MONEY RECOGNITION AND FAKE CURRENCY DETECTION FOR VISUALLY IMPAIRMENT PEOPLES USING IOT

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Abstract

In Modern automation systems currency recognition for real world are required. In modern automation systems they required applications including banknote counting machines, money exchange machines, electronic banking, currency monitoring systems, assist blind persons etc. The recognition of currency is veryimportant for blind people and visually impaired people. Because they are notable to differentbetween the currencies correctly. It is very easy to them to be cheated by the others. One of the most significant issues confronting the outwardly debilitated is the acknowledgment of cash, particularly for paper money. The paper currency has two ways extrinsic as well as intrinsic properties.First the extrinsic properties are not enough to recognize when note is original or fake. In this project, we present the simple computer currency authentication method used in the Indian Bank Note

Keywords : *Deep Learning, Camera, Money, SFITAlgorithm, BCL, FCL, CLI, CLR*

1. Introduction

Money is most important in common currency. Because it gives a customer trade a product. Money has different name like currency or cash. Now day's money is one of important feature to human world. But for blind people they can't see the money so that we like to design the money recognition app. Now days there is a fake money so we like to add a fake currency detection for blind people.

2. Literature Survey

1. Jan-mark Geuseroek [1] in 2011 the central banks is facing a banknotes is for recirculation, and to replace by new ones. It also reduces a printing costs and environmental burden. Even to small countries the banknotes are in circulation. Not only for cost control and also it process some technical challenge for speed and accuracy.

2. Sanghun lee [2] in 2016 Multiscale morphology are using face recognition and also it used clever surveillance structure, identity for safety structure, database fit and other identity structure face to face. But it also has a variety of lighting conditions 'the main challenge for face Authentication is to obtain invariant facial images for the face discrimination feature. It also looks at the local structure as the key to face Authentication.We used a generalized dynamic morphological unchanged image (GTMMQI) to solve the artifact problem using retinex theory and the Multiscale morphological method.

3. Stefan leutenegger [3] in 2012 binary robust invariant scalablekey points are use to a widely applied to computer vision. And also it used to representation for image, object and also matching. In this we use a 3D scene reconstruction and motion tracking are presence of stable. And it has a features for image , driving, research and yielding problem.it has an idea key points to find a salient image regions to change a viewpoint, more generally all possible robust for image transformation. It is efficient generation of key point's transformations. Andalso it's very effective and computer vision applications.

4. Susanta Mukhopadhyay [4] in 2003 a method for dividing gray-level images using multi-scale image.It that we use analgorithm to detect Growing, making and square are three small varieties of inch-wide valet sections.It this algorithm we used a composed algorithm in two passesPre-processing step to facilitate small size for image may cause

excessive separation.Then algorithmare used to different various scales are features of traces contours. It also set a test of images.

5. Sungwook Youn[5] in 2015 we used many application like as teller machine ATM and ticketingsystem. They so various important systems are used like accuracy and robustness.So we need to increase the need for multi-currency classification. For example the US dollar and the euro are used worldwide. TheATMs are widely integrated with the world banks. TheATMs are widely used by all over countries. So that there is increased of banknote in all over countries. In some countries there different currency and that currency has a different size of note so that it need an important characteristic. Due different size so that we need to generated a size map to group of banknotes.

3. EXISTING SYSTEM

Banknote recognition is the classification of Money into the right class. Dataset created on existing system. After that the automatic authentication system was used in the dataset using the Quantitative-Differential Feature Transfer (SIFT) algorithm. This is the first try to the Excellent knowledge of the teachers to Authentication both coins and banknotes on a cellular phone using the SIFT method. SIFT is growth has a very robust and capable local unchanged feature explanation. Color offers significant data and important values in the interpretive system and fit function. Several items cannot be classified properly without color features. To simplify the authentication process, we use four image modifiers, binary images. Morph differentiation Transformations de blocking and change the structure of the particles in an image. We used four binary processing functions: noise erosion, expansion, opening and closing. Feature extraction or selection is a significant process for currency recognition, which seriously affects the design and performance of the classifier. If the variations of the selected features are so large, it can easily create an assortment with good recognition performance. Rather it is difficult to get with the situation. The main task of feature extraction and selection is how to find useful features according to many pending features.The global transform technique converts pixel representation into a very small form. This reduces the dimensionality of the feature vector and offer feature changes to global decay such as rendering[6-11].

