Abstract

Digital image requires large amount of data to represent it.So it needs huge storage capacity,long transmission and wide-band channel . Therfore ,that the need to find compression system that is able to decrease the size of the data representing the image.

In this thesis an image compression system is designed and implemented relying on the linear predictive techniqal using adaptive differential pulse code modulation [ADPCM] .In this system an adaptive quantizer is designed which adapts its behavoir from block to block and is given the name block -to -block adaptive quantizer .

To evaluate the system performenc,a non - adaptive optimum DPCM is also designed and the results of both system are compared.In both system a 3-bit non -uniform quantizer is used and the quantized difference image is entropy coded using Huffman code.Subjective and objective evaluation of the system show that and improvement IS achieved by using ADPCM.

Compression ratio of 3.3 to 4.6 is achieved when using ADPCM with high quality of the reconstructed imag.

The original and reconstructed image are viewed by a group of peaple and they could not find any reconguizable difference between them .
We also desinged and implemented an educational program which teaches the fundamentals of the image compression using teaching units method and simulation principl .The program was evaluated by specializets in educational teaching.