

Assignment 3

EE 645 3D Computer Vision

Q1.

a) Matched Features

Scene 1

Image 1 and 2

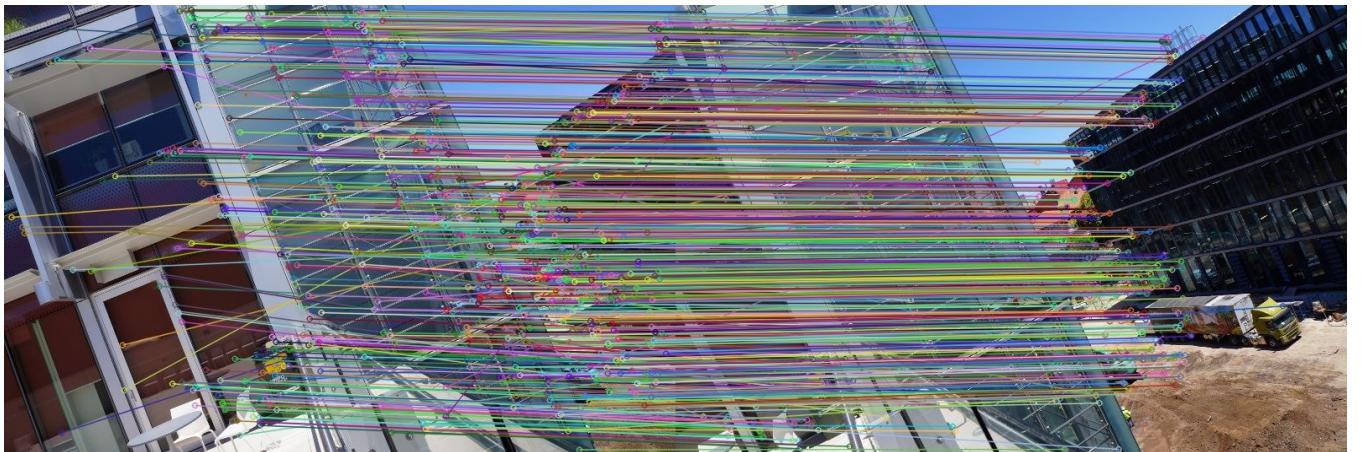
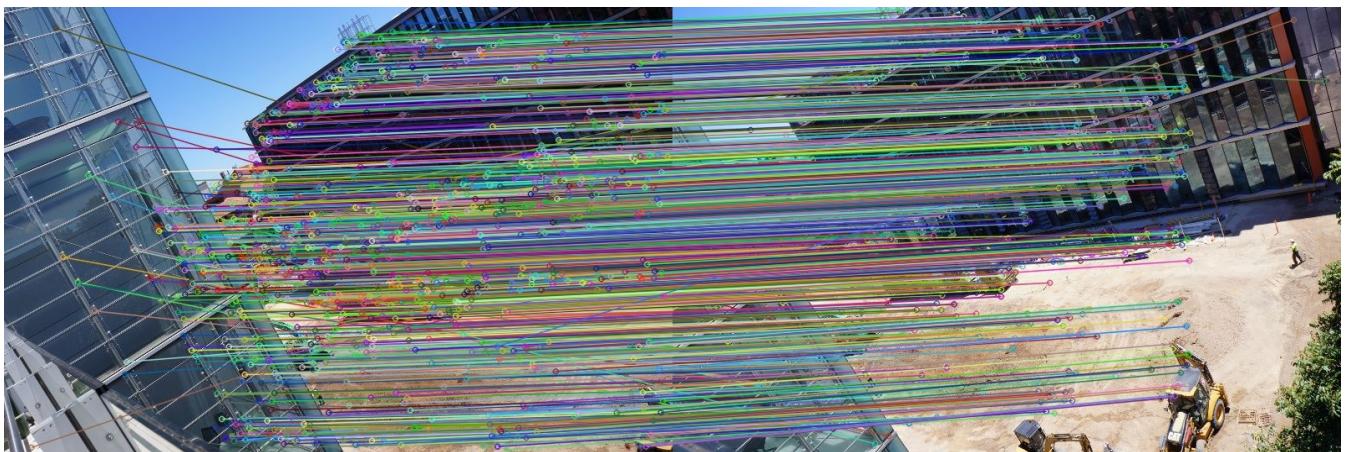


