Basic Task

Signal Processing and Machine Learning

Image Processing

PROBLEM STATEMENT:

One day, you find an interesting puzzle on a magazine, asking to find as many differences between two given images for an astounding prize money. You being lazy, despite the reward, want to find a simple yet robust algorithm which can do the given task with good accuracy. Finally, you go a step ahead and make an LED matrix of suitable size, segment the image into corresponding size and glow the LED's wherever you find a difference with the help of a microcontroller.

GUIDELINES:

- You can use any micro-controller of your choice for interfacing the LED matrix.
- Use Image processing algorithms in any language of your choice (Python/C++).
- Input format shall be an image containing the puzzle inside.
- The output is represented by bounding circles around the differences in the image and glowing the respective LED's in the LED matrix.

EVALUATION METRICS:

- Accuracy of the algorithm.
- LED matrix fabrication.
- Interfacing with laptop.

COMPONENTS REQUIRED:

A microcontroller board with required cables, LED's for the matrix along with wires and resistors.

SUBMISSION:

A working video along with code .

SUBMISSION GUIDLINES:

- **All the codes necessary for executing the program to be kept in a folder (including the library files)**
- **Take a proper working video and upload in youtube under unlisted section and get the link of it and put in a common folder with the codes**
- **Name of the folder should be rollno_domain_subdomain_taskname**
- **Compress the file in zip format and then upload the folder in a drive and get the share able link of the folder and upload in the portal**

RESOURCES:

- https://opencv-python-tutroals.readthedocs.io/en/latest/py_tutorials/py_imgproc/py_table_of_contents_imgproc/py_table_of_contents_imgproc.html

- https://www.pyimagesearch.com/2018/07/19/opencv-tutorial-a-guide-to-learn-opencv/