Computer Vision

Assignment 2

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1 Perspective Transform

(a) Original picture

(b) Warped picture

2 Code

```python
import cv2
import numpy as np

img = cv2.imread('input.jpg', 1)
pts1 = np.float32([[118, 209], [497, 45], [86, 604], [548, 520]])
pts2 = np.float32([[100, 200], [500, 200], [100, 600], [500, 600]])
M = cv2.getPerspectiveTransform(pts1, pts2)
dst = cv2.warpPerspective(img, M, (720, 1080))
cv2.imshow('output', dst)
cv2.imwrite('output.jpg', dst)
cv2.waitKey(0)
cv2.destroyAllWindows()
```

The code starts by importing the necessary libraries, and loading the input image. Then, 2 lists containing 4 points each are created. The first list holds the positions of 4 pixels in the original image, while the second one contains the new positions that these pixels should have after the perspective transform. Both lists are then given to `cv2.getPerspectiveTransform` which generates the 3×3 matrix of the perspective transformation. The matrix and the input image are then given to `cv2.warpPerspective`, which applies the perspective transformation and returns the resulting image.