

AUTOMATIC ATTENDANCE SYSTEM USING FACE RECOGNITION TECHNIQUE

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ABSTRACT

Human face discovery has been a difficult issue in the zones of picture preparing and patter acknowledgment [1]. Another human face location calculation by crude Haar course calculation joined with three extra powerless classifiers is proposed in this paper. The three frail classifiers depend on skin shade histogram coordinating, eyes location and mouth identification [2]. To begin with, pictures of individuals are handled by a crude Haar course classifier, almost without wrong human face dismissal (exceptionally low pace of bogus negative) yet with some off-base acknowledgment (bogus positive)[3]. Furthermore, to dispose of these wrongly acknowledged non-human faces, a frail classifier dependent on face skin tone histogram coordinating is applied and a greater part of non-human appearances are eliminated. Next, another frail classifier dependent on eyes discovery is affixed and some leftover non-human appearances are resolved and dismissed. At long last, a mouth recognition activity is used to the leftover non-human countenances and the bogus positive rate is additionally diminished [4]. With the assistance of OpenCV, test results on pictures of individuals under various impediments and enlightenments and some level of directions and revolutions, in both preparing set and test set show that the proposed calculation is viable and accomplishes best in class execution. Moreover, it is productive due to its ease and effortlessness of execution.

ABOUT FACE RECOGNITION:

Face acknowledgment is a biometric arrangement intended to perceive a human face with no actual contact required. The arrangement goes through calculations that coordinate the facial hubs of an individual to the pictures spared in the information base.

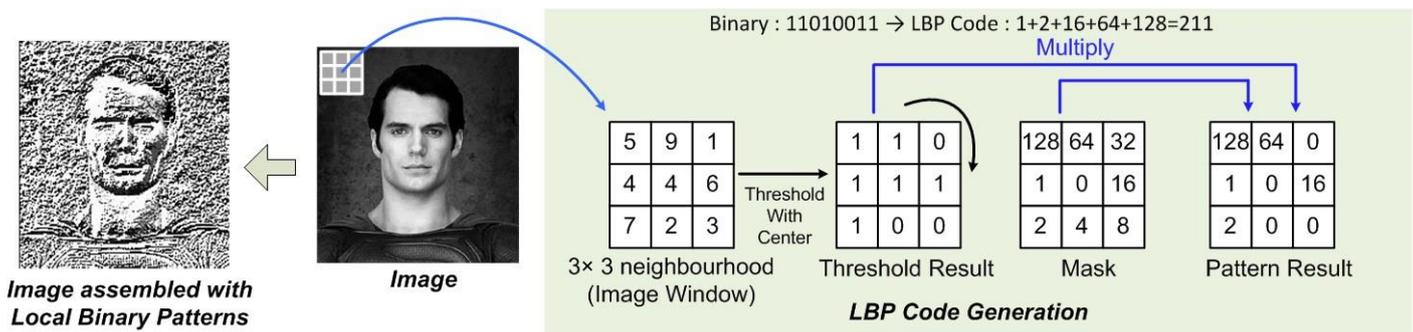
Security of any association or basic area can be upgraded utilizing facial acknowledgment. The flexible idea of facial acknowledgment settles on it a favored decision for added security.

Face detection and Face Recognition are regularly utilized conversely however these are very unique. Truth be told, Face discovery is simply essential for Face Recognition. Face acknowledgment is a technique for recognizing or confirming the character of an individual utilizing their face. There are different calculations that can do confront acknowledgment yet their precision may fluctuate.

Traditionally, due to the lack of proper cloud-based services, recovery was difficult or almost near impossible. Companies used to rely on different storage tools so that any loss of data can be retrieved from another storage. It wasn't a very cost-effective process [9]. There were rigid procedures for recovery, and the fixed assets required regular maintenance.

EXISTING SYSTEM

There exist a few techniques for removing the most valuable highlights from (preprocessed) face pictures to perform face acknowledgment. One of these element extraction techniques is the Local Binary Pattern (LBP) strategy [11]. This general new methodology was presented in 1996 by Ojala et al. With LBP it is conceivable to depict the surface and state of a computerized picture. This is finished by isolating a picture into a few little areas from which the highlights are removed.



Working process of LBP algorithm

These highlights comprise of parallel examples that depict the environmental factors of pixels in the districts. The acquired highlights from the locales are linked into a solitary component histogram, which shapes a portrayal of the picture. Pictures would then be able to be thought about by estimating the similitude (distance) between their histograms. As indicated by a few investigations face acknowledgment utilizing the LBP strategy gives generally excellent outcomes, both as far as speed and separation execution. As a result of the manner in which the surface and state of pictures is portrayed, the strategy is by all accounts very strong against face pictures with various outward appearances, changed helping conditions, picture pivot and maturing of people.

