

Report on tasks from 6th June, 2023

Live monitoring and Motion detection team

Introduction

The objective of this report is to present the findings and outcomes of the image processing tasks assigned to our team. All the tasks were assigned to each team member since this was the first set of tasks assigned in this research project. Each team member collaborated but explored the various image processing tasks individually on their GoogleColab. OpenCV, an open-source computer vision library, was utilized to perform the various image processing tasks.

Assigned Tasks

1. **Read and display digital images and also perform image arithmetic operations and logical operations on the given image and display the result.**

Progress Update: Completed. Reading image, showing image, writing image, Arithmetic operations addition and subtraction, bitwise operations including and, or, xor, not were explored using OpenCV library

Note: use of cv2.imshow(__,__) on google colab displayed the following error:
cv2.imshow() is disabled in Colab, because it causes Jupyter sessions to crash

Solution:

```
from google.colab.patches import cv2_imshow  
cv2_imshow() works the same way
```

2. **Apply Geometric transformation on the image.**

Progress Update: Completed exploring rotation, translation and reflection.

3. **Operations to blur and deblur an image.**

Progress Update: Explored Averaging, Gaussian blur, Median blur, Bilateral Filtering, Sharpening or deblurring.

4. Edge Detection

Progress Update: Edge detection using Canny was explored thoroughly. The complete theory of Canny was also explored- Steps of Noise Reduction, Finding intensity gradient, Non-maximum Suppression and Hysteresis thresholding was also read and explored through the OpenCV documentation.

Github links

- Anirudh Mullangi: <https://github.com/anirudh0345>
- M Udaya Raj: <https://github.com/MUDAYARAJ>
- Nikhil Srikanth: <https://github.com/nikhil-srikanth>
- Prashant R Joshi: <https://github.com/uPrashantJoshi/VideoProctoring>

References

[Arithmetic operations on images](#)

[Bitwise operations on Images](#)

[Image Rotation and translation using OpenCV](#)

[Image Reflection using OpenCV](#)

[Image Resizing using OpenCV](#)

[Sharpening an Image](#)

[Canny Documentation](#)

[Image Filtering Documentation](#)