

## **HIGH QUALITY & AREA EFFICIENT JPEG IMAGE ENCODER : AN APPROACH BASED ON 2D-DCT**

**DURGA PATIDAR, JAIKARAN SINGH  
AND MUKESH TIWARI**

Department of Electronics and Communication Engineering  
Sri Satya Sai Institute of Science and Technology,  
Sehore M.P. India

### **Abstract**

This paper presents a high speed and area efficient DCT based design for JPEG Image Compression. In Image processing the Image compression can improve the performance of the digital systems by reducing the cost and time in image storage and transmission without significant reduction of the Image quality. This paper presents the simple functions to compute the DCT and show how it is used for image compression. The 2D DCT is performed on 8x8 matrix using two 1-Dimensional Discrete cosine transform blocks. The JPEG image compression algorithm makes use of a discrete cosine transform for converting a signal into frequency components. Two Dimensional Discrete cosine transform (2D-DCT) with Quantization and Zigzag arrangement is used as the path in JPEG Encoder.

---

**Keywords :** Image Compression, JPEG, Discrete cosine transform (DCT), Quantization, zigzag.