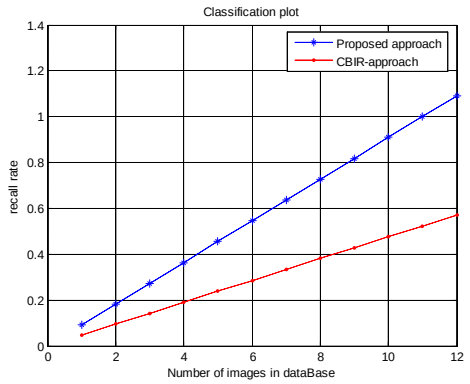

Figure 14: System recall rate obtained for the developed approach

6. Conclusion

In this paper a orientation based feature descriptor for pattern recognition system is developed. In the proposed approach the developed system is processed with wavelet sub band and the orientation features for each sub band is considered. This approach extracts the feature based on the nature of information of orientation feature variation in DWT sub band coefficients. The approach achieves about 20% of retrieval accuracy improvement in comparison to DWT based retrieval system.

References

[1] H. H. Wang, J. Zhang, J. Wang, "A novel method based on discrete multiple wavelet transform to multispectral image fusion". Proceedings of SPIE, Vol.6044, pp: 60440T-1~ 60440T-8, 2005.
[2] H. H. Wang, J. Wang, W. Wang, "Multispectral image fusion approach based on GHM multiwavelet transform". Proceedings of 2005 International Conference on Machine Learning and Cybernetics, Vol.8, pp: 5043~5049, 2005.
[3] Soman K.P and Ramachandran K.I, "Insight into Wavelets from Theory to Practice," Prentice Hall Of India, New Delhi, 2004.
[4] Mallat S, "A Wavelet Tour of Signal Processing". New York: Academic,1998.
[5] Vasily Strela, Peter Niels Heller, Gilbert Strang, Pankaj Topiwala, and Christopher Heil, "The Application of Multiwavelet Filter banks to Image Processing", IEEE Transactions on image processing, vol. 8, no.4, April 1999. pp.548-563.
[6] Vetterli.M and G. Strang, "Time-varying filter banks and multiwavelets", Sixth IEEE DSP workshop, Yosemite, 1994 International Journal of Signal Processing 2;2 200
[7] M. R. Turner, "Texture discrimination by Gabor functions," Biological Cybernetics, vol. 55, pp. 71–82, 1986.
[8] A. K. Jain and F. Farrokhnia, "Unsupervised texture segmentation using Gabor filters," Pattern Recogn., vol. 24, no. 12, pp. 1167–1186, 1991.
[9] D. Dunn, W. E. Higgins, and J. Wakeley, "Texture segmentation using 2-D Gabor elementary functions," IEEE Trans. Pattern Anal. Machine Intell., vol. 16, pp. 130–149, Feb. 1994.
[10] W. A. Rolston and R. M. Rangayyan, "Directional analysis of images using multi-resolution Gabor filters," in Proc. Int. Conf. Robotics, Vision and Parallel Processing for Industrial Vision, Ipoh, Malasia, May 1994, pp. 307–312.
[11] W. A. Rolston, "Directional Image Analysis," master's thesis, Dept. Elect. Comput. Eng., Univ. Calgary, Calgary, AB , Canada, 1994.
[12] T. Chang and C. C. J. Kuo, "Texture analysis and classification with tree-structured wavelet transform," IEEE Trans. Image Processing, vol. 2, pp. 429–441, Oct. 1993.

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