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AN AUTOMATIC RECOGNITION OF FAKE CURRENCY NOTE USING RASPBERRY PI

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ABSTRACT:

Programmed identification and acknowledgment of Indian money note has picked up a ton of research consideration as of late especially because of its inconceivable potential applications. In this paper we present another acknowledgment technique for Indian money utilizing PC vision. It is demonstrated that Indian monetary standards can be grouped in light of an arrangement of one of a kind non separating components, for example, shading, measurement and above all the Identification Mark (remarkable for every category) specified in RBI rules. Right off the bat the prevailing shading and the perspective proportion of the note are separated. After this the division of the segment of the note containing the exceptional I.D. Check is finished. From these divided picture, include extraction is done utilizing Fourier Descriptors. As each note has a one of a kind shape as the I.D. Check, the arrangement of these shapes is finished with the assistance of Artificial Neural Network. After component extraction, the divisions are perceived in light of the created calculation.

INTRODUCTION

Modernization of the money related framework is a development in securing the monetary success, and keeping up social amicability. The Reserve Bank of India is special case which has the full expert to issue certified receipts in India. Be that as it may, some unsocial gathering of individuals is inclined to make these fake monetary standards. Fake Indian Currency of 100, 500 and 2000 appears to have overwhelmed the framework and there is no legitimate approach to manage them for a typical individual. Regular Person fall prey to this monetary forms.

The estimation of cash is expanding and Rs. 2000 and Rs. 500 is the most astounding quality cash existing till date and greatest fake is done in them. From couple of years, alongside the first cash, Fake Currency is likewise circling in the general public and unbalancing the social amicability of the general public. A large number of the exchange are additionally done with it. Fake cash recognition implies discovering fake money from the monetary forms. With the headway of the present day saving money administrations, programmed strategies for paper cash discovery has turned out to be essential in the vast majority of the applications, for example, in robotized teller machines and programmed merchandise dealer machines. Pictures are handled by utilizing different strategies of picture preparing and further different components are extricated from the pictures. Programmed strategies for banknotes

acknowledgment are required in numerous applications, for example, programmed offering merchandise and candy machines, among others. The approach comprises of various parts including picture handling, picture division, trademark extraction, looking at images[10]. The essential thing of approach is that we separate the components on the premise of which we will characterize the fake note. [5][6] Audio output is designed for the visually challenged people. The audio output is generally fed to an ear phone through which the color and the face is recognized and the output is given through the earphone. The raspberry pi 3 module is used to run the open cv software. This module works on a 30-200Mhz processor. It can be charged using a normal mobile phone charger. This module is preferred because it is lesser in dimension and more over it is portable for the visually challenged. Many applications have been in use in various fields.

As the proposed independent mechanized printing framework contains validation module, fake cash identification sensor and a mechatronics setup for keeping the cash, in this Chapter right off the bat we are checking on the confirmation and fake Currency discovery strategies and afterward giving the short study about the actualized computerized printing framework previously.

Validation Authentication is a procedure of affirming a personality or a birthplace of a correspondence accomplice or a snippet of data. Verification makes it workable for a substance to check that it truly is interfacing with those clients and gadgets. Henceforth Misbehaving of gadgets and clients is averted by validation. Confirmation is an imperative part or our regular day to day existence and present, for example, when making telephone calls, when utilizing a remote headset, when watching a compensation TV, when opening electronic secures an office, or while doing exchanges inside Internet banks. So to distinguish the genuine client for utilizing the proposed framework is an extremely essential stride. Web of things in view of RFID (Radio Frequency Identification) has turned out to be point of convergence of fascination for businesses and the scholarly world. Be that as it may, security is the primary issue of IOT in view of RFID.

Xiao Nie , XiongZhong proposed RFID framework, for security insurance and against obstruction, slaughtering, Tag dozing and Tag blocking techniques presented, in the correspondence procedure, the verification in light of HASH is the principle method.[1] Tags, perusers and reception apparatuses are the fundamental parts of RFID framework. At times data spilled to unapproved individual utilizing RFID tag for that encryption is required. Recipient sends confirmation that amends tag is sent. In label slaughtering method client put a murder summon that incapacitated the label so anybody can't track that tag. In any case, there is one disadvantage that RFID is not working here, for that label resting method is utilized to make the label handicapped when need not to be followed i.e, briefly on rest mode. Unique finger impression confirmation is a vital client ID biometric system.