Image 2 and 3



Image 3 and 4



Scene 2

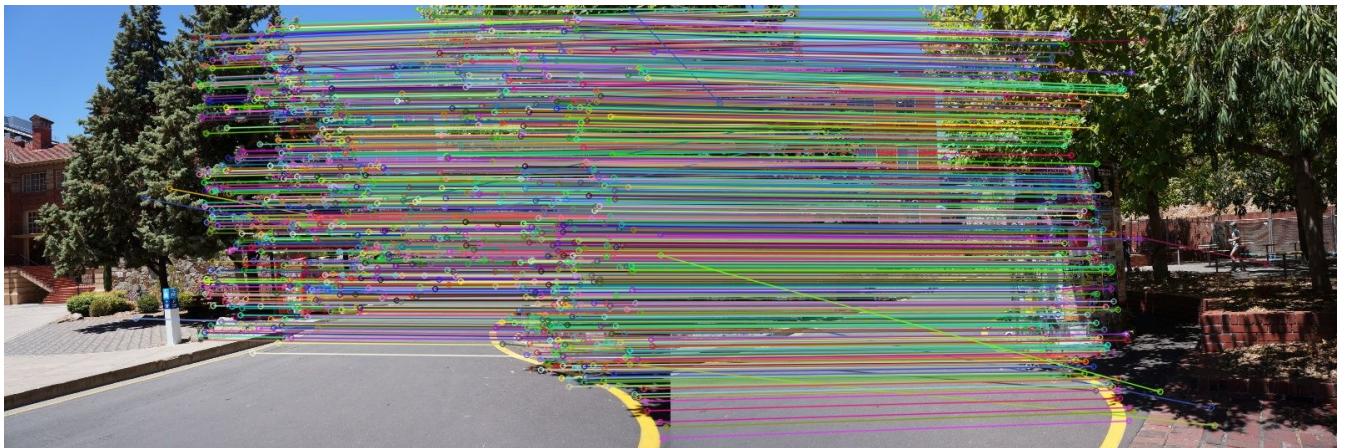
Image 1 and 2



Image 2 and 3



Image 3 and 4



Scene 3

Image 1 and 2

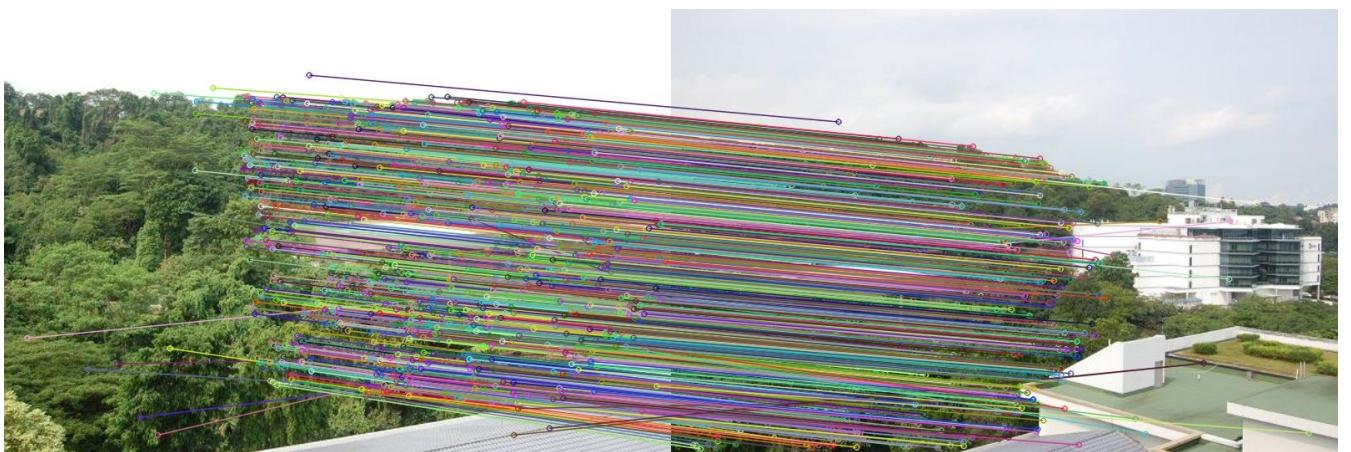


Image 2 and 3

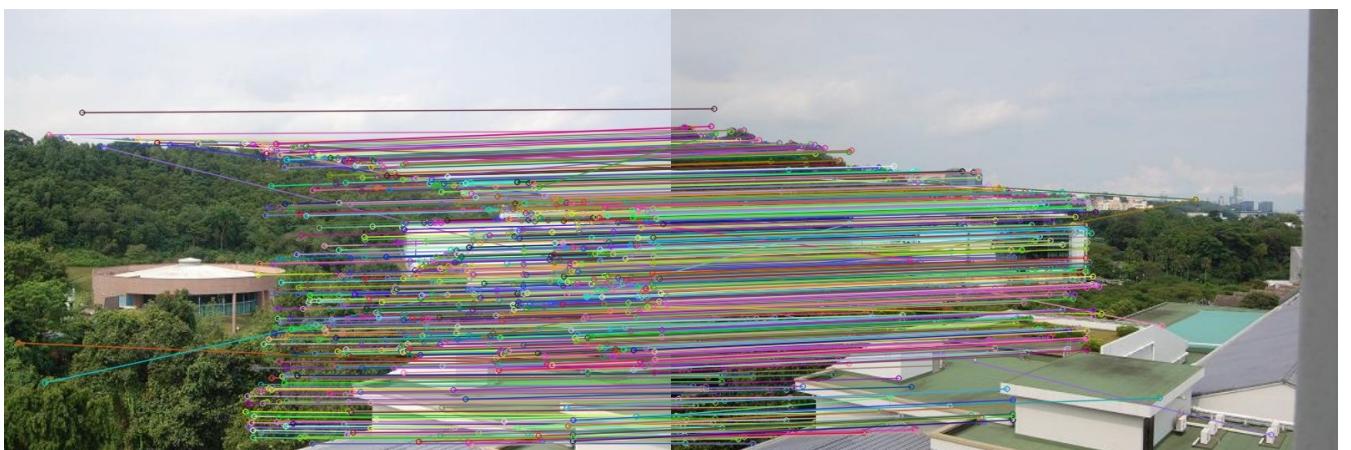
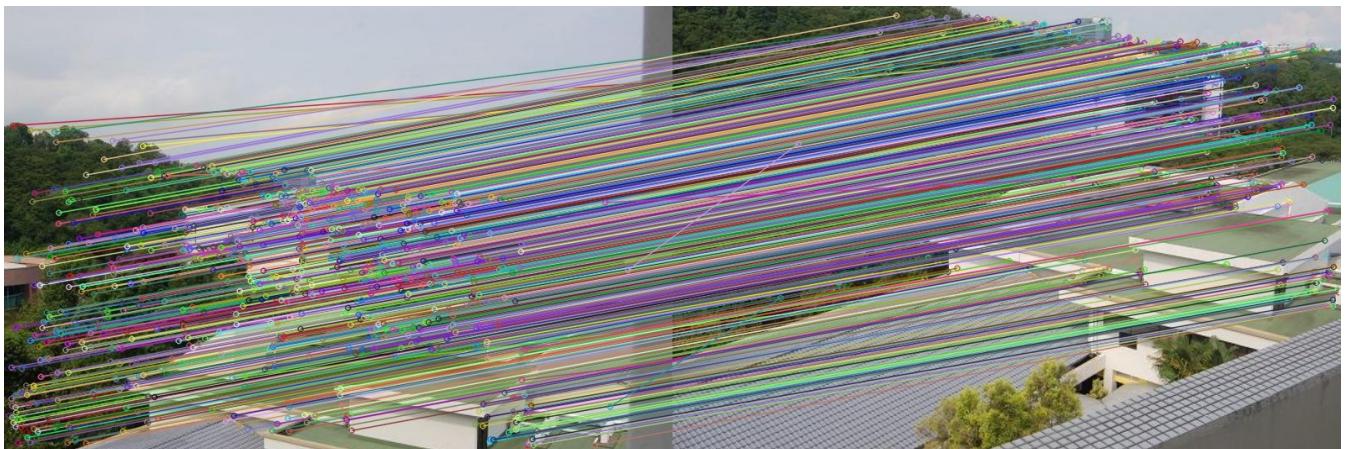
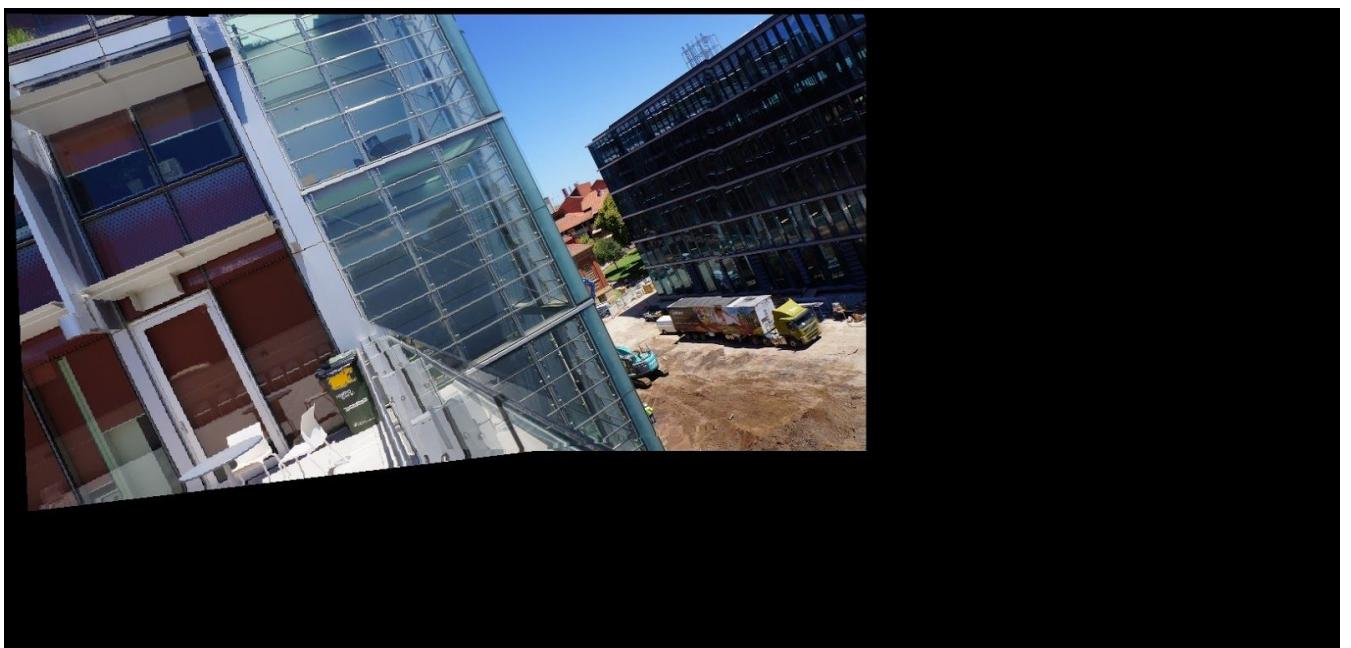


