CHAPTER - 8

Conclusions and Future Work

The work in the thesis has successfully achieved following objectives:

i. The multistage image retrieval strategy can affect the retrieval accuracy of the system. The user can adjust the performance by setting appropriate values for number of images presented as output of each stage. The irrelevant images are filtered at each stage which increases the discriminating power of low level features.

ii. The region code based selective matching scheme is very useful in comparing relative locations while consuming less computation time in RBIR. In addition the user intent can be reflected effectively in the query formulation using the dominant color based ROI overlapping block selection strategy. Further, dominant color and local binary pattern make a robust feature set for representing regions in RBIR.

iii. The discriminating power of traditional LBP can be increased using threshold that utilizes centre pixel value with local and global information of the image. The binary patterns so produced are also found more robust to noise and achieved higher classification accuracies over representative texture database.

iv. The structured and statistical approaches of texture extraction can be combined effectively using a short run length descriptor. Short run length provides a more flexible way of representing texture in comparison to texton based techniques. The SRLD
extracted from quantized color image can thoroughly describe the correlation between color and texture of the image.

v. Color, texture and shape of a region can effectively be described using integrated local binary pattern based descriptor CBRD. The CBRD together with the modified region code based matching provide an effective region based image retrieval technique.

In future, work can be done to provide more effective solutions for the identified problems. In addition the presented image descriptor can be tested on other databases for further establishing their efficacy.

The multistage framework of image retrieval is well suited to global feature based CBIR. However, its application in region based image retrieval is limited due to increase in computation overhead in similarity calculation. The multistage feed forward strategy can be improved so that it can be adopted for improving the performance of local feature based image retrieval system.

The proposed LBP based descriptor can be improved further by exploring more combinations of thresholds and adopting more complex LBP code computation scheme involving centre pixel and its neighbors. The features may be improved by making them invariant to illumination and lighting variations.

For further improving the retrieval performance of region based image retrieval system partial overlapping regions with user defined ROI may be considered with the suggested region codes based similarity matching scheme.