Ahmedabad University

ECE501- Digital Image Processing

Weekly Report 7

Section 1

Submitted to faculty: Prof. Mehul Raval

Topic: Content-Based Image Retrieval (CBIR)

Week Duration: 9th Nov - 15th Nov

Group no.: 6

Enrollment No.	Name	Name of the Program
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2025-2026 (Monsoon Semester)

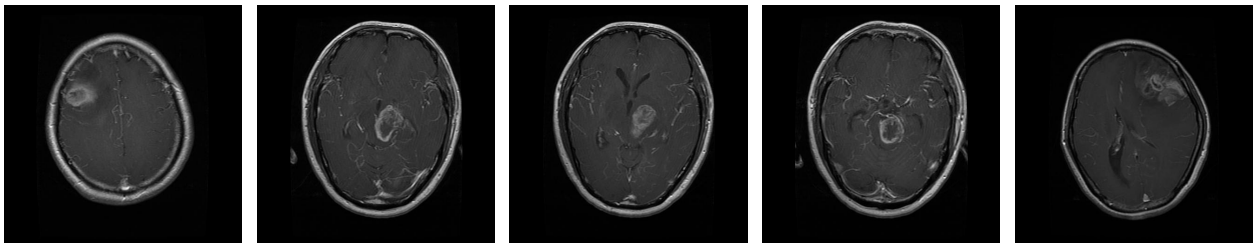
Objective

To design a Content-Based Image Retrieval (CBIR) system capable of retrieving visually similar images from a custom dataset using classical Digital Image Processing techniques such as colour histograms, texture analysis and edge detection, test and verify the results on images from the collected dataset, and retrieve meaningful data.

Input: a query image and a dataset
Output: a set of images from the dataset with a rank which are visually similar to the input image.

Work Done This Week

- We increased the image dataset to almost 900 images
- Improved accuracy based on query images and analysed metrics for the same.
- The methods we have used for image retrieval using features are HSV and LAB Histograms (LAB - a colour space) for colour, LBP (Local Binary Pattern) for texture and Hu Moments for shape.
- Some examples of our output is given below



(a) Query (b) Rank 1 (c) Rank 2 (d) Rank 3 (e) Rank 4

Figure 1

(a) Query (b) Rank 1 (c) Rank 2 (d) Rank 3 (e) Rank 4

Figure 2

Next Week Plan

- Report is in it's finishing stages.
- Presentation to be done.
- All extra files and codes to be committed to github

Challenges Faced

- We faced a lot of problems in feature extraction for certain query images. Like query image of zebra gave out MRI images due to black and white nature of both.
- Some features took too much time to process and was a hassle especially during debugging