

# Id card Detection Using Histograms of Oriented Gradients

Shiela David, Potru Sarada Sravanthi, B. Rupa, S. Vino Anjali

**Abstract:** ID card detection technology plays a very important role in today's society to identify the information database in various sectors. Histogram of Oriented Gradients is the most widely recognized component descriptors in picture preparing and PC vision and is utilized for object identification. High-security ID verification is a very tough job. Present day object identification and recognition has dynamically turned into a crucial issue in different on-going applications like security systems and government managed savings frameworks. The ID card can be precisely recognized by using a standardized scanner such as a barcode scanner. The particular client legitimately looks at the given data on the ID card and then compares it to the data already given to see if it matches. This type of identification is utilized accurately to remarkably distinguish clients quicker and is progressively effective to give recognizable access control arrangements. The experimental results conducted demonstrate that this strategy can be used to get the exact information of an individual and the required data.

**Index Terms:** Histogram of Oriented Gradients, Identification Card, Barcode Scanner, anti-fraud identification.

## I. INTRODUCTION

In today's society identity fraud is a very big issue with serious consequences. There have been numerous security issues and numerous solutions have been proposed to actualize the said theory LBPH to viably get the wanted outcomes. The principle technique executed here is that the ID card is examined using a standardized barcode scanner to identify if the information of the individual is phony or not. Afterwards, the picture of the individual is investigated to get the required details from the database.

The feature descriptor- Histogram Of Oriented Gradients is predominantly utilized in picture handling for the reason of object identification. The fundamental utilization of Histogram descriptor is used in pictures for human identification.

LBPH (Local Binary Pattern Histogram) strategy is one of the most effortless calculations in the field. We plan to give a calculation to successfully identify the picture and scan

the scanner tag (i.e.) the barcode scanner to get the required data for ID card recognition.

LBP alternatives are considered here to make a component vector that distinguishes a face from a non-confront. Each feature from the picture is partitioned into small blocks. For detection, the Local Binary Pattern (LBP), an algorithm, is used that will depend on the local binary operators. It is an extreme board algorithmic principle, broadly utilized, because of its effortlessness in computation.

Histogram Of Oriented Gradients is widely used to detect the facial features or even the human body. To enlarge the effectiveness of object recognition, gamma and shades of the picture ought to be standardized. The object seek depends on the identification of tiny images characterized by sliding the identifier window that examines each and every part of the given input and its scaled forms. A descriptor is allocated to every indicator window. This descriptor comprises of all the cell histograms for every region in the detection window. This window is used for getting the required data to identify the objects. Preparing and checking every detail happens by the use of this descriptor. There are numerous techniques available to characterize objects such as descriptors like, neural networks, SVM (support vector machine) and so on.

The HOG is one of the standardized strategies for human form categorization. To recognize individuals, confront location and picture acknowledgment may likewise be connected. But the Histogram of Oriented Gradients is a decent descriptor for article recognition and face acknowledgment. We tend to explore a simple yet a strong way to produce string utilization of HOG highlights for face identification. In order to complete mistakes in facial component discovery due to impediments, cause and illustration, we tend to propose HOG descriptors from an ordinary framework. Also, combination of HOG descriptors at totally extraordinary scales allows getting important structure for face recognition.

## II. RELATED WORKS

There were many other related works on picture preparing and object discovery and here we select a few important papers. Xuwei Fang<sup>1</sup>, Xiaowei Fu, XinXu, [1] This paper uses MATLAB platform for the project. The pre-treatment is thresholding which is done with the help of OTSU algorithm then the resulting thresholding images uses high pass filtering and average template for removing interface and smooth the image. Then the process is processed with character segmentation which was divided into two parts line segment and column split. Character images on projection axis are segmented by line segmentation and boundary value and calculated and store by using column split algorithm.

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Results are further processed to character recognition. In this session the characters are normalised and thinned. Then using template match algorithm is used for recognition. Then SVM comes to scene to get features and to train model which can be used to recognize.

Navneet Dalal and Bill Triggs used a more straight-forward method, to display matrices of the Histogram of Oriented Gradients (HOG) descriptors altogether beat the current methods used for human recognition. Support Vector Machine (SVM) was used for improving the speed and the straightforwardness of this method. On execution of this method, fine-scale inclinations, fine introduction binning, moderately coarse spatial binning, and brilliant neighbourhood differentiate standardization in covering descriptor squares are very much important for good outcomes. Identification and Distinguishing human in video observation framework similarly assume an indispensable job in improving accuracy and ensuring open property.