The analyses done by Anil K. Jain et.al.reveal that this method is great and secured on this information bases. Biometrics is an innovation that distinguishes a man in light of his physiological or behavioral qualities. Unique mark distinguishing proof has medium all inclusiveness, high uniqueness. In programmed unique mark personality

confirmation framework there are four fundamental plan parts: procurement, portrayal (format), include extraction, and coordinating. Inked and live output these are the techniques utilized for catching picture of unique mark. In Live output optical baffled aggregate inner reflection (FTIR) is the principle idea. At the point when on a glass crystal client put his/her finger, edges of the finger are in contact with the platen however the valleys of the finger are most certainly not. Portrayals in light of the whole dark scale profile of a unique finger impression picture are pervasive among the check frameworks utilizing optical coordinating. Brilliance variety, picture quality varieties, scars are the components influence to picture quality. This framework proposed and executed by L. Hebbes and C. Chan utilizes a known cell phone to interpret a scrambled message exchanged as a 2D standardized identification and read by means of a camera on the cell phone. [3] In this framework portable camera is utilized to peruse the encoded message which is exchanged as 2D scanner tag. 2D standardized tag produce onetime watchword on cell phone which is arbitrary and hard to recall. Information Matrix, PDF417, Encode, Semacode, and QR Code are the diverse 2D scanner tag sorts. QR codes used to track business applications. These contains data like as URLs, names, addresses, phone numbers, email addresses, and so on. 2D standardized identifications and versatile camera utilized as visual channel for verification. Information trade turned out to be simple utilizing QR code with enrolled cell phones. Same with respect to getting to website page, for verification client need to enter username then QR code shows client need to catch in camera. That encoded data client enters as PIN then framework produces 8-character code and that client enters as secret key. Fake Currency Note Detection Fake or fake notes are significant issue happening in trade exchanges out a nation like India. As indicated by the overview directed by RBI in 2013 demonstrates that there is trillions of cash in fake notes in entire India. This is conceivable in light of the fact that as it has turned out to be extremely less demanding to print the fake notes with various most recent devices because of progression in innovation. Money related arrangement of nation is influenced by the fake cash. So recognizable proof of fake and division is basic particularly in cash store machine. Identifying the fake notes is very tedious assignment so we can't play out an undertaking with human obstruction. For recognition we require computerized frameworks through which we can perceive the first money. Fake money recognition Binod Prasad Yadavet. al. have proposed and executed discovery of fake notes utilizing MATLAB and highlight extraction with Hue Saturation Value (HSV) shading space and different uses of picture processing.[4] Manual testing of notes is tedious and odds of tearing a note. For precision the qualities ought to get coordinated is essential. In this with help of camera they are taking photos of the note and breaking down it with the MATLAB Program. Also, check the note whether it is fake or bona fide by checking parameters like See through enroll, water stamping, optically factor ink, fluorescence, security string, intaglio printing, dormant picture, small scale lettering, recognizable proof check. Like the past paper, Swami Gururaj M and Naveen J excessively utilized fundamental picture preparing calculation HSV change to distinguish the group and fake of money naturally utilizing raspberry pi as an equipment platform.[5] Features

like angle proportion ID, predominant shading, highlight extraction and layout coordinating, examination with edge values, Image securing, Image pre-handling, Image restriction, Feature extraction, Template coordinating are the parameters to recognize genuine cash The executed framework incorporates a few stages like picture catching with camera, pre-handling of picture and a few calculations to recognize the first money. To check the innovation of money it is important to place note under web camera. As camera gets empowered by processor raspberry pi it will catch pictures of the note. Caught picture will be send to processor, for recognizable proof of fake and group of cash processor will handle the picture. MATLAB is utilized for composing a code and calculation. Raspberry pi underpins execution of reproduction model so need to change over code to the recreation show. For fake money identification,
KameshSanthanamet.al.illustrated procedure relying upon 2 components initial one being the Ultra Violet (UV) recognition utilizing Lab View and other one is utilizing the polarization of light when gone through the cash. Result is viewed as positive if both the yields are positive.[6] One of the techniques is UV identification.
It is rule which distinguishes inks which are noticeable under UV light. Robotization is presented utilizing (NI-IMAQ). Indian money and fake cash, both are covered with colors which are noticeable in UV light so to check the creativity it requires human endeavors. Utilizing National Instruments-Image Acquisition (NI-IMAQ) they have made this procedure computerized. They have taken unique picture of various cash from different edges and put away those pictures in a PC. Cash is caught by HD camera and sent to IMAQ LABVIEW. What's more, the present picture is get contrasted and unique money in database, if cash is genuine status shines green else red. By measuring the polarization properties of cellulose we can broaden property of money.

As the cash is translucent, it is important to utilize monochromatic laser to get a bar for the photograph finder to recognize. The polarization compensator is utilized to gauge the roundabout and circular polarization. Also, this is accomplished by utilizing a servo engine controlled by the miniaturized scale controller. Contingent on the information sustained into the smaller scale controller, the servo engine makes its development and we get the proper polarization since the light leaving a translucent material is of less power, we utilize an exceedingly touchy photograph finder intensifier exhibit to gauge the force.

