phase weight function eliminate false corners for the corner verification and the exact localization of the real corners.

1.2 Demosiacing

Most digital cameras use a single sensor to record images and video. They use color filter arrays to capture one color band per pixel and interpolate colors to produce full RGB per pixel. This interpolation process is known as demosiacing.

1.3 Transforming

A Fourier transform representation can be used to separate the various spatial scales of an image. Operating on this transform of an image we can no longer see local spatial features in a recognizable form. What is really needed is a representation that describes an image at multiple spatial resolutions and also preserves the local spatial structure

Expanding G1 to the same size as G0 and subtracting yields the band-passed image. The original image can be reconstructed from the expanded band-pass images.

A fractal function includes both the basic form inherent in the object and its statistical or random properties. Fractals have the property of self-similarity over many different geometric scales. A fractal appears similar as the spatial scale is changed over many orders of magnitude. The pyramid breaks an image up into a sum of band-passed images plus a low-pass filtered image. If an inherently self-similar fractal image is decomposed into pyramid form, one would expect the band-passed images to look similar at each spatial frequency scale. Conversely, if

Figure 1: Sobel Edge Detection

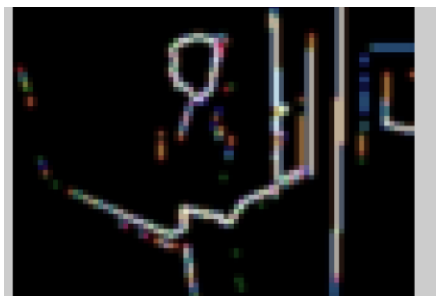

Figure 2: Image Transform using

that allows us to see the picture at each scale. Pyramid representations are ideal for this class of problems.

The pyramid representation expresses an image as a sum of spatially band-passed images while retaining local spatial information in each band. A pyramid is created by low-pass filtering an image G_0 with a compact two-dimensional filter. The filtered image is then sub- sampled by removing every other pixel and every other row to obtain a reduced image G_1. This process is repeated to form a Gaussian pyramid G_0, G_1, G_2, G_3,….G_n.

$$G_k(i,j)=\sum_m \sum_n G_{k-1}(2i+m,2+n),k= 1,N$$

Expanded image $G_{k,l}$ is given by

$$Gkl(i,j)\sum_{mn} \Sigma\ G_{k,l-1}\ [(2i + m/2,2j +n)/2)]f(m,n)$$

similar patterns were entered into each spatial band of a pyramid, the reconstructed image should look like a fractal.

1.4 Image Merging

It is frequently desirable to combine several source images into a larger composite. Simple approaches to merging often create visible edge artifacts between regions taken from different source images. The blurred-edge effect is due to mismatch of low frequencies along the mosaic boundary, while the double-exposure effect is due to a mismatch in high frequencies.

