4. Experimental Results

The adaptive bilateral filter which is developed in the same framework as that of a bilateral filter is an enhanced version of Bilateral Filter. It is clear from the observation that various experiments can be done to improve the quality of a digital image to retrieve its original form. In this paper we have experimented with the minimization technique used in the earlier methods to reduce the errors. Previous techniques and researches used the L2-Norm minimization technique to minimize the errors whereas; in this paper L1-Norm minimization is used for error reduction.

Most of the results are computed using the image shown in Fig. 5. The original image thus taken is subjected to white Gaussian noise in the pre-processing block. The output of this block is a noisy or corrupted image which is shown in Fig. 6. An Adaptive Bilateral Filter is used to enhance the sharpness of input image and remove the unwanted noise from it. The results of filtering by Adaptive bilateral filter using L1-norm minimization technique are shown in Fig.7. High quality, high resolution images are used for the training set .One image was left out of the training set to serve as a test image. The content of training image covers a variety of scenes. To generate the degraded images, we have added additive white Gaussian noise to the test image.

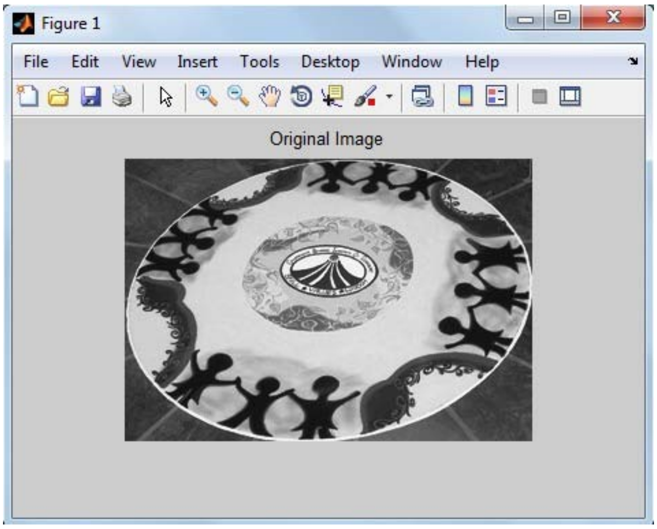

Figure 5: Original Image

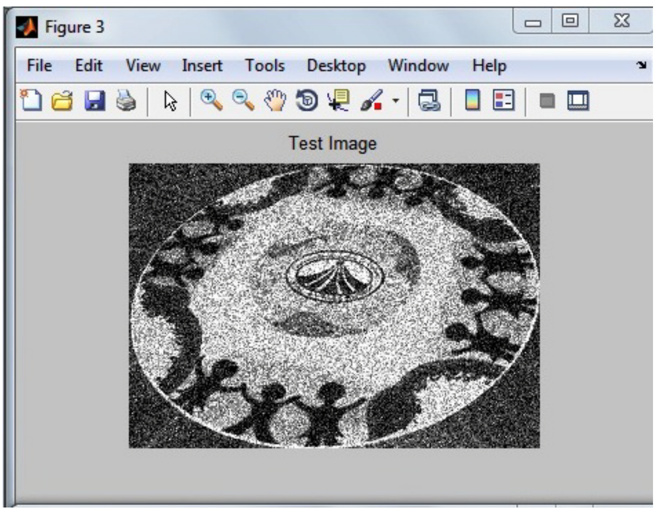

Figure 6: Noisy Image

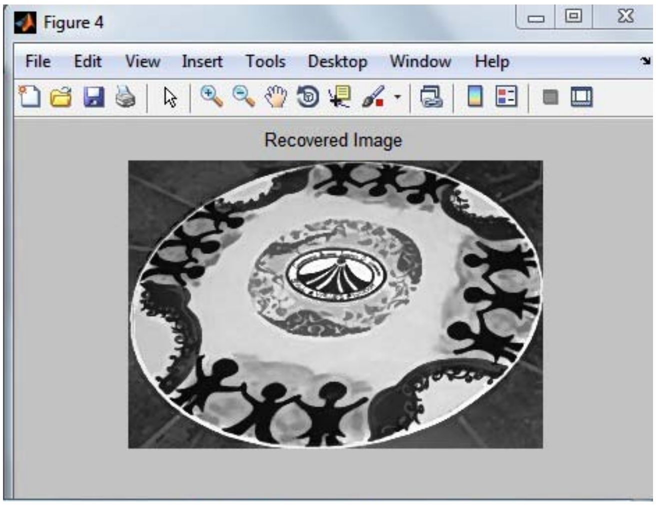

Figure 7: Recovered Image

5. Conclusion

In conclusion, efficient algorithm has been proposed to obtain high quality digital camera images using a Adaptive bilateral filter using L1-norm for error minimization. Unlike earlier technique i.e. L2-norm minimization, it produces much better visual quality images with a comparable high PSNR and low MSE values.

Thus, it proves to be an efficient algorithm for image denoising and sharpening. As there is no computation of squares in this method, it has a very high speed of producing recovered images from a noisy version of the same.

Hence, experimental results show that there are many advantages of LAD method over Least squares method.

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