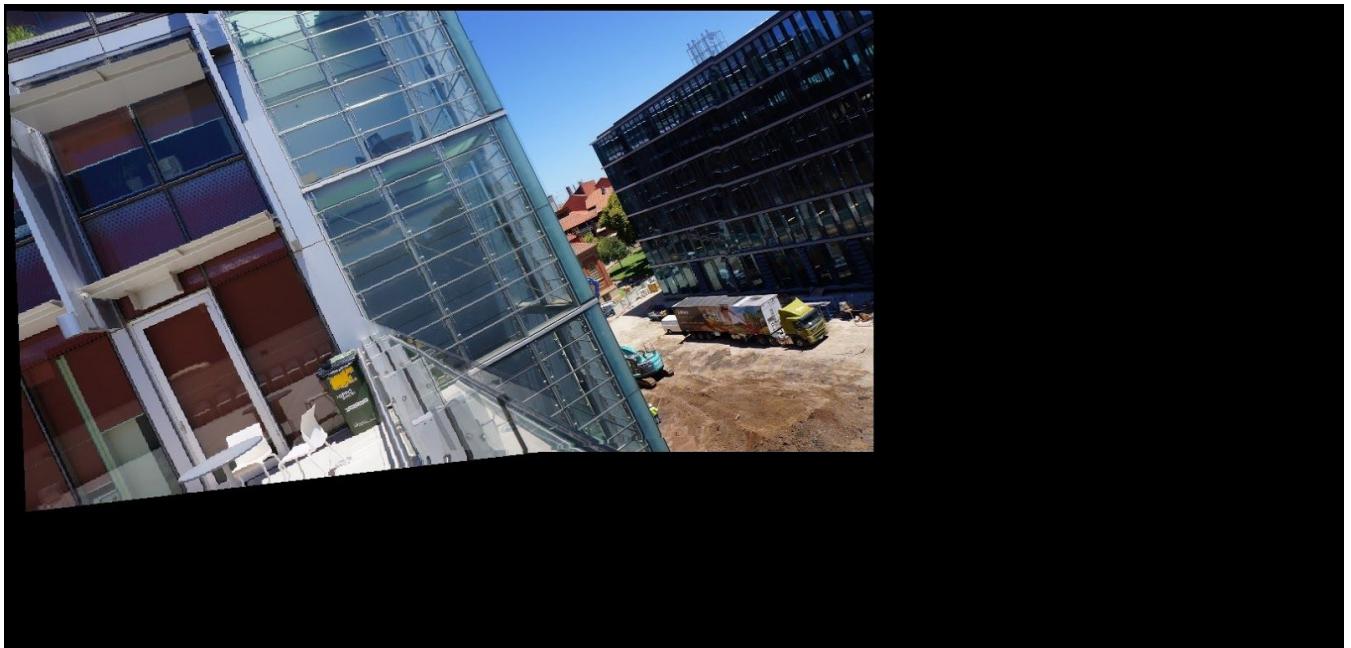
Image 3 and 4



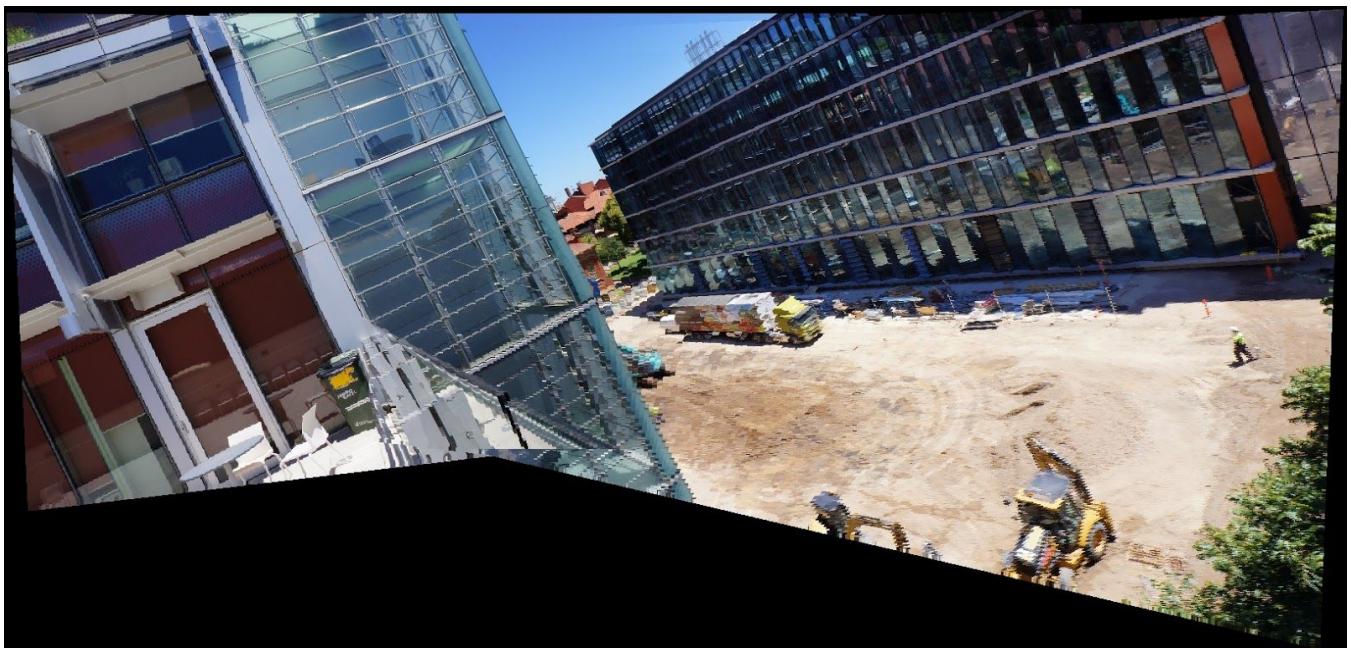
(c)Scene 1
Stitch 1 and 2



Stitch 1,2 and 3

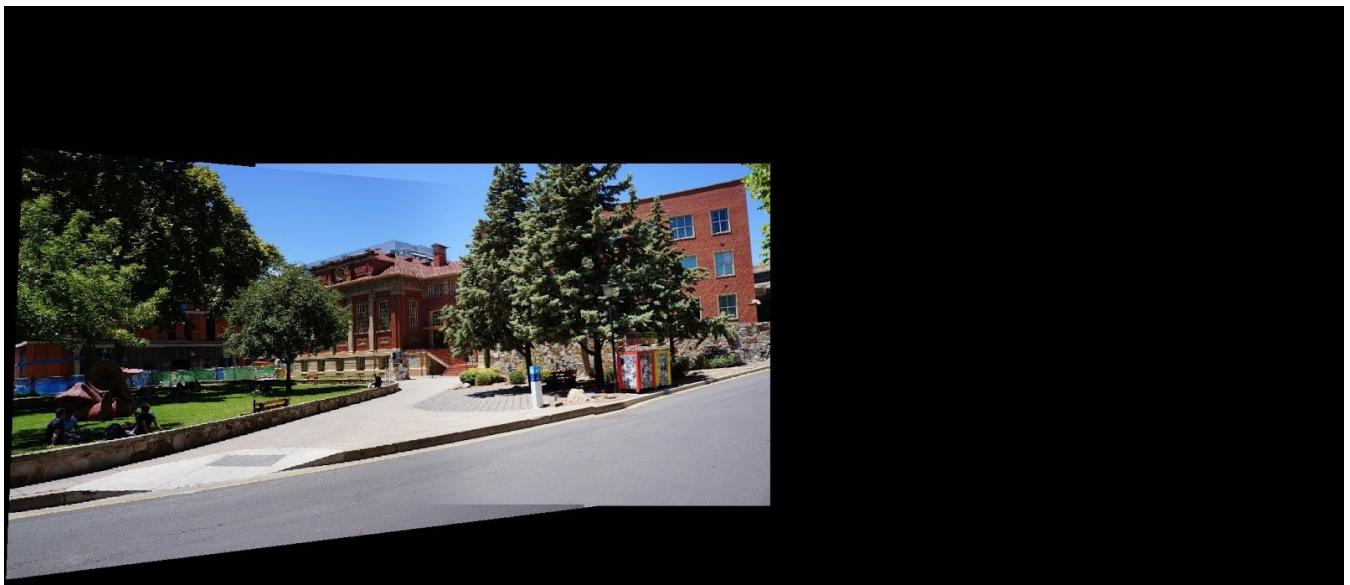


Panorama

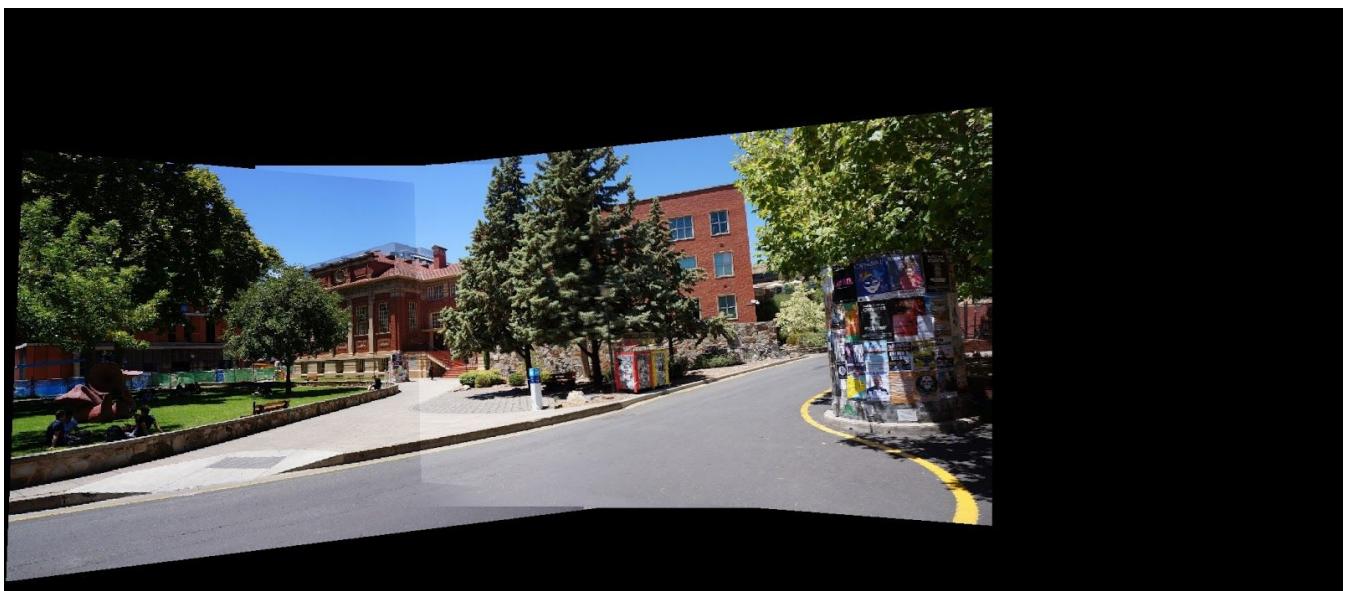


Scene 2