Figure 3: Composite reconstructed Image

Figure 4: Reconstructed Image after Gaussian Pyramid Image Complem**ent**

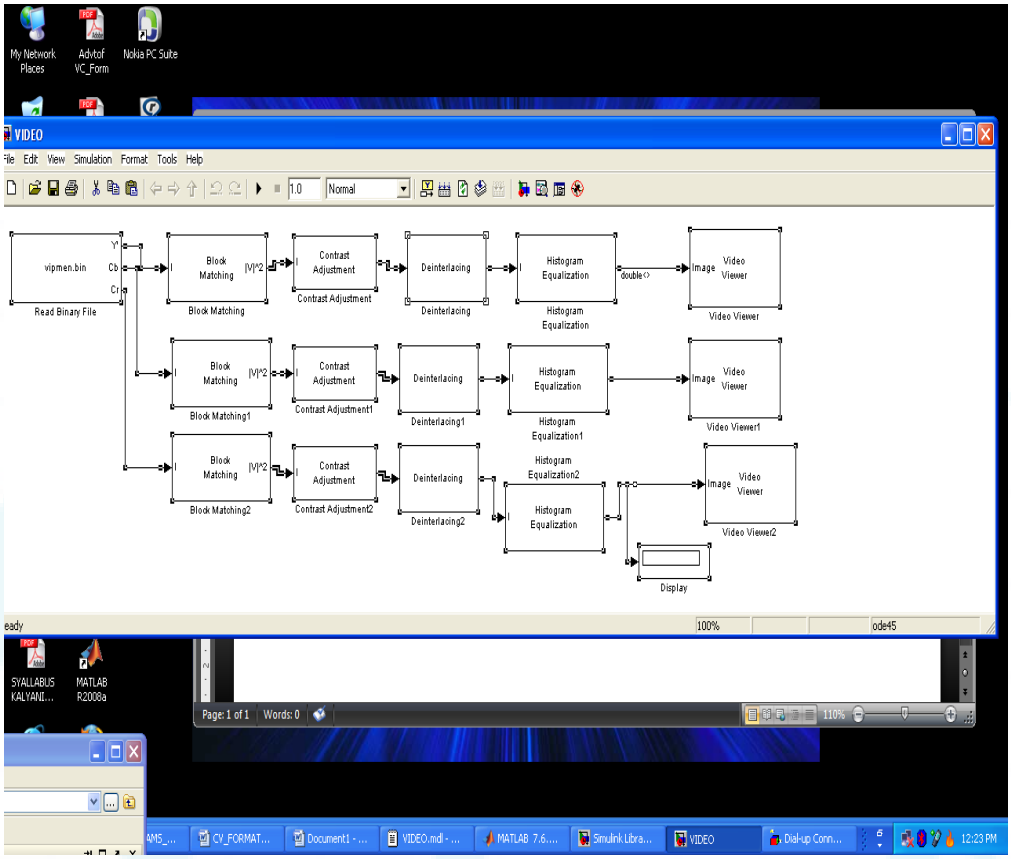

Figure 5: Block matching and image recognition system

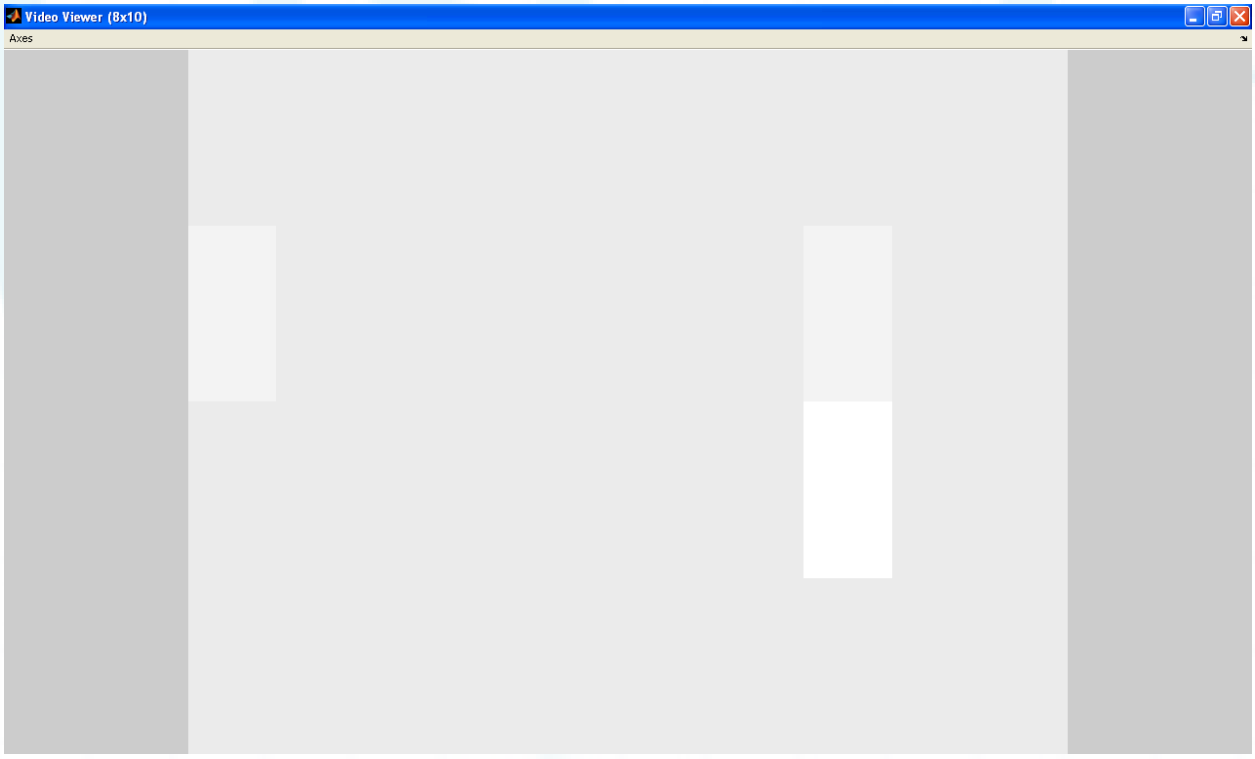

Figure 6: Histogram equalization for video images

2. Experiment Results

A colored video file was used for the simulation in Simulink. Sobel Edge operator was used to extract edges (Fig. 1). The image was demosiaced and then transformed using Gaussian Pyramid (Fig. 2). Image complement was used to reconstruct the image (Fig. 4). Although, the video image was obtained as fractals the image was tried to restore. The same operation was repeated for Y, Cb and Cr. Composite image (Fig. 3) (image blending) was tried for two Y and Cr, and due to lack of place it was omitted for Cb.

There are some important technologies used in intelligent surveillance systems such as detection of fog and disturb visibility. Some research works have