4. PROPOSED SYSTEM

For some reason, people with visual impairments have trouble identifying and authenticating different types of banknotes. This issue draws researchers 'attention to the introduction of an automated banknote authentication system that can be divided into a vision-based system and a sensor-based system. In proposed system, we can implement vision based system to recognize the bank note using machine learning techniques. Nowadays it is very important to automate the recognition of Indian currency in key domains like banking. After image duplication, the digits in the serial numbers of the banknotes often contain some intermittent particles, some noise and some unexpected edges.o facilitate the authentication process, we use the active margin method for binary images. The edge method is used to extract and modify the structure of the particles in an image. It then describes the geometric and spatial properties of the feature by extracting the features and representing its global and local properties.Statistics features derive from the statistics distribution of pixels and describe the characteristic measurement of shape. Finally implemented Convolutional. In neural network algorithm to classify the notes and provide the fake currency alert.In deep learning, this process is used to determine whether money is duplicated or original through an automated process. Deep learning excels in the function of authentication and assortment of images over huge data sets, which is also primarily used in substance sort Authentication.In the current monetization movement may be a step towards eradicating corruption and black money, but it fails to address the issue of fake money.

5. DESIGN FEATURES

5.1 Interoperability

Since PC frameworks generally require communication among more up to date and more seasoned applications, the .NET Configuration gives intends to get to usefulness actualized in more current and more seasoned projects that operate outside the .NET condition. Access to COM parts is given in the System Runtime Interop Services and System. Undertaking Services namespaces of the system. Access to other usefulness is accomplished use the P/Invoke highlight.

5.2 Common Language Runtime Engine

The .NET Configuration Operating Machine. All .NET programs operate under the supervision of the CommonLanguage Runtime (CLR), guaranteeing certain properties and behaviors in the fields of recall management, safety and exception handling.

5.3 CommonLanguage Independence

The .NET Configuration presents a general type system. This system detail characterizes every single imaginable datum types and programming builds bolstered by the CLR and how they could conceivably cooperate with one another complying with the Common Language Independence (CLI). In view of this element, the .NET Configuration underpins the trading of category and item occurrences without libraries and applications composed utilizing any adjusting .NET language.

5.4 Base Class Library

Some portion of the Configuration Class Library, The FCL is a library of usefulness accessible to all dialects utilizing the .NET Configuration. The base class library gives classes that typify various basic capacities, including record perusing and composing, realistic rendering, database cooperation, XML archive control, etc. It comprises of classes, interfaces of reusable kinds that incorporate with Common Language Runtime.

5.5 Simplified Deployment

The .NET Configuration includes design features and toolswhich help manage the installation of computer software to ensure it does not interfere with previously installed software, and it conforms to security requirements.

5.6 Security

The layout addresses some of the vulnerabilities, such as buffer overflows, which have been exploited by malicious software. Additionally, .NET provides a common safety model for all applications.

5.7 Portability

Although Microsoft has never fully implemented it on any system other than Windows, it is designed to be a platform-agnostic, and cross-platform implementations are available for other operating systems. Microsoft submitted the specifications for the Common Language Infrastructurewhich includes the core class libraries, Common Type System, and the Common Intermediate Language, the C# language, and the C++/CLI language to both ECMA and the ISO, making them available as official standards. This makes it possible for third parties to create compatible implementations of the designed and its languages on other platforms.

5.8 Common Language Infrastructure

This is to provide a language-neutral platform for application is growth and execution, including functions for Exception handling, Garbage Collection, safety and mobility Function.This functionality is not tied to one language, but is available in many languages supported by the framework, enabling key features of the .NET configuration to be confined to CLI.

The CIL code is placed in the CLI meetings. As ordered by the specification, assemblies are stored in portable executable form, which is general to all DLL and XE files on the Windows operating system. The assembly contains one or many files, one of which must contain the manifest, which contains the metadata for the assembly.The full name of an assembly contains its simple text name, version number, culture and public key token. Meetings are considered equal if they share the same complete name, except for the revision of the version number. A unique key can be used by the creator of the assembly for strong naming. The general key token identifies which general key is signed by the assembly. Only the creator of the key pair can sign meetings with a solid name similar to the future form, because he is in regulation of the unique key.Global assembly requires solid naming to include assemblies in cache.