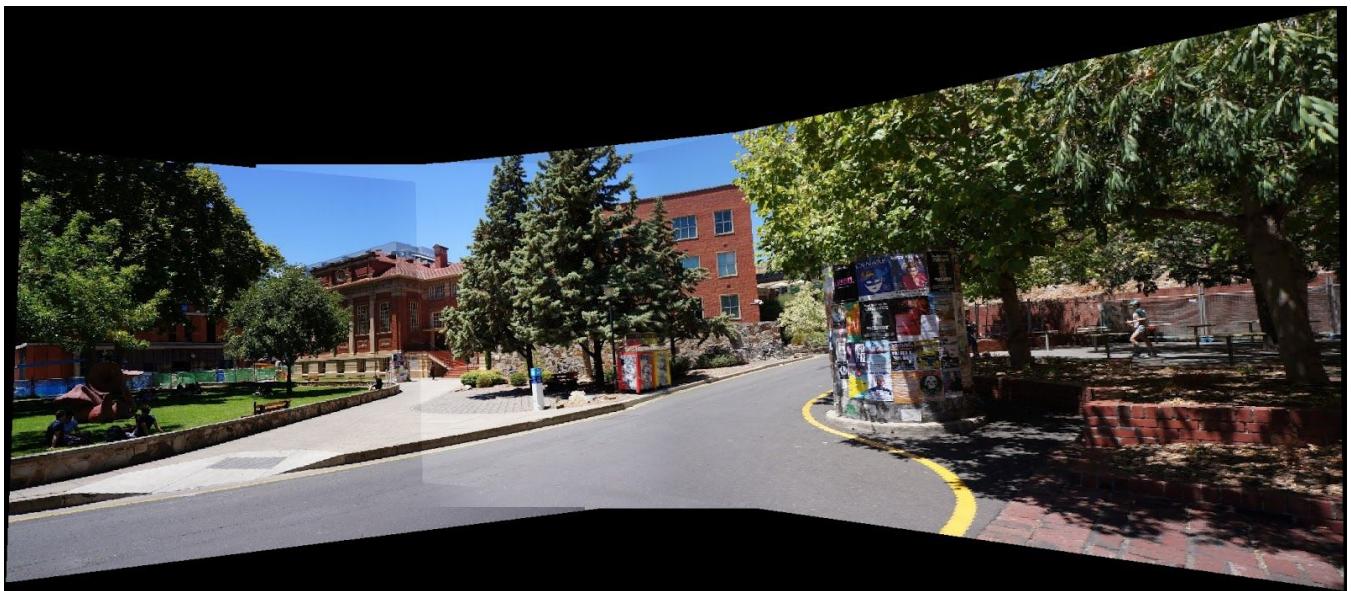
Stitch 1 and 2



Stitch 1,2 and 3

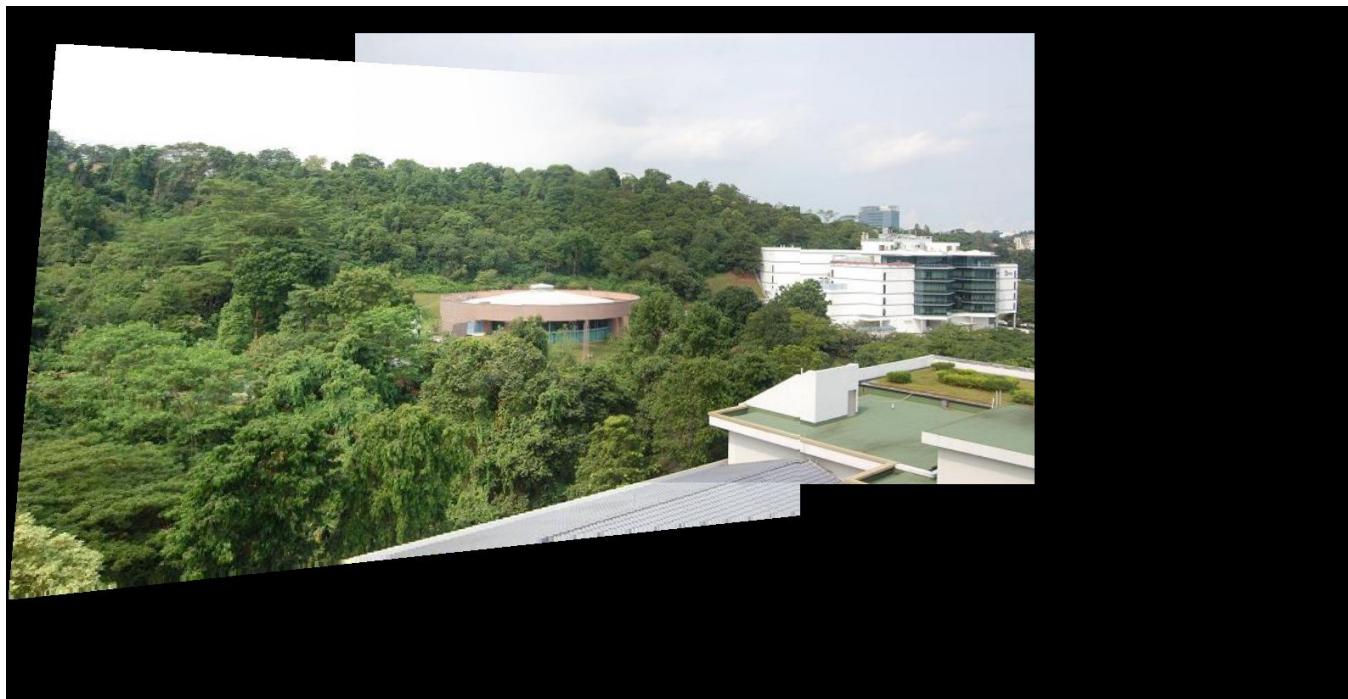


Panorama

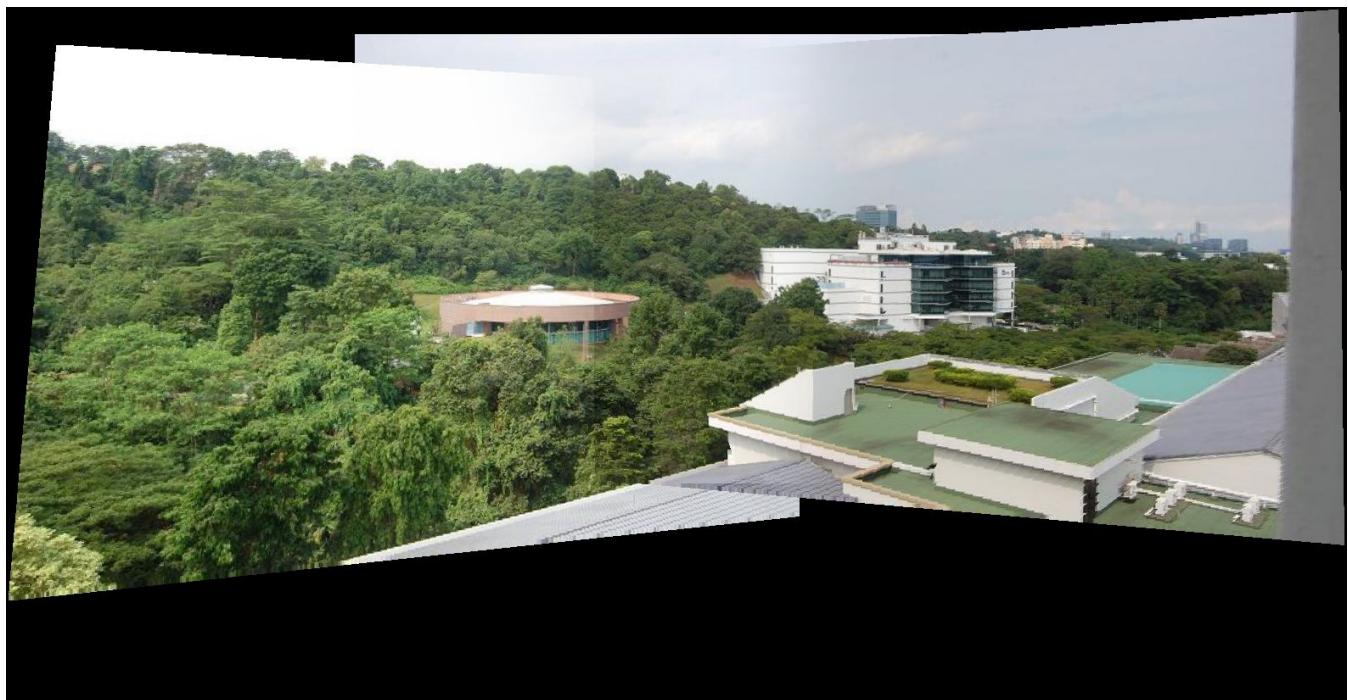


Scene 3

Stitch 1 and 2



Stitch 1,2 and 3



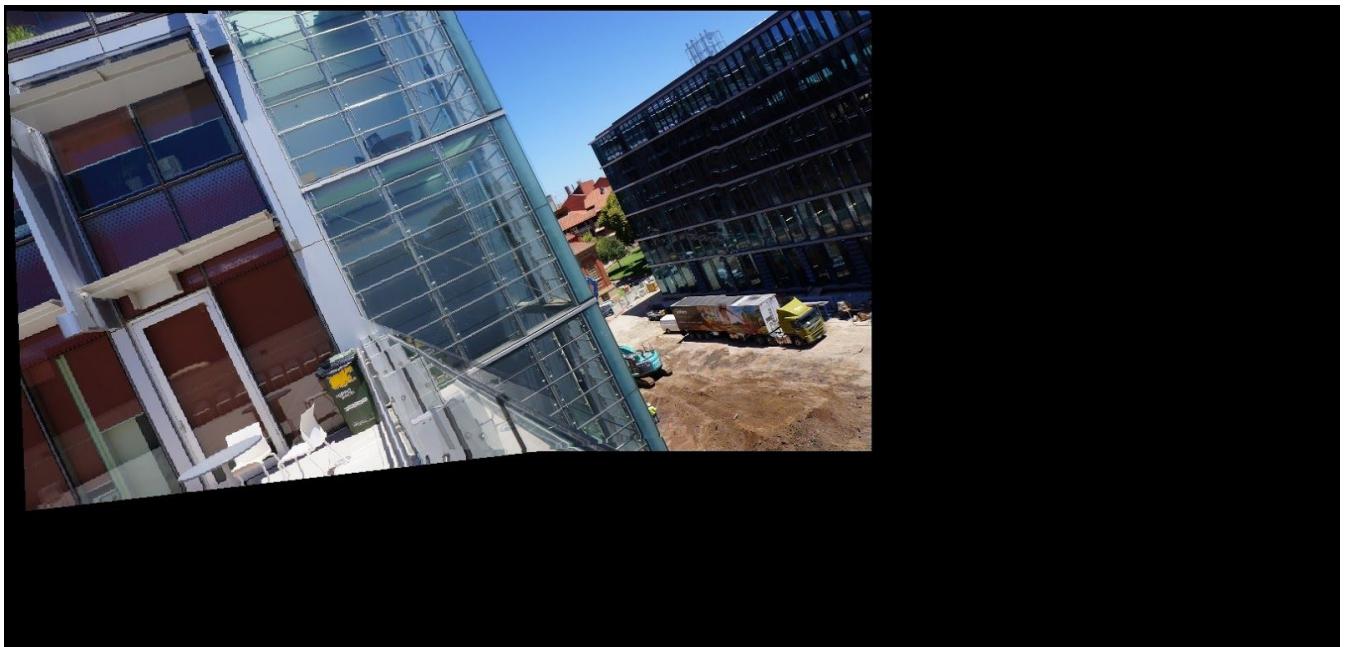
Panorama



(d)