A system for human identification in different appearance, impediment, under uneven enlightenments and stances has been designed. Another proposed system for identifying human by improving the HOG was put forward by the writer. There were some other works on recognition of ID cards on secure standards.

The main reason for identification is to give a precise and safe individual information. Another examination was also made on proof identification dependent on Image acknowledgement. Proper strategies have been used for picture acknowledging technique, for example, Machine technique, Support Vector Machine (SVM) and Character distinguishing proof. Limited calculations were used to blunder the rate of division.

The character acknowledgement and the picture division fall under the primary part of the Image recognition. In the process to identify the article, the authors gave the presentation of the element descriptor, i.e. HOG (Histogram of Oriented Gradients), that is used to beat the limitations in the existing calculations in person on foot discovery.

### III. LOCAL BINARY PATTERNS

For facial appearance classification Local Binary Patterns (LBP) has been observed to be a powerful characteristic; it's additionally been established that once LBP is joined with the Histogram Of Oriented Gradients (HOG) descriptor, it enhances the identification performance essentially on some datasets.

The initial phase in HOG recognition is to partition the source picture into squares (for instance 16x16 pixels). Each square is further divided into smaller parts called cells (for instance 8x8 pixels). More often than not, squares cover each other (i.e.) they overlap one another, so a similar cell is in numerous squares.

The horizontal and vertical gradients are acquired for every pixel inside the cell. Histograms of edge orientations are created by the HOG algorithmic rule from bound patches found in the pictures. A patch could return from an object, an individual, inconsequential foundation and is just some approach to clarify a region using edge data.

As said earlier, this data will at that point be utilized to enhance a machine learning algorithmic guideline similar to the support vector machines to prepare a classifier ready to recognize one kind of object from another. This has the

preferred standpoint that in bigger scales the HOG highlights give a great deal of world data, and give fine-grained detail in smaller scales (in little sub-divisions).

The weakness is that the last descriptor vector becomes bigger, subsequently taking more time to withdraw and to prepare using the classifier which is provided. In the idea of LBP classification of textures, the event of LBP codes is accumulated into a histogram. The facial picture is partitioned into smaller regions. Independently these LBP texture descriptors are extracted from every region.

This histogram viably fuses a portrayal of the look on 3 entirely different dimensions of region: the data of the patterns on the pixel-level is contained in the histogram of the LBP, the labels are taken into account over a little area to give information on a provincial dimension and thus these histograms are used to give an overall description of the face.

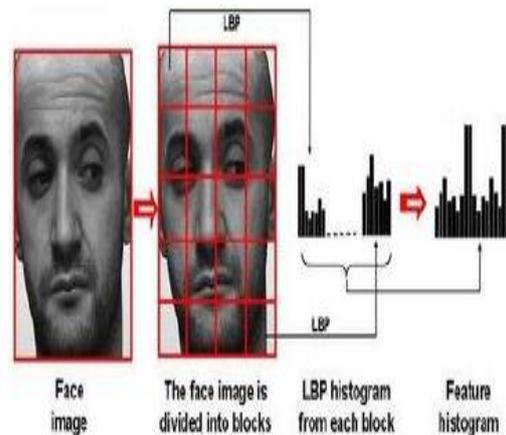


Fig. 1. FACE DESCRIPTION WITH LOCAL BINARY PATTERNS

### IV. WORKING PRINCIPLE

To beat the drawbacks of the past work, a framework has been proposed wherever picture handling and barcode scanner is utilized to locate the features of a person.

The method of Local Binary Pattern is victimized to get the image processing done. In an extremely dense framework the ordered image gradient orientations local histogram is evaluated. this is frequently executed by partitioning the picture window into little spatial regions (i.e.) "cells", for each pixel of the cell amassing a nearby 1-D histogram of inclination headings or edge orientations.

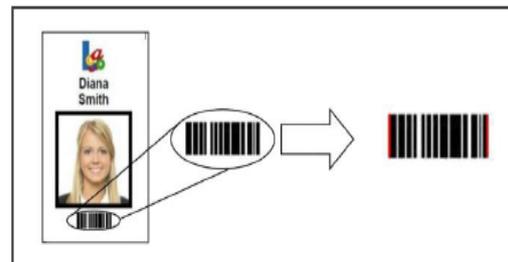


Fig. 2. BARCODE VERIFICATION PROCESS



Image processing is done to improve the nature and quality of the digitized picture. It names the pixels of a picture and the outcome is delivered as a binary range. The barcode scanner is utilized to identify an ID card. The data is saved in the database and the scanner completes the scanning process. Here the LBP implementations are being explained and the detector performances selections are examined closely.