5.9 Security

The .NET has its owned safety component with 2 common highlights: Code Access Security (CAS), and recognition and check. Code Access Security depends on the credentials associatedwith a particular meeting. General the proof is the wellspring of the get together. Code Access Security use source to decide the consents permitted to the code. Other code can request that calling code is permitted a predetermined consent. Curiosity makes the CLR a call-layer walkthrough: each technique combines every technique in the call layer and is tested for required authentication; if consent is not granted to any meeting, the defense special case will be thrown out.

5.10 Class Library

The .NET Configuration integrates a lot of standard class libraries. The class library is sorted in an array of namespaces. Most of the native API is part of a computer.This class of libraries demonstrates a number of basic capabilities, such as recording and compiling, realistic rendering, database collaboration and XML reporting control..NET class libraries *are accessible to all CLI standard dialects. The .NET Framework Class Library is divided into two categories: Base Class Library (BCL) and Framework Class Library (FCL).

The BCL comprises a small subset of the entire class library and is a central arrangement of classes that fill in the essential API of common language runtime.The classes in mscorlib.dll and the classes in System.dll and System.core.dll are viewed as part of the BCL. BCL classes like its chosen application including .NET Compact Framework, Microsoft Silverlight and Mono, are accessible in both .NET configuration.

FCL refers to the entire class library that is sent with the superset and .net configuration of the BCL classes. It includes a comprehensive arrangement of libraries including Windows Forms, ADO.NET, ASP.NET, Language Integrated Query, Windows Presentation Foundation and Windows Contact Foundation.FCL is much larger than standard libraries for dialects like C ++ and similar to Java's standard libraries.

Memory Management

The .NET configuration frees the CLR designer from the weight of watching administrators manipulate memory by identifying when the memory is free. Distributes the initiations of .NET types from memory supervision, which is the memory pool supervised by the CLR. Any time an article is referenced, be it an immediate reference to an object, or through a map of articles, the article is deemed to be used. When there is no mention of an article, if it cannot be reached or used, it becomes trash and deserves classification. The .NET configuration comprises a city worker, which works seamlessly on a different string from the application string, identifying all the unused articles and retrieving the memory allocated to them.

The .NET garbage collector (GC) is an undetermined, concise, branded and clear city worker. The GC only works when a certain amount of memory is used or when there is enough weight in the configuration memory. GC runs are undetermined as this is not guaranteed when the conditions for memory retrieval are reached.Every .NET application has a lot of roots, which are pointers to the objects under supervision. These include reference to standard items and articles classified as nearby factors or strategic parameters,

similar to articles referred to by CPU records.When the GC is running, it stops the application, and if each item is specified in the root, it repeatedly references all articles that can be reached from the root items and brands them as achievable. It uses CLI metadata and mirroring to find articles that highlight an item, and then repeat them.Lists all articles on load application reflection at that time. All articles that are not excluded are trash. This is the seal position. This is viewed as free space, since the memory stored in the trash can has no effect. In any case, this leaves pieces of free space between the objects that originally bordered it.The items are then merged and the memory used is once again bounded. Any reference to an item that has been discredited by moving the article will be used by GC to reflect the new section. When the garbage classification is complete the application continues.

