

Report for Assignment-3 (Panorama Stitching)

Algorithm Followed to develop the Code:

- The Code is initiated with two right most images from the images of the static scene.
- The Homography is estimated using the RANSAC Algorithm.
- Now the Origin of the right image is shifted as per Homography calculations and the whole right image is pasted at those co-ordinates in the blank canvas.
- Now left image of both is pasted in the remaining blank canvas (defined with double the size of images)
- The remaining blank canvas is removed and only image part is retrieved.
- The above steps are repeated for the remaining images and the Instead of the right image now whole stitched part in previous steps is shifted in canvas using Homography between corresponding images.
- Now the remaining blank part in canvas is removed and the saved in the same folder as of images.

Results for the five image sets used in the Assignment:





Drawbacks:

- Good Horizontal shift is seen but poor vertical shift is observed (can be limited with good dataset with minimum hand glitches while clicking the images).
- Intensity differenced led to many mismatches (Especially in image set 4).
- Pixel to Pixel Transformation is leading to very poor results.

Image Sources:

- Image set 1 & 2 are provided by Rakshita Rao (M.tech Electrical, IIT Gandhinagar)
- Image set 3 & 4 are provided by Shrihari Gunjal (M.tech Electrical, IIT Gandhinagar)

References:

- **For Homography Estimation:** Class Notes
- **For RANSAC Algorithm :** Class Notes
>> https://engineering.purdue.edu/kak/courses-i-teach/ECE661.08/solution/hw4_s1.pdf