CV Assignment-1

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Part-A

Getting the values from real world and image using manual measurement and MATLAB values.

A screenshot of a computer

Description automatically generated with medium confidence

Text

Description automatically generated with medium confidence

By using the above system of equations re-arranging, the collected values.

Text

Description automatically generated

Graphical user interface

Description automatically generated with medium confidence

Calculating parametric matric by using Eigen value decomposition

Graphical user interface, text, application, email

Description automatically generated

Using QR Factorization to get both translation and rotation matrix and translation matrix

Text

Description automatically generated

Graphical user interface, text, application

Description automatically generated

Text

Description automatically generated

Getting translation from calibration matrix

Calculating Homography

A picture containing text, tiled

Description automatically generated A picture containing text, tiled

Description automatically generated

Source Image Destination Image

Text

Description automatically generated

PART-B

Graphical user interface, application

Description automatically generated

This is the distance between each diagonal of a square. The original value is somewhere around 25 mm.

Part-C

A screenshot of a video game

Description automatically generated A picture containing text, indoor

Description automatically generated

From the Images the fps of the camera with 1080p resolution is 15fps and the same RGB lens with 720p is 30fps.

Graphical user interface, application

Description automatically generated

Fps and resolution of RGB and Depth aligned which is 30fps.

Table

Description automatically generated

My calibration value differs by 1mm for fx and fy which is a bit minimal but not accurate. I hope this is considerable.