Disadvantages of Existing System:

- LBP and HOG is less precise when contrasted with the Haar Cascade Classifier which is actualized in the venture.
- In any window inside a picture, an enormous measure of MB-LBP highlights can be found. Along these lines, during the preparation age, it is important to zero in on a little arrangement of basic highlights, disposing of the majority of the non-basic ones in orderto speed up fundamentally without influencing precision.

PROPOSED SYSTEM

Haar Cascade is an AI object recognition calculation used to distinguish objects in a picture or video and dependent on the idea of highlights proposed by Paul Viola and Michael Jones in their paper "Quick Object Detection utilizing a Boosted Cascade of Simple Features".

It is an ML based methodology where a course work is prepared from a great deal of positive and negative pictures. It is then used to distinguish objects in different pictures.

It has four phases:

1. Haar Feature Selection
2. Creating Integral Images
3. Adaboost Training
4. Cascading Classifiers

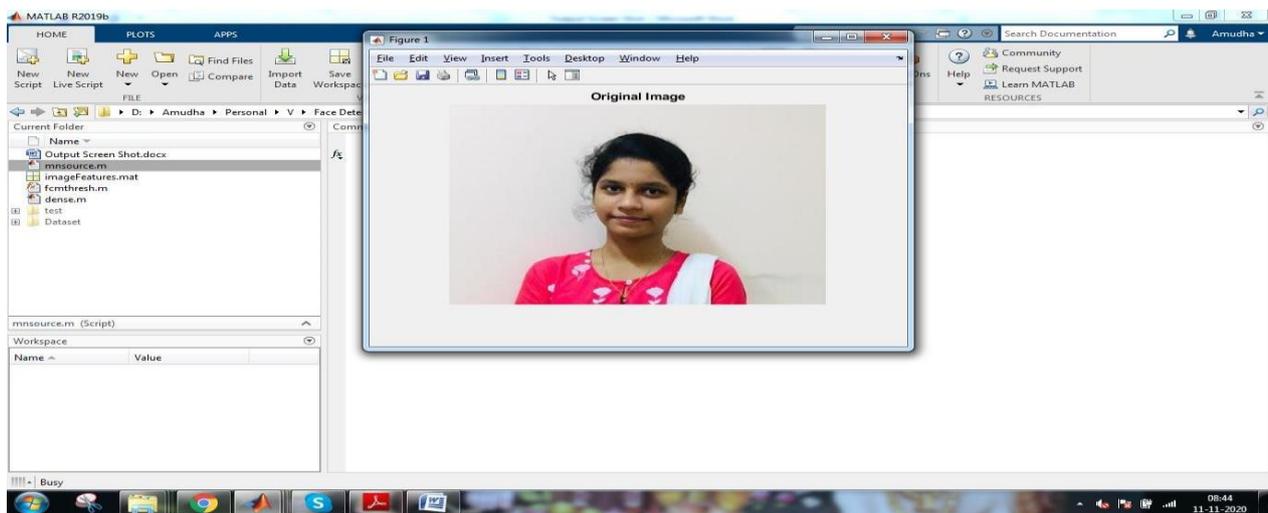
It is notable for having the option to distinguish faces and body parts in a picture, however can be prepared to recognize practically any item.

Let's take face recognition for instance. At first, the calculation needs a great deal of positive pictures of appearances and negative pictures without countenances to prepare the classifier[12]. At that point we need to separate highlights from it. Initial step is to gather the Haar Features. A Haar highlight thinks about contiguous rectangular areas at a particular area in an identification window, summarizes the pixel forces in every locale and ascertains the contrast between these aggregates.

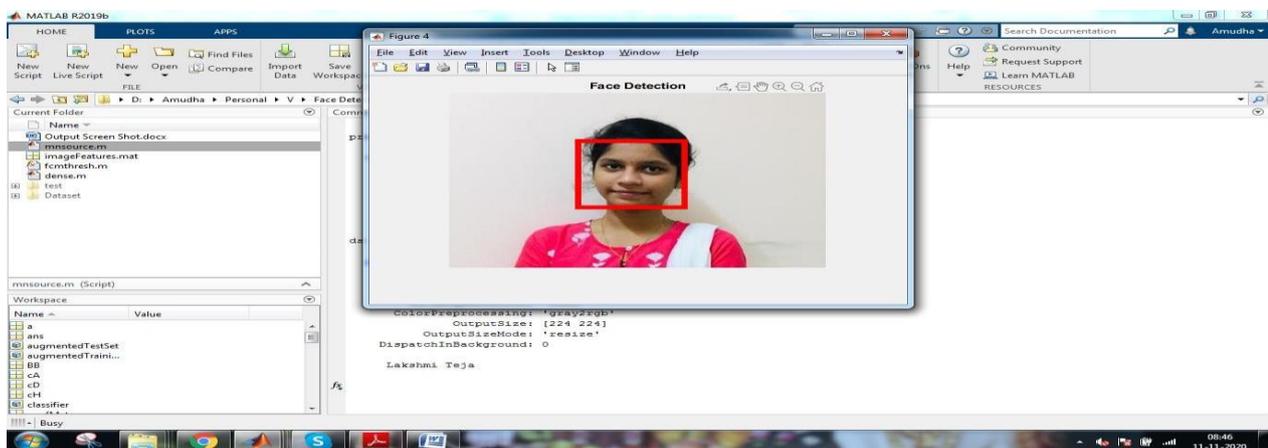
Advantages of Proposed System:

- As occurs in LBP cascades, weak classifiers become strong classifiers when arranged in sequence in Haarlike cascade.
- We select the features with minimum error rate, which means they are the features that best classifies the face and non-face images.
- The accuracy rate also is more using the haar cascade classifier in order to detect the faces in specific front faces rectangular region

EXPERIMENTAL RESULTS



Screenshot 1(a): Input Image with Face Detection



Screenshot 1(b): Face Detection Part

CONCLUSION

The finale object acknowledgment module with xml falls prepared on the catches is performing beneath desires. The over all experience is that regardless of whether the module finds the items and regularly recognize the various keys, it frequently finds bogus positives outside the atmosphere control board, e g. objects with white blemishes on dark foundation, as on a PC Keyboard.

It was needed for the last classifiers to performed similarly well as the test classifier yet this was not accomplished since the objective object ended up being hard to prepare. With the end goal of this model it would have been exceptional to pick some bigger articles in the vehicle for the acknowledgment, for occurrence the entire atmosphere board or the head unit.

FUTURE SCOPE

On the off chance that more work were to be done on this undertaking the primary need is grow better classifiers, picking a bigger item, have more examples and utilize more progressed highlight (not just up right ones). This should be possible with a little exertion.

An elective way to deal with improve the acknowledgment vigor of the course classifier, is to investigate enhancing an execution of a nearby keypoint extractionbased strategy. The FAST and

SUSAN finders would then be two primary applicants, in view of a presentation graph in another keypoint descriptor called FREAK has been added to the library and is claimed to be quick and "better than ORB also, SURF descriptors". The fundamental issue for such methodology is scale it up and make it ready to distinguish a major arrangement of articles.

Then again regular element following (marker-less AR) is more troublesome than marker-based following (utilizing QR/AR-labels) in most, if not all situations where marker-based methods are pertinent, since such labels are made for acknowledgment (containing clear highlights). Possibly it was not practical to believe that a neighborhood highlight based methodology would be a decent base for a framework ready to distinguish numerous items. The issue of what object acknowledgment frameworks are buildable is unmistakable to circumstance and climate. It would be feasible to develop a constant article acknowledgment framework dependent on neighborhood highlights for a little arrangement of articles, however for a basically limitless set (eg. all segments of a vehicle) it would be more sensible to utilize a code based strategy or a AI approach.

REFERENCES

1. S Annadurai. Fundamentals of digital image processing. Pearson Education India, 2007.
2. Battista Biggio, Zahid Akhtar, Giorgio Fumera, Gian Luca Marcialis, and Fabio Roli. Security evaluation of biometric authentication systems under real spoofing attacks. *IET biometrics*, 1(1):11–24, 2012.
3. David Cox and Nicolas Pinto. Beyond simple features: A large-scale feature search approach to unconstrained face recognition. In *Automatic Face and Gesture Recognition and Workshops (FG 2011)*, 2011 IEEE International Conference.
4. Ali Ghodsi. Dimensionality reduction a short tutorial. Department of Statistics and Actuarial Science, Univ.of Waterloo, Ontario, Canada, 37:38, 2006.
5. Diego Gragnaniello, Giovanni Poggi, Carlo Sansone, and Luisa Verdoliva. Fingerprint liveness detection based on weber local image descriptor. In *Biometric Measurements and Systems for Security and Medical Applications (BIOMS)*, 2013 IEEE Workshop on, pages 46–50. IEEE, 2013.
6. Qiangui Huang, Sheng Chang, Chun Liu, Binbin Niu, Meng Tang, and Zhe Zhou. An evaluation of fake fingerprint databases utilizing svm classification. *Pattern Recognition Letters*, 60:1–7, 2015.
7. Juho Kannala and Esa Rahtu. Bsif: Binarized statistical image features. In *Pattern Recognition (ICPR)*, 2012 21st International Conference on, pages 1363–1366. IEEE, 2012.