Proposed project:

Here raspberry pi is utilized as a processor which handle the picture of money caught by web camera. To check fake and section of money, cash must be set under the web camera. When money is put raspberry pi will empower the web camera and web camera begins catching the pictures, web camera can be effectively arranged to raspberry pi and controlling code for web camera is composed and put away in processor. Caught picture is send to processor and it is put away in processormemory, now raspberry pi which will prepare the picture to recognize the division and fake of cash.

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1. Picture securing:

Picture securing is a procedure of procuring a picture with the assistance of gadget, the obtained picture is put away for further handling. Here the picture is procured with an advanced web camera. For picture procurement its important to compose a practical code for web camera, once the utilitarian code is composed the web camera now works as indicated by code and this code can be utilized to choose the quantities of snaps to be taken of a cash and furthermore it will choose the shading organization of picture whether it ought to be shading or grayscale picture.

2. Picture pre-handling:

Picture pre-handling is done to improve some picture highlights essential for further preparing and investigation. In picture pre-handling size of the picture is decreased and clamor is expelled that may have showed up in the picture while catching.

Resizing: The measure of the picture is diminished by utilizing MATLAB work 'imresize'.

Removing commotion: When picture is caught there are chances that picture get obscured and clamor might be added to the picture and it's fundamental this ought to be evacuated and picture ought to be smoothened.[4]

3. Picture limitation:

At the point when web camera catch the picture of money then the picture contains foundation kept up beneath cash, for preparing of a picture and to get right outcomes it is important to expel the foundation and keep the picture of cash as it may be. This can be accomplished by utilizing edge recognition and sweep line calculations in MATLAB.

4. Highlight extraction:

Utilizing highlight extraction strategy it is conceivable to extricate the element of accessible picture and these separated elements are contrasted with known elements with identify fake and section of money [5].

5. Layout coordinating:

Layout coordinating method is utilized to recognize category of money. Layout coordinating calculation will move a format on accessible picture and if format matches with money then it will return an incentive as genuine else it esteem will be false.By this section of cash can be effectively recognized [6].

6. Examination with limit values:

When every one of the outcomes acquired from previously mentioned calculations now these got results will be contrasted and edge values. Limit is system where range is set and results will be contrasted and these qualities if acquired outcomes lie in the range then genuine esteem is retuned else false.

3.3 BLOCK DIAGRAM OF PROPOSED SYSTEM

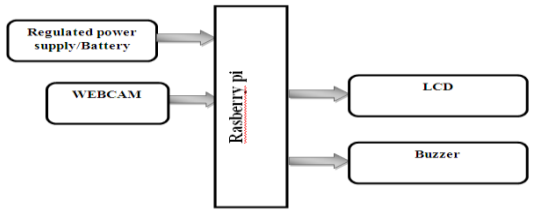

Fig1. Block diagram of proposed system

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WORKING :

Here the prposed system will continuosly capture the video from web camera and identify the fake note in the capature with the help of Raspberry pi processor. The also recognize the note by comparing with database and recognized or unauthorized .

RESULTS

CONCLUSSION AND FUTURE SCOPE

With the help of above proposed method, it is possible to develop a system which will easily detect the denomination of Indian currency and also it checks the originality of Indian currency with the help of basic image processing algorithm. The proposed system can be implemented for real time applications such as automating vending machines, automatic ticket counters. This can be achieved with the help of Matlab Simulink [7] and low cost processor like Raspberry pi.

REFERENCES

[1]. Kavya B R, Devendran B, Indian currency detection and denomination using SIFT, International Journal of Science, Engineering and technology Research (IJSETR), Volume 4, June 2015.
[2]. J. MrigankaGogoi, Syed Ejaz Ali, Subra Mukherjee, Automatic Indian Currency Denomination Recognition System based on Artificial Neural Network 2015 2nd International Conference on Signal Processing and Integrated Networks (SPIN).
[3]. Hanish Aggarwal, Padam kumar, Indian currency denomination regogniation in color images International Journal on Advanced Computer Engineering and Communication Technology Vol-1 Issue:1 :ISSN 2278 5140.
[4]. Dr.Rutu Vijay, Uppin Kumar Jain, Indian currency identification using image processing International Journal of Computer Science and Information Technologies, Vol. 4 (1) , 2013, 126 128.
[5]. Feature point extraction algorithm from http://in.mathworks.com/matlabcentral/fileexcha.
[6]. Template Matching is at http://in.mathworks.com/help/vision/ref/matchfeatures.html.
[7]. Hardware Support Package is from http://in.mathworks.com/help/matlab/matlabexternal.