Currency Note Authentication with OpenCV (Python)

Step 1: Prepare Images

You will need:

genuine\_note.jpg: A clear, genuine currency note.

test\_note.jpg: A currency note you want to verify.

Step 2: Code

import cv2

import numpy as np

def match\_feature(template\_path, test\_image, threshold=0.7):

template = cv2.imread(template\_path, 0)

w, h = template.shape[::-1]

res = cv2.matchTemplate(test\_image, template, cv2.TM\_CCOEFF\_NORMED)

loc = np.where(res >= threshold)

return len(zip(\*loc[::-1])) > 0 # True if match found

# Load test note image and convert to grayscale

test\_note = cv2.imread('test\_note.jpg')

test\_gray = cv2.cvtColor(test\_note, cv2.COLOR\_BGR2GRAY)

# List of feature templates to check

features = {

'Watermark': 'feature\_watermark.jpg',

'Security Thread': 'feature\_thread.jpg',

'Denomination Text': 'feature\_denomination.jpg',

'RBI Logo': 'feature\_logo.jpg'

}

# Authentication results

print("Authenticating currency note...")

for name, path in features.items():

if match\_feature(path, test\_gray):

print(f"{name}: PASS")

else:

print(f"{name}: FAIL")

# Show result

cv2.imshow("Test Note", test\_note)

cv2.waitKey(0)

cv2.destroyAllWindows()