International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 08 Issue: 02 | Feb 2021 www.irjet.net p-ISSN: 2395-0072

A Review of Design an approach for Image Compression Using DPCM

Neelima Shrivas [1], Mr. Ankur Taneja[2]

M.Tech Scholar, Department of CSE, SAMCET, Bhopal (M.P.), India[1]

Assistant Professor, Department of CSE, SAMCET, Bhopal (M.P.), India[2]

ABSTRACT

In Today's data to day life information can be gather from different source like Text, Image, Audio, and Video & Animation. Every domain plays vital roles in information age. But we all know that time is very crucial these days. So, if we want to explore our work done by images may be give better result in many aspects. Since we are using Image as data source so that we apply concentration over Image processing techniques. Firstly, if we gather data from any source then we have to apply compression techniques so that our storage is used effectively in terms of cost and time. We all knows we have numbers of compression techniques available in open market. As a Researcher we have to apply or select best one in terms of their performance. We know that frequency play important roles in image. Here we are Implementing DPCM Techniques for Image compression. In Image processing we have to apply encoding techniques. We have number of encoding techniques available. Every technique having different working mathematical model. We implemented Huffman Techniques which gives better result in terms of CR, MSE & PSNR Values.

Keywords: Image Processing, Different Compression techniques. Encoding Techniques, Image performance measurement

I INTRODUCTION

The image can represent in 2-dimensional mathematical functionality which having some major characteristics like color, hue & many more.

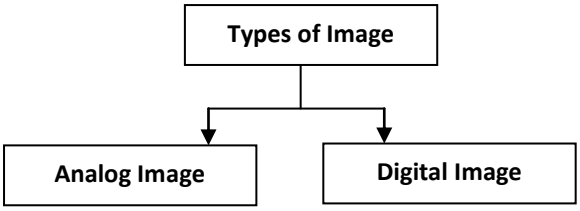

Figure1: classification of Images

Analog Image: An analog image is represented in continuous values so that recognition of image is very easy in terms of intensity.

Digital Image: A digital image is represented in discrete manner means its intensity is represented in terms of 0 & 1. The value represents voltage levels.

Sampling: Sampling is the process of discretization of the image in terms of space.

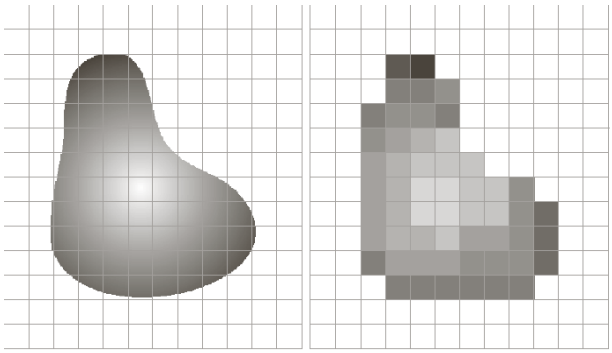

Figure 2: Image Representation

Quantization: Quantization is mediocre process by this we can find an image in different known levels of image.

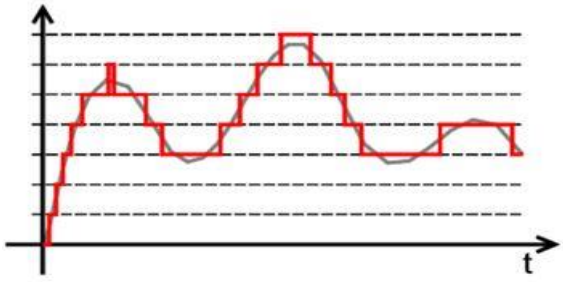

Figure 2: Sentiment Categorization

Applications of Image Compression

Internet and Web: Internet is a connection of different networks for distribution of documents between users of different networks. Here web comes in existence for storing a different data. Data may be Text and Images.

Medical Field: Image compression is used in medical field for storing effectively and communicating through any transmission medium.

II LITERATURE SURVEY

In this work Authors Presented Here Authors Explained about ordered approach for near Lossless Image compression techniques. Here Authors Implemented DPCM techniques along with hierarchical mechanism. Authors Implemented dynamically optimization methods for better compression work done in this domain [11].

Finally, they concluded their compression values less by 10% in comparison to Previous implemented version.

In this work Authors Presented that DPCM an important prediction technique for the new prediction method that is more efficient than the conventional DPCM, thereby improving the overall compression performance. Best partition which produces minimum bit is selected as the partition pattern for the 4×4 block. Also, the number of available intra prediction directions is determined according to the partition pattern to avoid too much side-information transmission [12].

III PROBLEM IDENTIFICATION

The Objective of this proposed work is to implement a robust technique that works for the images compression using Differential Pulse Code Modulation (DPCM) which can compress the data as much as possible.

IV PROCESS DIAGRAM OF IMAGE

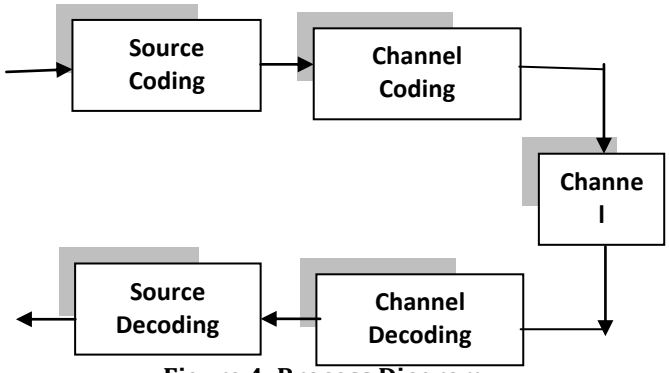

Figure 4: Process Diagram

In figure 4 we discussed about how images gets compressed. Here at first stage a required image is passed to source then it again passed through any dedicated channel or medium. At next end or receiver end we again process it in reverse direction to get decoded Image.

V CONCLUSION

In this paper, Authors concluded that previous work done in the image compression using various Transformation and encoding techniques and we find that if we tried Differential Pulse Code Modulation (DPCM) with any other Encoding techniques like Huffman it may increase better performance and easily to implement in terms of production.

REFERENCES

[1]. Rafael C. Gonzalez, Richard E. Woods, Steven L. Eddins "*Digital Image Processing Using Matlab, Edition* 2010

[2]. Sullivan, B, Ansari, "*Relative effects of resolution and quantization on the quality of compressed medical images*" 1994.

[3]. Donale Baker "*Computer Graphics ,*" 2011.

[4]. Donapati,S.Yagain *"A Comparative Study of Effects of CSC on Image Compression Ratios While Using JPEG-XR,"* 2013.

[5]. Anil Jain "Fundamental *of Digital Image Processing ,"* 2002.

[6]. Farshid Sepehrband, Mohammad Mortazavi, "*Simple Lossless and Near-Lossless Medical Image Compression Based on Enhanced DPCM Transformation,*" IEEE @ 2011.

[7]. Sourabh Khire, Lee Cooper, Yuna Park, Alexis Carter, Nikil Jayant, and Joel Saltz, "*ZPEG: a hybrid DPCM-DCT based approach for compression of Z-stack images,*" Engineering in Medicine and Biology Society (EMBC), Annual International Conference of the IEEE 2012.

[8]. Jonathan Taquet, Claude Labit, "*Near-Lossless and Scalable Compression for Medical Imaging using A new Adaptive Hierarchical Oriented Prediction*" Image Processing (ICIP), 2010 17th IEEE International Conference, 2010.