Scene 1

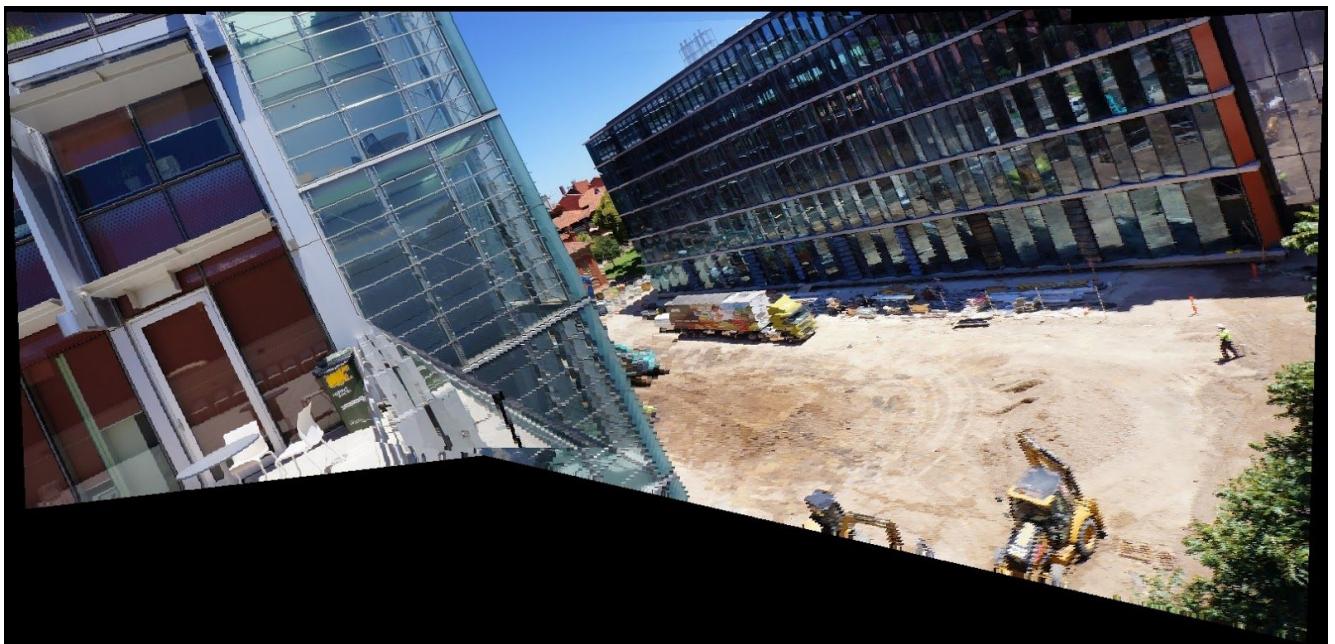
Stitch 1 and 2



Stitch 1,2 and 3

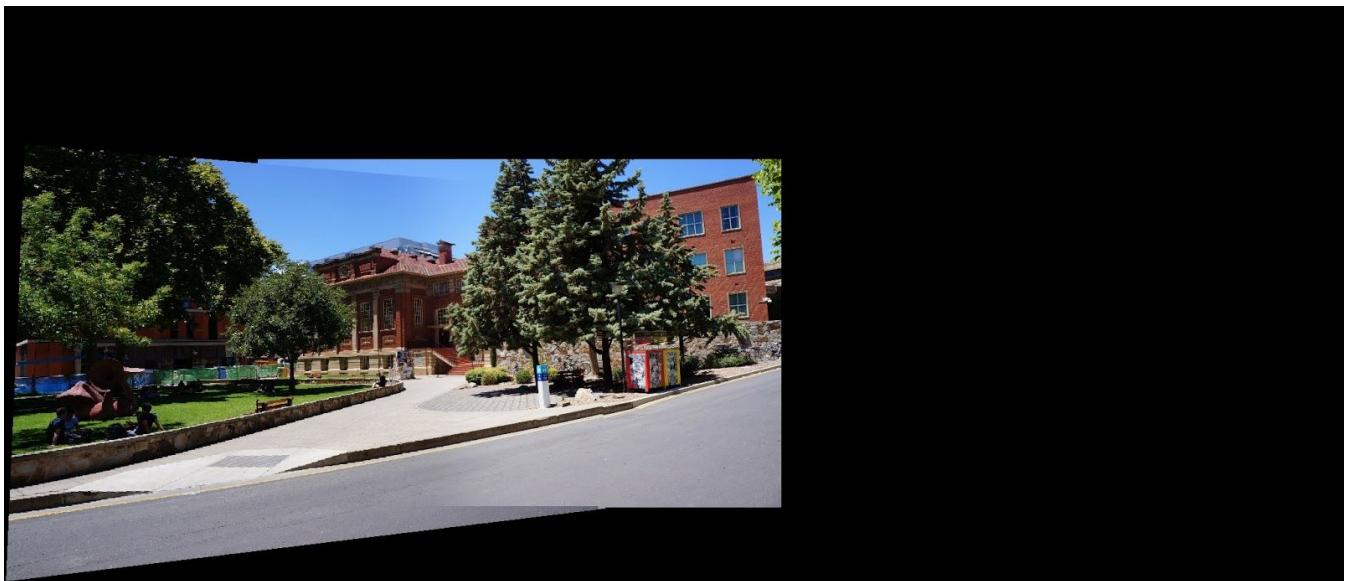


Panorama

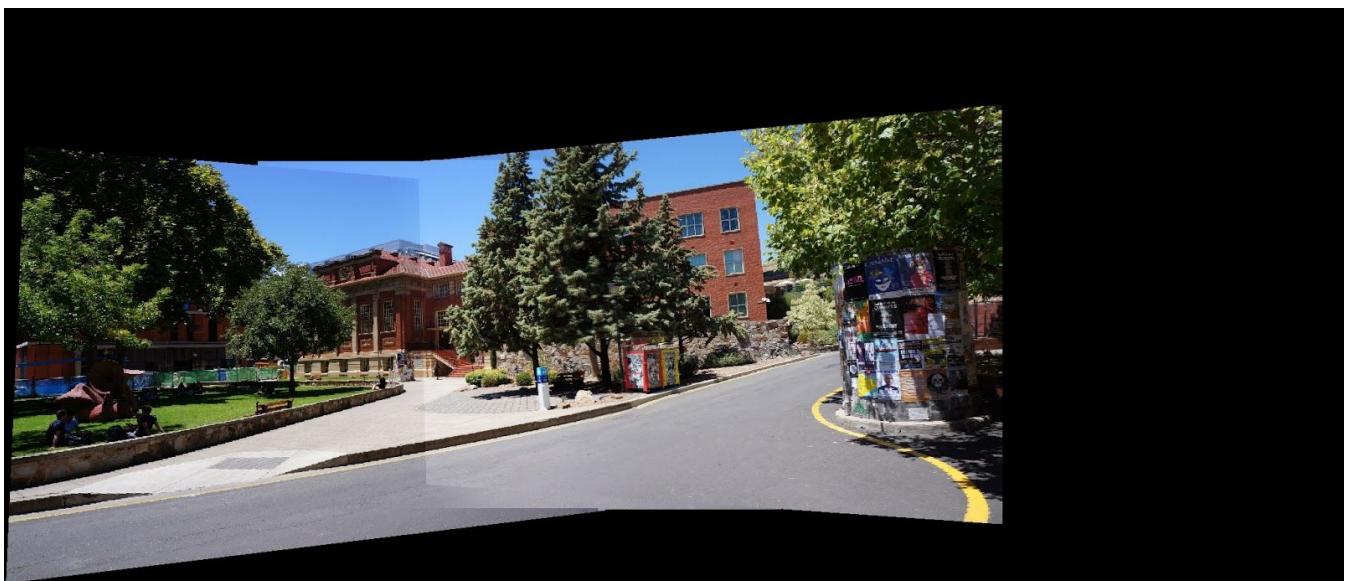


Scene 2

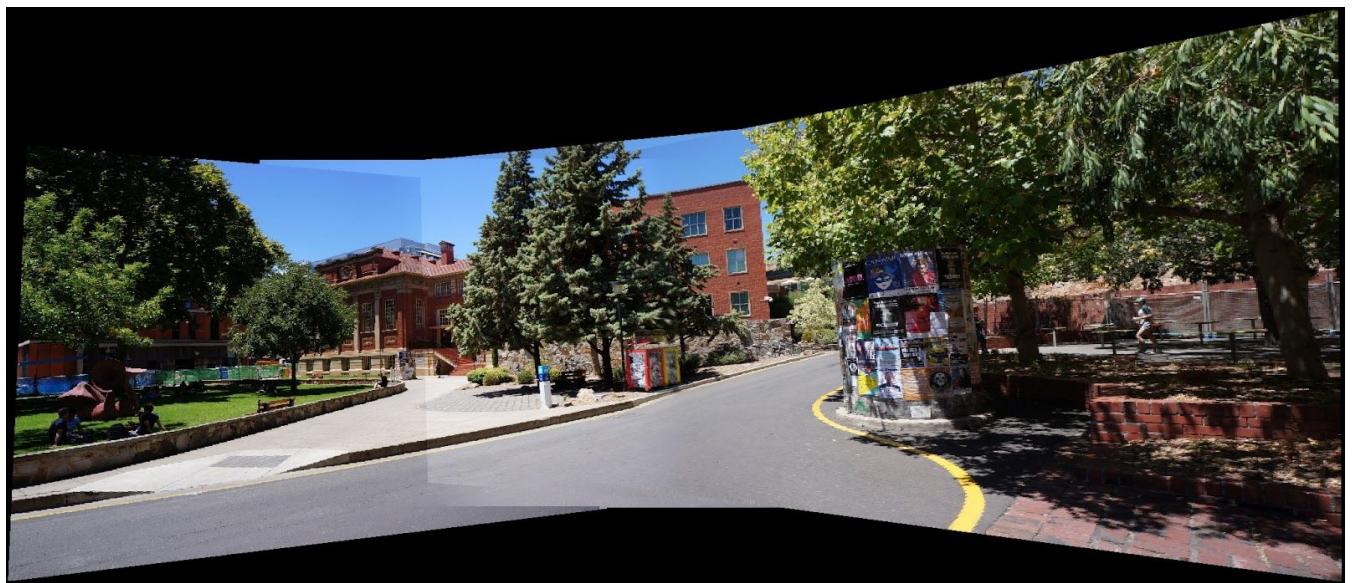