been done regarding detection of tampering with or modification of pre-recorded video that deal with data embedding and watermarking techniques. Histogram chromaticity difference is calculated to detect camera tampering. Camera tampering detection is based on comparison of recent and older frames of video data to determine the image dissimilarity. Using the algorithm developed as shown in Fig. 5 camera tampering of images could be detected.

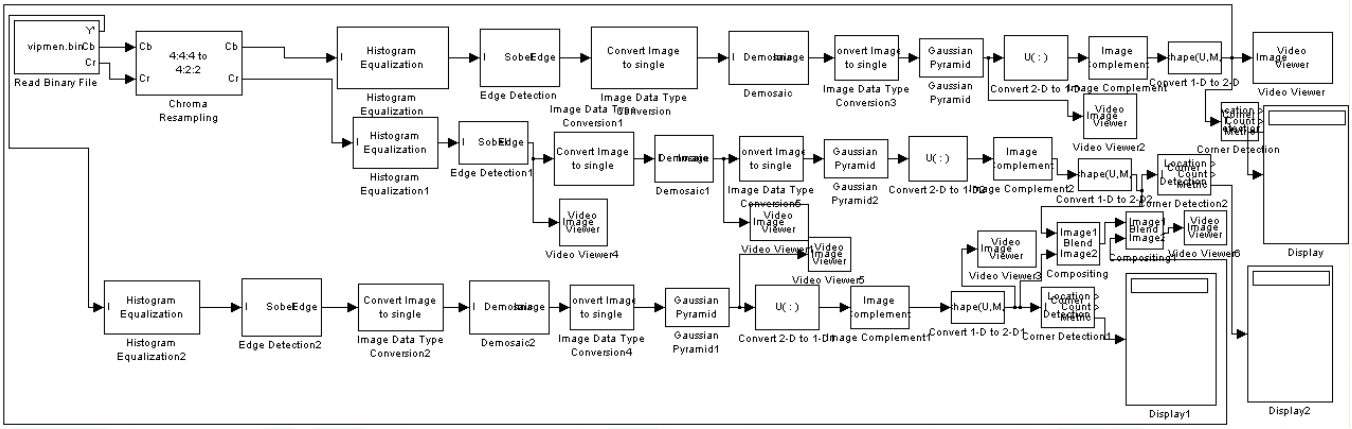

Figure 7: Video surveillance algorithm using Matlab R2008a (Version 7.1)

3. Conclusions

In this paper a novel edge operator and a novel corner operator was introduced as an innovated algorithm. My proposed work could obtain the edges and the corners of gray-level images. Pyramidal representation seems particularly well-suited for making realistic looking computer graphic images on small systems. Camera tampering techniques were incorporated.

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