data. Image compression coding is to store the image into bit stream as well as possible and to display the decoded image in the monitor as exact as possible.

II. METHODS AND MATERIAL

BUFFERING

Buffering is used in order to store the pixel position values which are already plotted. If the same pixel position again appear for plotting then that pixel position is rejected. Buffer in this case is also known as refreshing buffer. The refresh buffer will receive the pixel position from the CPU main memory. The pixel positions which are too plotted are inputted through the input device. The image entered through the input terminal is changed to bits and bytes and stored within the memory. The memory in this case is known as buffer. The size of the image which can be stored within the memory will depend upon size of the memory.

PROPOSED MODEL

The proposed model is going to eliminate the redundancy present within the image. The redundancy will cause the blurriness over the image. That blurriness will reduce the clarity of the image. The proposed model will use the buffer to store the pixel position and then incoming pixel will be compared against the already plotted pixel. If the same pixel is plotted again then the new pixel will be rejected. The proposed model will be shown through the following fig

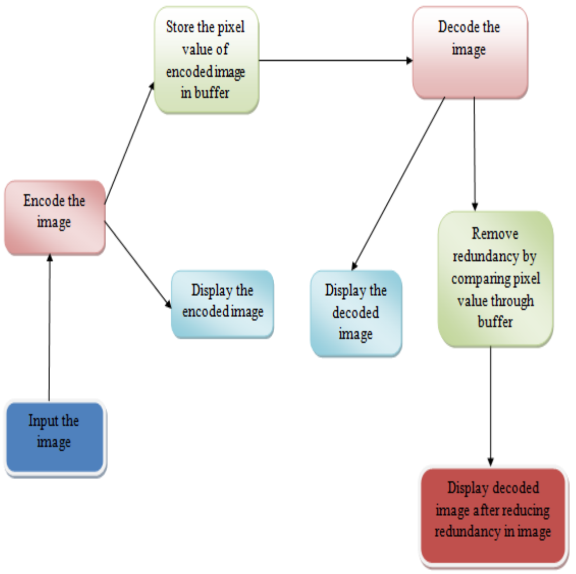

Figure 1. Model for Reducing Redundancy within The Image

In the proposed model a buffer will be maintained. The buffer will contain the code of the encoded image which is already produced. When image encoding is done further codes for the image is produced. If the newly generated code is same as the previously generated code then the new code which is generated is rejected. The encoded image as well as decoded image will be displayed over the output device. The codes will be fetched from the buffer. By using the proposed model number of advantages which are introduced. Some of the advantages are:

1) The reliability of image will increase since same code is not used for multiple parts of the image.
2) The redundancy is reduced.
3) The size of the image will be reduced hence the primary purpose of image compression is achieved.
4) More images can be represented within the same space.

In addition to the advantages completely removing the redundancy also causes the problems. Since when redundancy is eliminated and some part of the image is corrupted then image cannot be recovered.

In the proposed system both encoded as well as decoded image will be displayed so that problems present within the image can be shown graphically. When problems are listed graphically then it is easy to understand as compared to command user interface. The proposed system also increase the speed associated with the encoding and decoding the image.

TYPES OF IMAGE NOISE

There could be following types of noise which are commonly present within the image

1) Gaussian Noise
2) Shot Noise
3) Salt and pepper noise
4) Film Grain
5) Quantization Noise
6) Antistrophic Noise

All of these noises will going to distort the image. There is another problem known as redundancy which is introduced within the image when image compression is performed. In this case same code will be produced within the image for multiple pixels. In order to resolve the problem proposed model is suggested.

III. RESULTS AND DISCUSSION

Proposed Algorithm

There are number of steps which are followed in order to create a algorithm. The algorithm will be series of steps which if followed in sequence the desired result will be obtained. The algorithm will be as follows:

Let X={x1,x2,x3,-------,xn) be the set of pixel positions of the image used for input.

Buffer=B

BufferM(X,B)

1) Input the values of pixel position(Xi)
2) Enter the values of pixels within the Buffer
   Bi=Xi
3) Now perform the comparison of pixel position with buffer values
   If(Xi==Bi)
   Reject Xi
   Else
   i=i+1
   end of if
4) The above steps are performed for every pixel value
5) Stop

IV. CONCLUSION

The existing techniques does not reduce the redundancy however the proposed model will reduce the redundancy. The proposed model will use the buffer. This will eliminate the redundancy by removing the pixel which overlaps. The proposed model will involve the comparisons of pixels with the existing pixels. If pixels repeat then they will not be plotted. The future work will be reducing the number of comparisons required to plot the pixels. Hence reducing the complexity associated with the system.

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