Stitch 1 and 2



Stitch 1,2 and 3

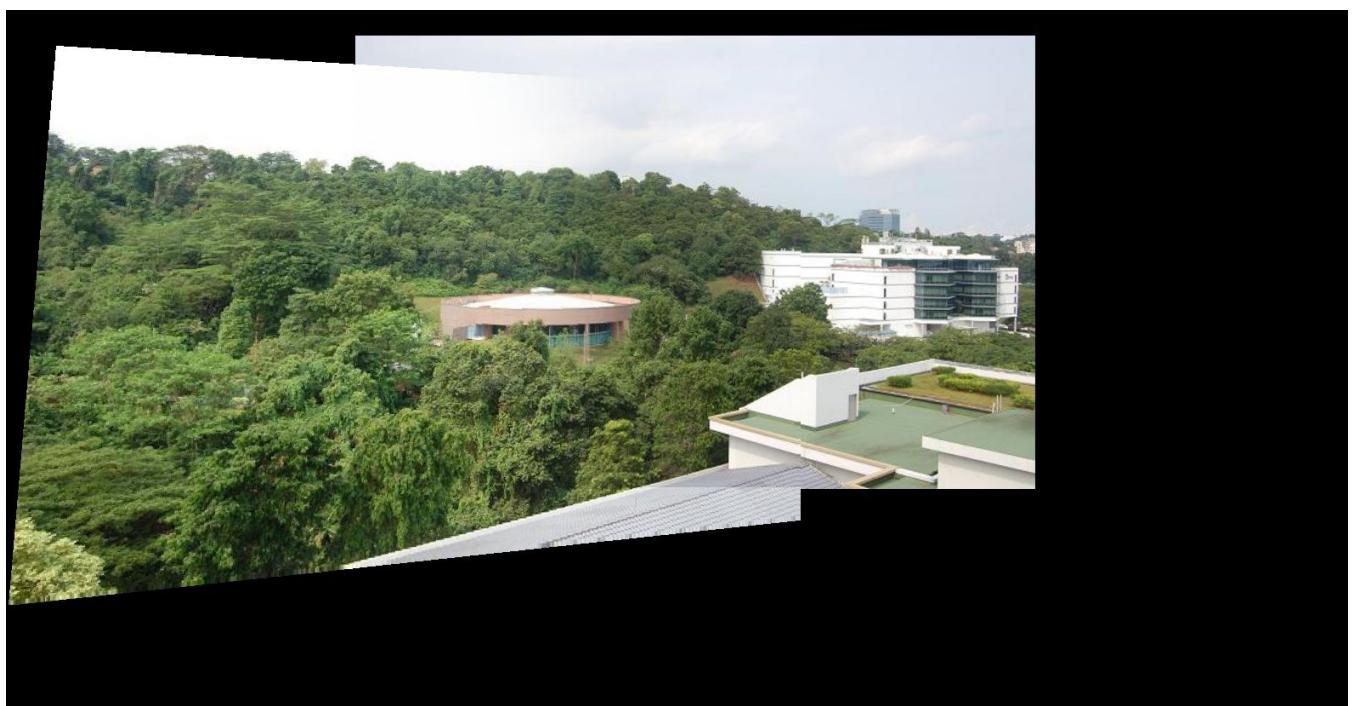


Panorama

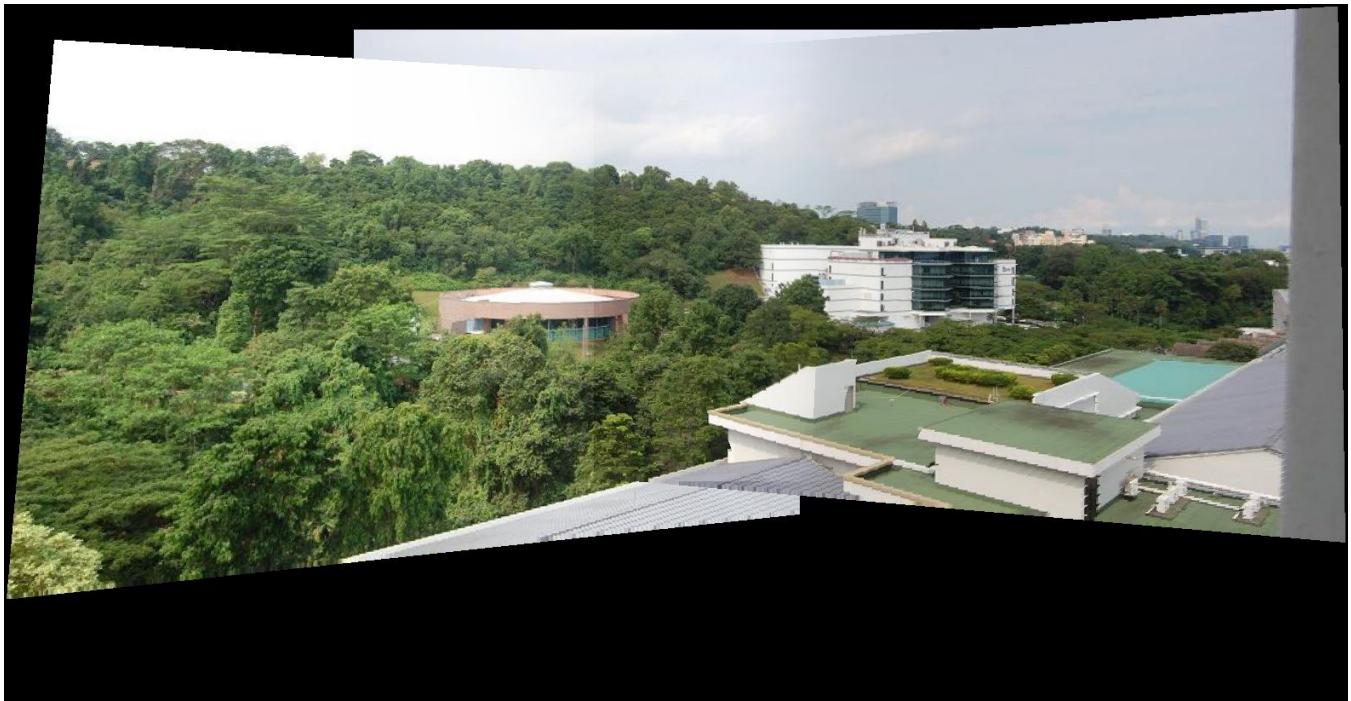


Scene 3

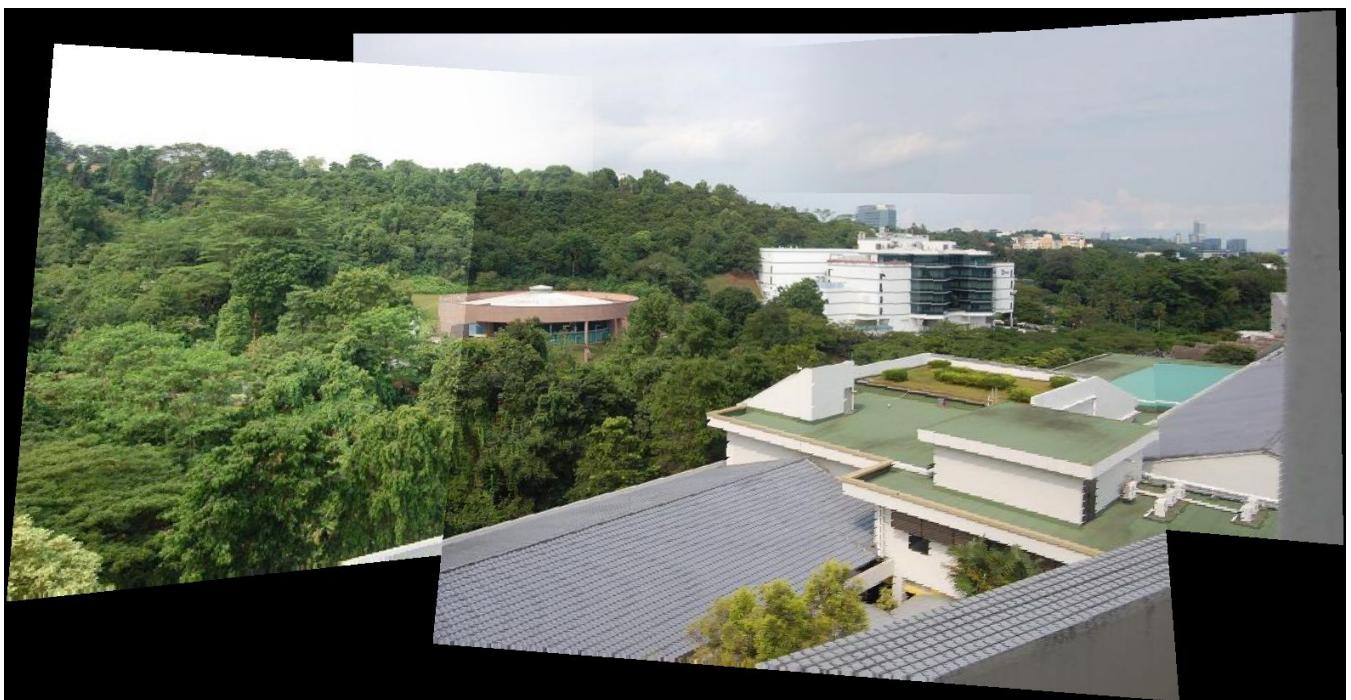
Stitch 1 and 2



