DSA0210 Computer Vision with Open CV LAB Experiments

Experiment- 9: Perform Perspective Transformation on the Video.

PROGRAM:

```
import cv2
import numpy as np

# Open the video file
video = cv2.VideoCapture(
    r"C:\Users\VASANTH\Downloads\opencv\sources\doc\js_tutorials\js_assets\cup.mp4"
)

# Check if video opened successfully
if not video.isOpened():
    raise FileNotFoundError("Video file not found. Check the file path.")

# Read first frame to get dimensions
ret, frame = video.read()
if not ret:
    raise RuntimeError("Cannot read video frame.")

height, width = frame.shape[:2]

# Define four points in the original frame
pts1 = np.float32([
    [50, 50],
    [width - 50, 50],
    [50, height - 50],
    [width - 50, height - 50]
```

```
])

# Define four points in the transformed frame
pts2 = np.float32([
    [0, 0],
    [width, 0],
    [0, height],
    [width, height]
])

# Get perspective transformation matrix
matrix = cv2.getPerspectiveTransform(pts1, pts2)

print("Press 'q' to quit")

while True:
    ret, frame = video.read()
    if not ret:
        break

    # Apply perspective transformation
    transformed = cv2.warpPerspective(frame, matrix, (width, height))

    # Display original and transformed video
    cv2.imshow("Original Video", frame)
    cv2.imshow("Perspective Transformed Video", transformed)

    if cv2.waitKey(30) & 0xFF == ord('q'):
        break
```

Release resources

video.release()

cv2.destroyAllWindows()

OUTPUT: