

Figure 6: Input image 2

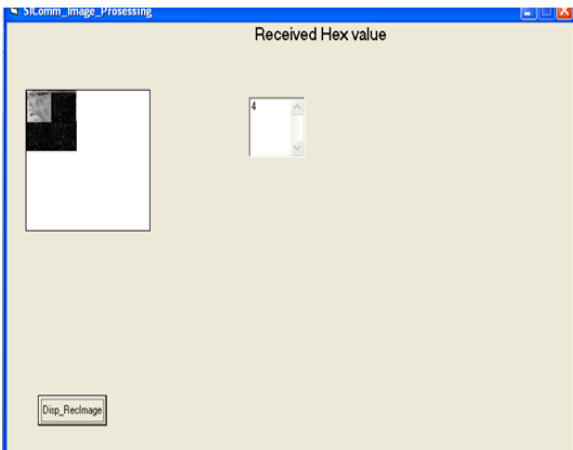


Figure 7: DWT of First Image

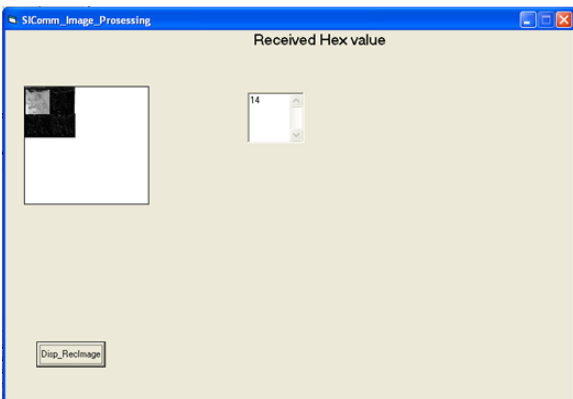


Figure 8: DWT of Second Image

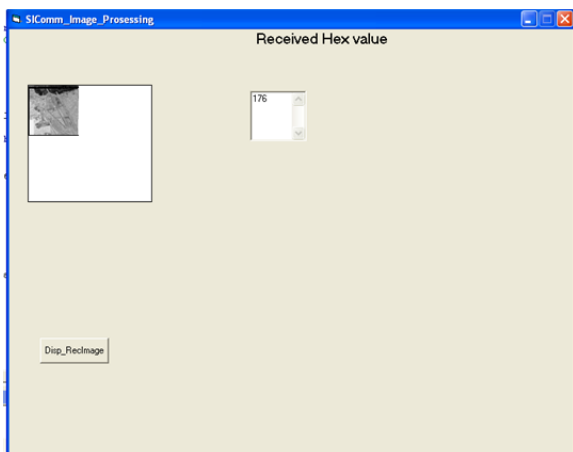


Figure 9: Fused Image

MSE:

MSE is calculated as

$$MSE = ((i/p - o/p)^2) n * m$$

Where, n*m is the number of total pixels. f(i,j) and f'(i,j) are the pixel values in the original and reconstructed image

PSNR:

Peak signal to noise ratio is calculated as

$$PSNR: 10 \log (255^2 / MSE)$$

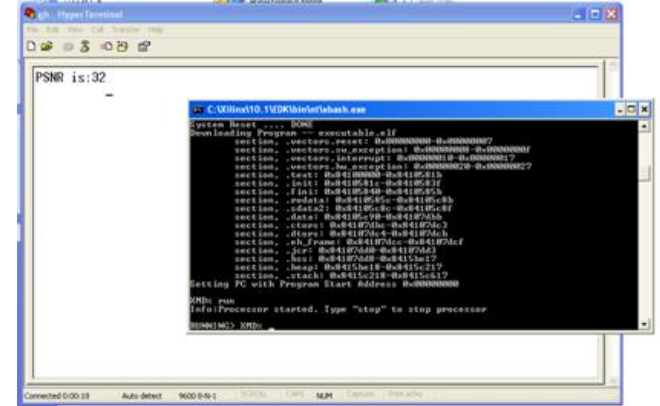


Figure 10: PSNR

4. Conclusion

This paper presented FPGA based runway extraction using image fusion method. Image fusion method combines original information from various images. This gives resultant image as original image. DWT enhance the quality of image. Algorithm provides resultant image without losing information from input images. Implementation is done on FPGA spartan3 board. Image fusion has many applications such as in remote sensing, medical applications, military, security etc.

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