Stitch 1,2 and 3



Panorama 3

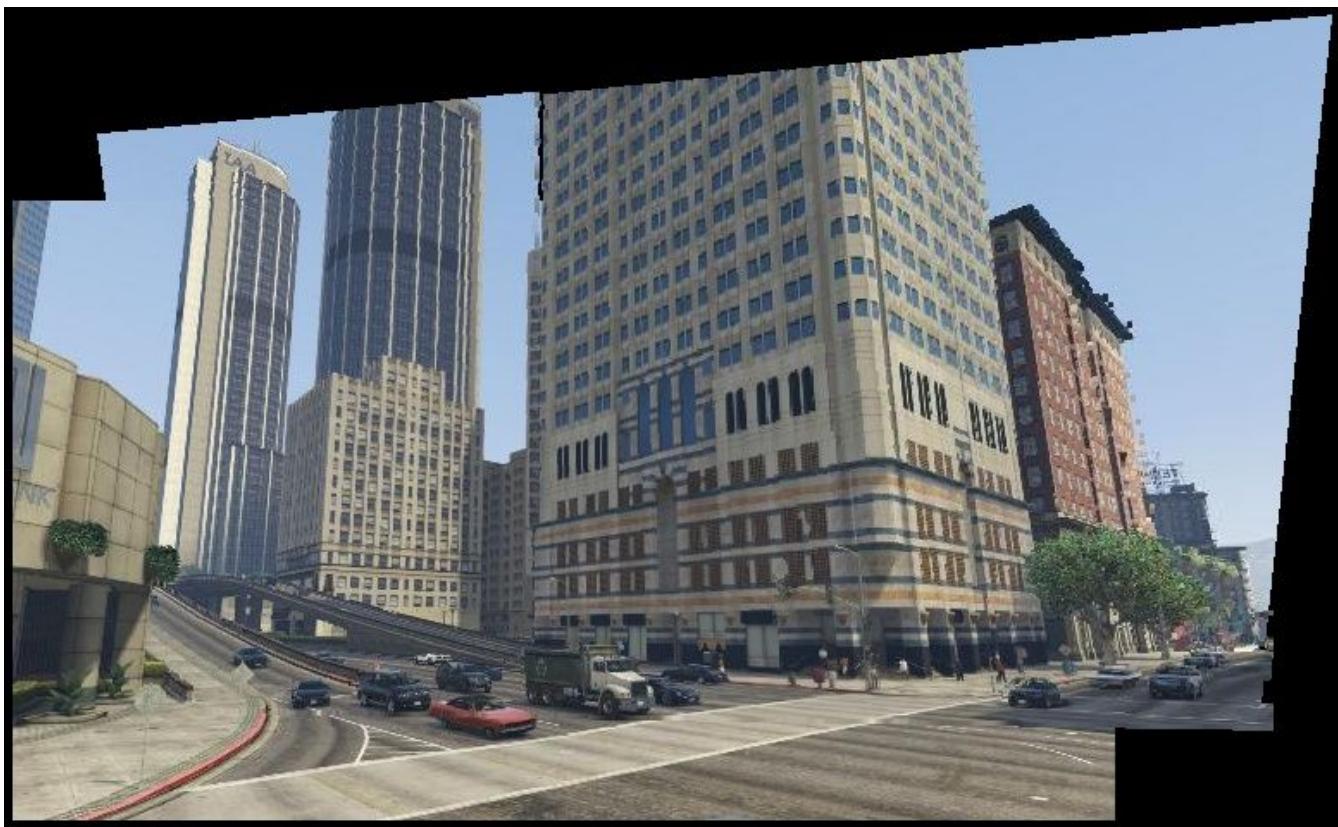


The panorama obtained after using inbuilt command is almost same to the output of my algorithm.

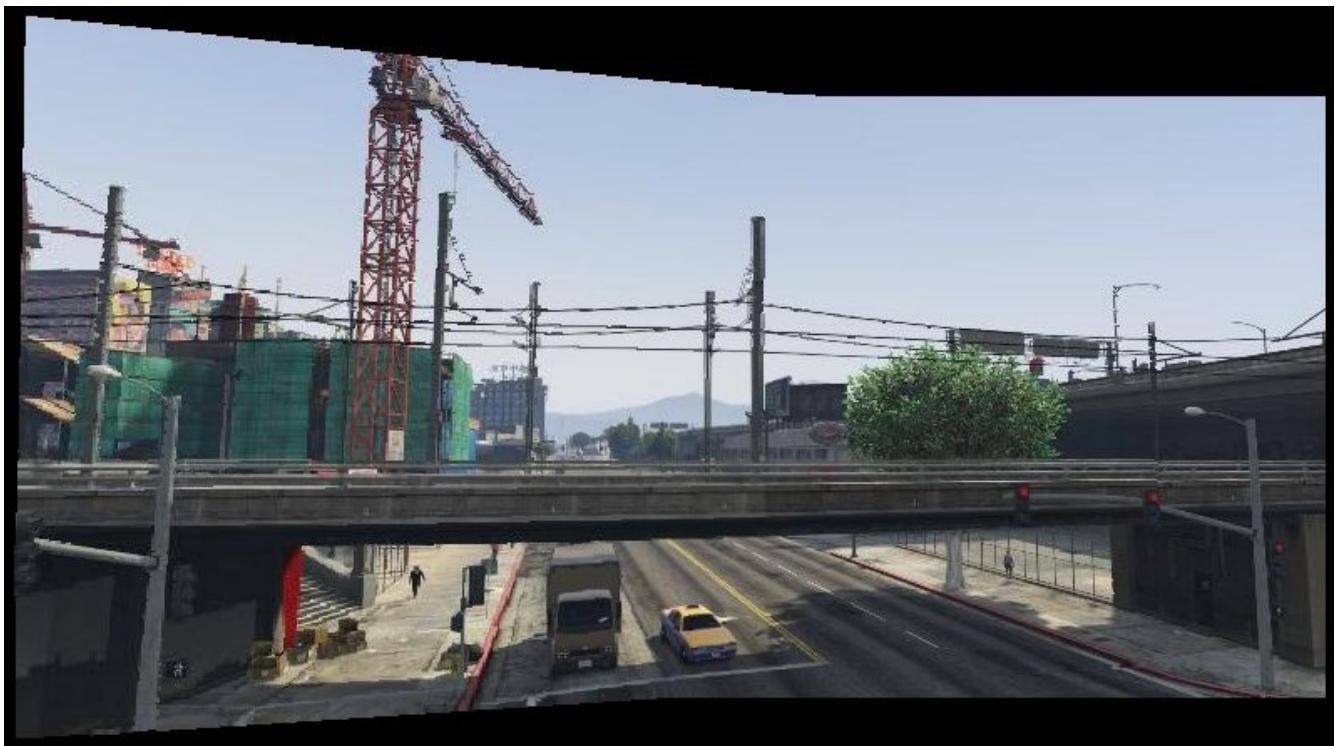
Q2.