6. SYSTEM ARCHITECTURE

In this architecture diagramwe can input the bank note image for visually impairment people to detect the note with voice alert. And also extend the framework to detect the fake note
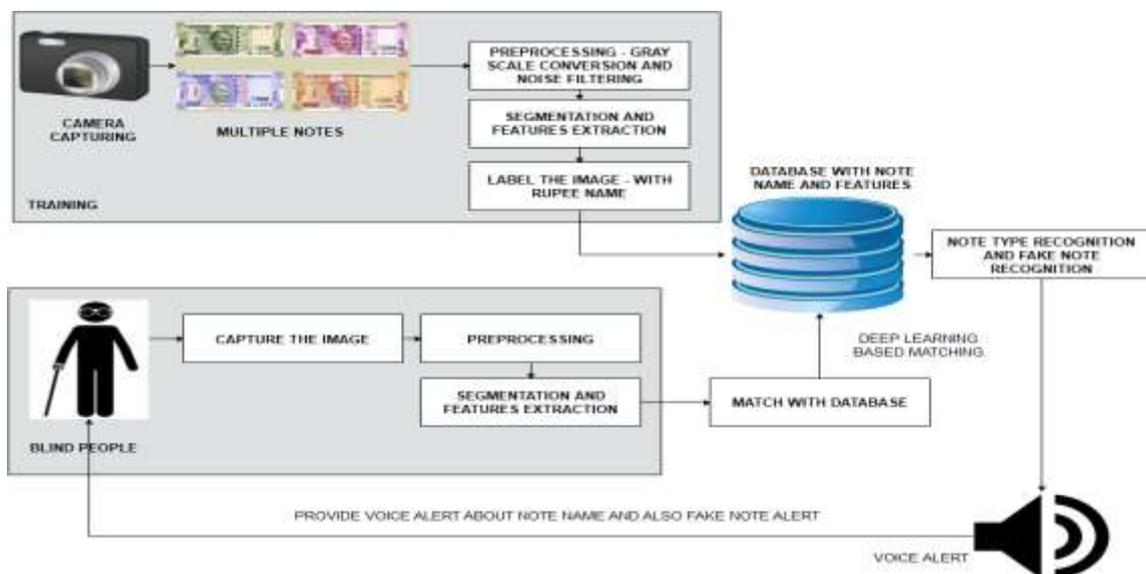

Figure 1:Flow Diagram

7. CONCLUSION

This paper is considering about blind people issue face for money. When they buy good product in exchange of money.so that we develop the money recognition app through eye glass and voice machine to tell amount value to the blind people.so that they can easy exchange their money over the product.so they can travel the by the normal people by using this application.

REFERENCE

1. Jan-mark Geusebroek, Learning Banknote Fitness for Sorting, International conference on pattern analysis and intelligence robotics, Issue 4-aug-2011
2. Sanghun, Lee, Multiscale Morphology Based Illumination Normalization with Enhanced local textures for face Recognitionexpert system with Applications, Volume 62, Issue 15-nov-2016.
3. Stefan Leutenegger ,Binary Robust Invariant Scalable Keypoints,International Conference on Computer Vision, Issue 26-jan-2012.

4. Susanta Mukhopadhyay, Multiscale Morphological Segmentation of Gray-Scale Images, IEEE transaction on Image processing, ISSN: 1057-7149, Issue 11-jan-2003.
5. Sungwook Youn, Efficient Multi-Currency Classification of CIS Banknotes,NeuroComputing, Volume 156, Issue 1-Jan-2015
6. P. Santhi, S.Thilagamani," A Survey on Audit Free Cloud Storage via Deniable Attribute Based Encryption", IRA-International Journal of Technology Engineering,Vol.5,No.1,PP.1-5,2016.
7. P.Pandiaraja,P.Viajayakumar,V.Vijayakumar,R.Seshadhri,"Computation efficiency Atttibute based broadcast group key management for secure document access in public cloud" ,Journal of information Science and Engineering,Vol.33,No3,PP 695-712.
8. P.Pandiaraj, P.Vijayakumar, "Efficient Multikeyword search over Encrypted data in untrusted cloud environment",Second International conference on Recent trends and challenges in Computational Model(ICRTCCM -17,PP 251-256)
9. N.Deepa, P.Pandiaraja, "Hybrid context aware recommendation system for e-health care by Merkle Hash tree from cloud using evolutionary algorithm", Journal of soft Computing springer ,Volume 24 ,Issue 10,pp 7149 -7161.
10. K Sumathi, P Pandiaraja,"Dynamic alternate buffer switching and congestion control in wireless multimedia sensor networks",Journal of Peer-to-Peer Networking and Applications,Springer US,PP 1-10.
11. P.Rajesh Kanna, P.Pandiaraja "An Efficient Sentiment Analysis Approach for Product Review using Turney Algorithm", Journal of Procedia Computer Science Elsevier ,Volume 165 ,Issue 2019 ,PP 356-362