Special Issue - 2021

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
ICRADL - 2021 Conference Proceedings

Fake Education Document Detection using Image Processing and Deep Learning

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Abstract - **The forgery of official documents becomes familiar and this made a lot of problems and difficulties to the official institutions .With the new the sophisticated powerful digital printers and a lot of software tools it become very simple to edit scanned document and create new one with different information that is very difficult to distinguish from the original and the forgeryone. The current document detection is not so efficient, so some people make fake document and do illegal activities. The proposed system contain two methods to detect the fake documents .First, the QR-code scanner which scan the QR-code of the document and detect that document is original or fake. Second, the image processing techniques undergoes three stages : training phase, testing phase, classification to detect the fake documents. In this proposed project, the originality of document is discussed and focused on making the detection of forgery document more robust and reliable. By the Neural network and error value analysis algorithm using image processing system to detect the forgery document.**

I. INTRODUCTION

In modern world the documents can now be altered and manipulated easily, Trustworthinessofdocumentsisnowmoreindemand.Manypeopleusethiswayto get jobs throw out forgery their certificate. Formally, many technologies were less effective in countering the danger of faking identity documents. So new methods mustbeimprovedtorestrictthatthreat.Manypreventive measureshavebeentaken by the government to stop these forgery activities but still has not affected the growing rate of these crimes and has remainedunaffected.Many preventive measures have been taken by the government to stop these forgery activities but still has not affected the growing rate of these crimes and has remained unaffected. The proposed system use image processing techniques to detection forgery in official scanned document. The aim of proposed system is design a quick and most efficient system for detecting forgery in official documents. Theproposedsystemcontaintwomethodstodetectthefakedocuments.First, the QR-code scanner which scan the QR-code of the document and detect that document is original or fake. Second the image processing uses neural network concept. In this proposed project, the originality of document is discussed and focusedonmakingthedetectionofforgerydocumentmorerobustandreliable.The system is needed at the time of submission of individual'sidentity documents on various web portals like Scholarship and Educational systems where it checks whether the document is real or not .So this system is needed in such cases where the user submits the forged that is manipulated documents on the webportal.

II. METHODOLOGY

The software that we implement first scanned the QR-code of the document and the sign, stamp and logo of the document using Image processing techniques in deeplearning.The Image Processing Module basically includes of two parts:Error Level Analysis and NeuralNetwork.These parts in combination help to detect whether the documentimage is manipulated by any means ornot.Deployment phase of the system is the main part that is how the systemis to be used in the reallife.

Two parts in deploymentmodule :

- QR-code scannermodule:

The QR-code of the scanned document is verified that it give the encrypted code of the document, otherwise it detect that the documents is fake.

- Image ProcessingModule:

The image processing module which detect the logo, stamp and signature of the document through the concept of neural network and error value analysis and detect that the document is fake or original.

III. SYSTEM EVALUATION

The first method contain QR-code Scanner application has been used for detecting the fraud document. The application that contains the QR- code scanner module to scan the QR-code and detect the fraud documents. The QR-code contains encryption code of the document that are used to detect the fraud documents.If the document is original means the QR-code in that document gives the encrypted code of the documents.In case, if the document is duplicate means , our application scan the QR- code does not give any encrypted code and give alert message to the person who scan the document to notify that the document is fake. The next method in the proposed work for detection forgery in scanned official document depend on pixel based type using image processing. The proposed work consists of three main stages training phase, testing phase, classification.

Step-A: Training phase

1-Select scanned document from virtual dataset in order to apply the pre-processing steps

Step1: convert to gray level if the scanned document is colored

Step-2:Normalization

Step3: Rotate Correction if the scanned document is suffers from wrap

Step4: Noise Removal

Then save pre processed image to virtual dataset.

2- Segmented the preprocessed image into three part (logo, stamp and signature) by apply the following steps:

Step1: Read the scanned document from virtual dataset that had been saved in preprocessing step.

Step2: Apply ROI by using function to select the part of (logo, stamp and signature) from scanned document to crop it. Then save the (logo, stamp and signature) images to virtual dataset.

3- Feature extraction apply this step:-

Step1: Read the (logo, stamp and signature) images that saved from previous step in virtual dataset

Step2: apply neural network on (logo, stamp and signature) images

Step3: Select sub-band LL

Step4: apply the Error value analysis to extract the feature

Step -B-Testing phase

All the steps that have been made in Training phase are repeated in testing phase.
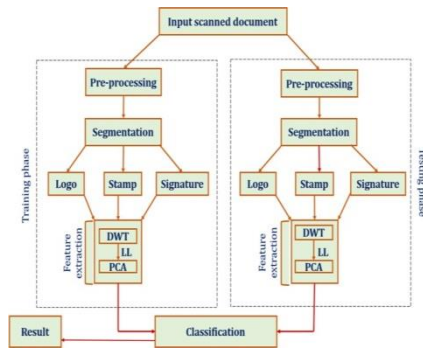
Step-C: Classification

This step is apply to classify the scanned document as forged or not using minimum distance classifier Using minimum distance classifier the equation

$$D(A, B) = \sqrt{\sum_{i=0}^{n} \frac{(|A_i - B_i|)^2}{A_i}}$$

Where D= Euclidean distance between image A and image B, Ai = Feature vector of image A, Bi = Feature vector of image B, n = vector length of vector A and vector B

IV. ARCHITECTURE

V. CONCLUSION

ItisnotedthatdevelopmentofthesystemwillhelpsthePersontode tecttheforgery document .Software will detect the forgery in the earlier time and classify the documents which is fraud and give information to the person to know the forgery documentsquickly.The proposed system is able to detect whether the document is authentic and efficient manner. Combination of Image Processing works together very efficiently and the results obtained are accurate. The system will be trained with the fake document and their prevention measures using image processing

VI. REFERENCES

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