(e) Using 5 depth levels

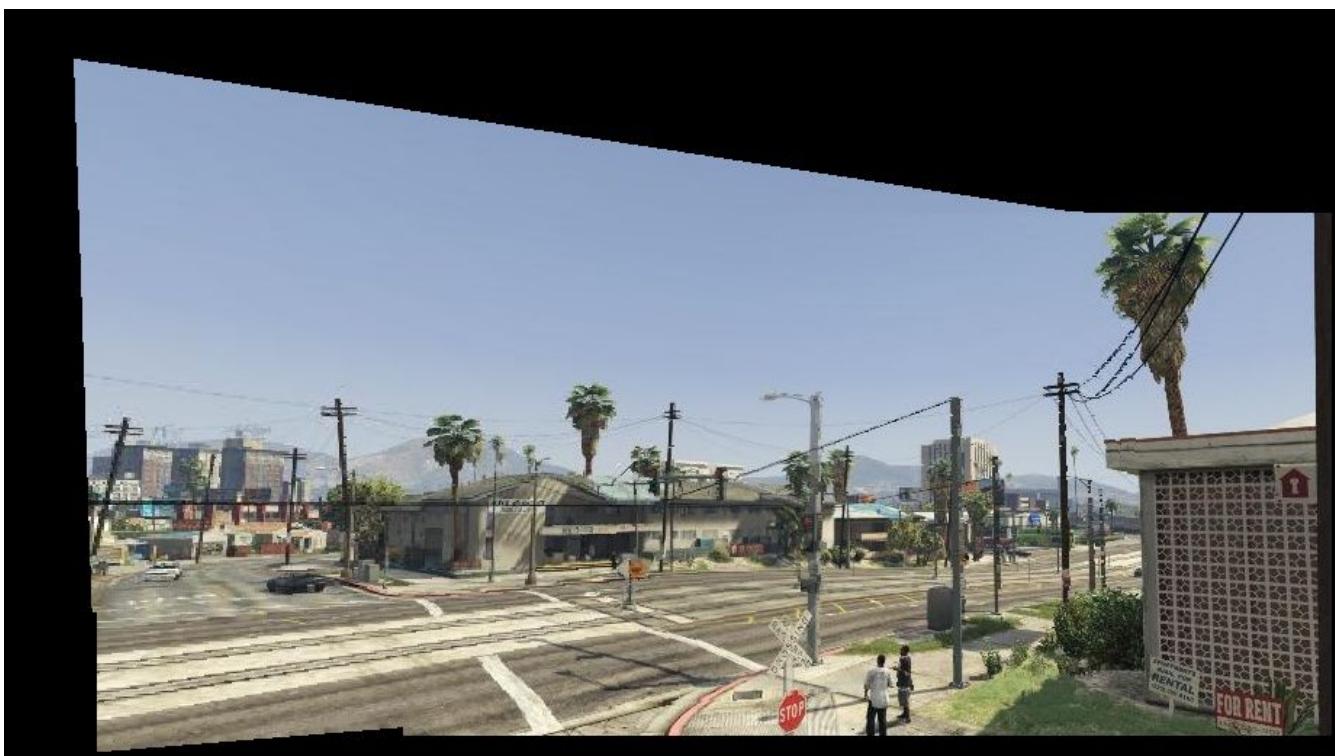
Stitched Output 1



Stitched Output 2

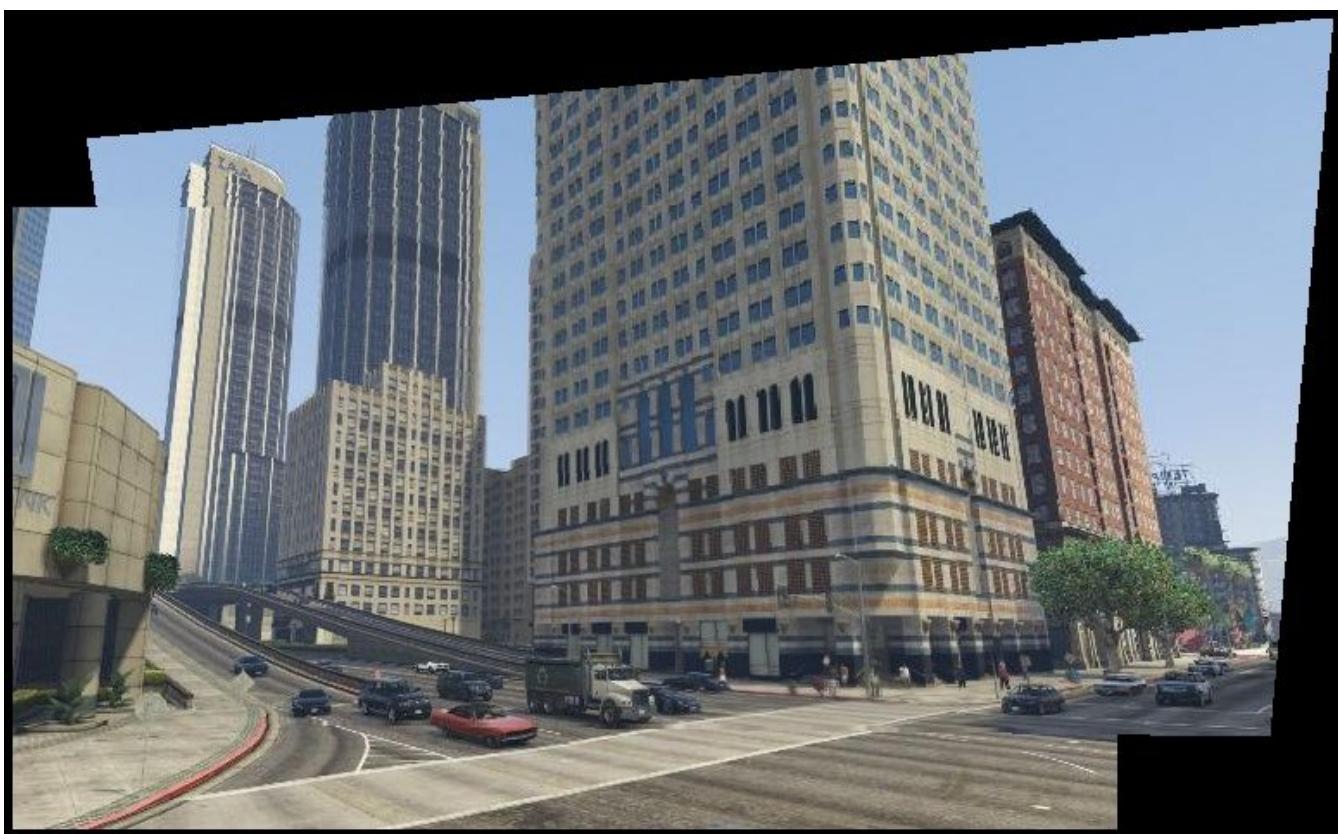


Stitched Output 3

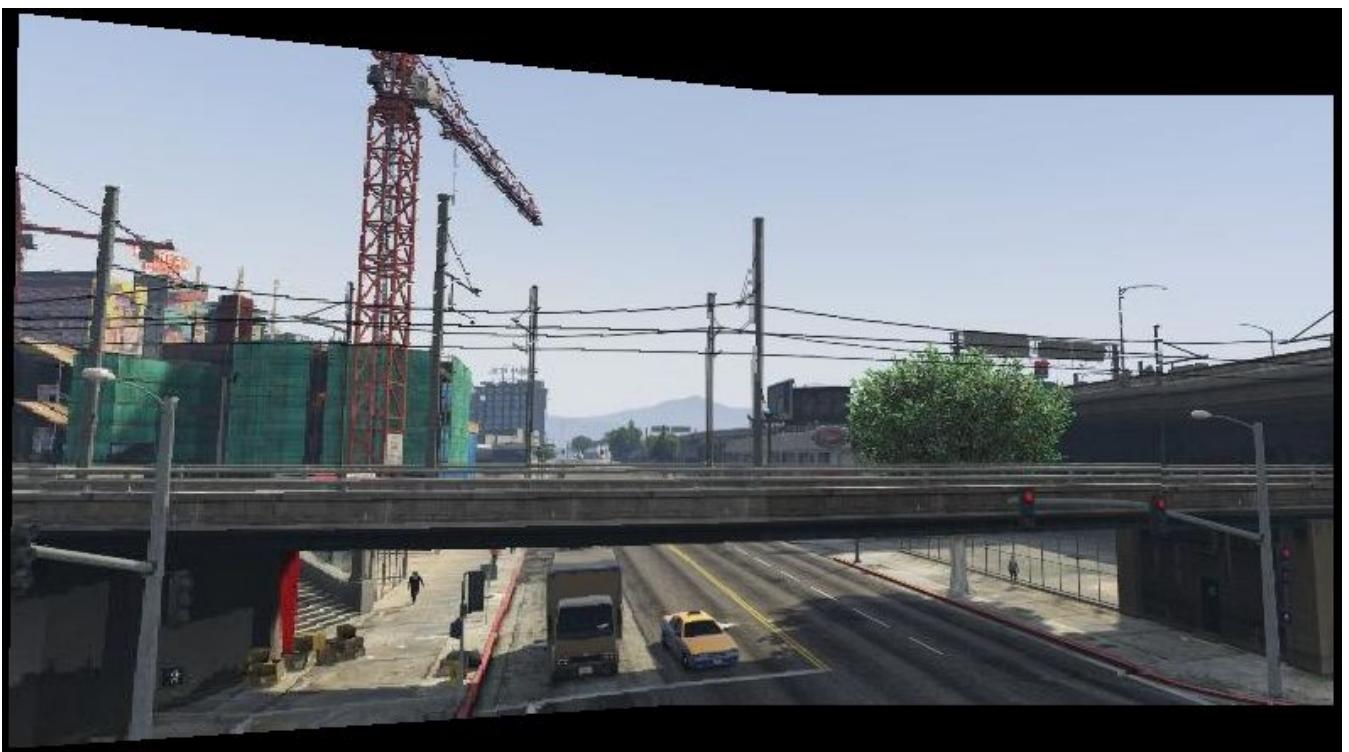


(f) Using single Homography matrix

Stitched Output 1



Stitched Output 2



Stitched Output 3



The stitched output 1 image obtained from single homography has a mismatch near top left corner of the building whereas stitched output 1 obtained using depth levels is perfectly matched.

The depth level method tries to find mapping at different depth planes so it will perform better generally but even the single homography mapping gives good results.

One may prefer using depth level method if depth map is available, otherwise one can simply use the single homography matrix.