Fig. 3. FACE DETECTION ANALYSIS IN ID CARD

The pyzbar library is utilized in python to identify and decode the QR and the other codes. At first, it will distinguish the sort of QR and barcode being scanned. Now the data contained in the barcode will be shown. A collection of points denotes the location of codes. There are four points to denote the four corners of the QR codes. A collection of points checks the begin and end of word limits in the barcode scanner. The ID card database will be examined when a number is produced.

The picture scanning in the ID card is done. The face in the ID card is recognized utilizing the LBPH and is verified with the picture in the Identification card database. At that point when the recognized face is found in the database under the number which is produced by the scanner tag, it is verified that the ID card is an original one. On the off chance, if there is no match for the face in the ID card under the number produced by the standardized identification, then the ID card is fake.

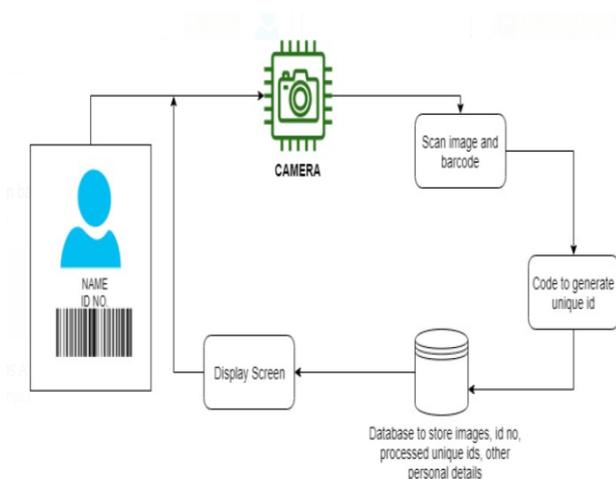


Fig. 4. ARCHITECTURE DIAGRAM

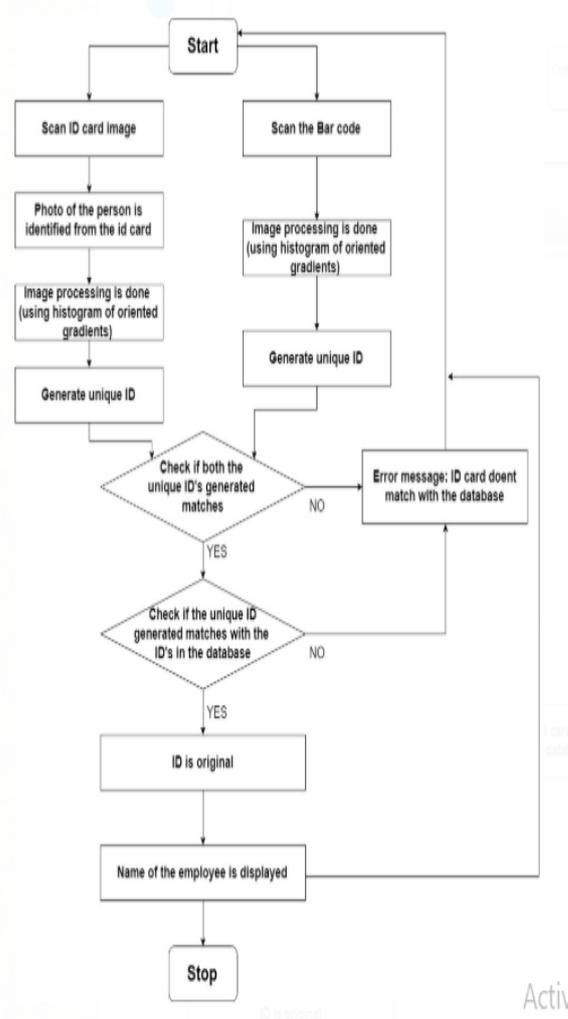


Fig. 5. WORK FLOW

### V. EXPERIMENTAL RESULTS

The LBP philosophy has prompted fundamental advancement in surface investigation. It's broadly utilized everywhere throughout the globe both in investigation and applications. From the execution purpose of see, we have made the location of ID card confirmation framework quicker, exact and mechanized which defeats all the issues present in the current framework. It is cost- powerful, proficient and profitable technique to utilize.

### VI. CONCLUSION

The proposed model is a push to enhance the execution times of the LBPH Algorithm while giving a setting for an ongoing execution which can be used to give a product arrangement equipped for creating exact, significant quick intelligent outcomes.

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