DSA0210 Computer Vision with Open CV LAB Experiments

Experiment-31. Recognise watch from the given image by general Object recognition using OpenCV.

PROGRAM:

```
import cv2
import matplotlib.pyplot as plt

# Read reference (watch) image
img_ref = cv2.imread(r"D:\New Folder\watch.jpeg", 0)

# Read test image
img_test = cv2.imread(r"D:\New Folder\test.jpeg", 0)

# Check images
if img_ref is None or img_test is None:
    raise FileNotFoundError("One or more images not found.")

# Create ORB detector
orb = cv2.ORB_create()

# Detect keypoints and descriptors
kp1, des1 = orb.detectAndCompute(img_ref, None)
kp2, des2 = orb.detectAndCompute(img_test, None)

# Create Brute Force Matcher
bf = cv2.BFMatcher(cv2.NORM_HAMMING, crossCheck=True)

# Match descriptors
```

```
matches = bf.match(des1, des2)

# Sort matches by distance
matches = sorted(matches, key=lambda x: x.distance)

# Decide recognition based on number of matches
if len(matches) > 20:
    print("Watch detected in the image")
else:
    print("Watch not detected")

# Draw matches
result = cv2.drawMatches(
    img_ref, kp1, img_test, kp2, matches[:20], None, flags=2
)

# Display result
plt.figure(figsize=(10, 5))
plt.imshow(result, cmap="gray")
plt.title("Object Recognition using ORB")
plt.axis("off")
plt.show()
```

OUTPUT: