"E-VOTING SYSTEM USING FACE DETECTION"

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Abstract

Facial recognition is a category of biometric software which works by matching the facial features. We will be studying the implementation of various algorithms in the field of secure voting methodology. There are three levels of verification which were used for the voters in our proposed system. The first is UID verification, second is for the voter card number, and the third level of verification includes the use of various algorithms forfacial recognition we are using RBF algorithm.

Keywords: *Python language,Software Development life cycle(SDLC),Built in camera or USB camera.*

1. INTRODUCTION

Election is the procedure through which individuals can communicate their political sentiment. They express this conclusion by open democratic to pick a political pioneer. Besides, this political pioneer would have authority and duty. Generally important, Election is a conventional cooperative choice creation procedure. Additionally, the chosen political pioneer would hold open office. The political race is positively an imperative mainstay of majority rules system. This is on the grounds that; Election guarantees that the administration is of the individuals, by the individuals, and for the individuals. Constituent frameworks are point by point protected plans and casting ballot frameworks. These point by point established plans and casting ballot frameworks convert the vote into a political choice. At present in India two kinds of strategy are utilized for casting a vote. The main technique is secret ballot paper, in which heaps of papers are utilized and second strategy is EVM. Ai and Deep learning is showing great support in advancement oftechnology that will remove lot of flaws.

2. LITERATURE SURVEY

[1] Smart In this paper we present a robust method for automatically matching features in images corresponding to the same physical point on an object seen from two arbitrary viewpoints. Unlike conventional stereo matching approaches we assume no prior knowledge about the relative camera positions and orientations. In fact in our application this is the information we wish to determine from the image feature matches. Features are detected in two or more images and characterized using affine texture invariants. The problem of window effects is explicitly addressed by our method - our feature characterization is invariant to linear transformations of the image data including rotation, stretch and skew. The feature matching process is optimized for a structure-from-motion application where we wish to ignore unreliable matches at the expense of reducing the number of feature matches.

[2] Face recognition remains a challenging problem till today. The main challenge is how to improve the recognition

performance when affected by the variability of non-linear effects that include illumination variances, poses, facial expressions, occlusions, etc. In this paper, robust 4-layer Convolutional Neural Network (CNN) architecture is proposed for the face recognition problem, with a solution that is capable of handling facial images that contain occlusions, poses, facial expressions and varying illumination. Experimental results show that the proposed CNN solution outperforms existing works, achieving 99.5% recognition accuracy on AR database. The test on the 35-subjects of similar range of performance as the best result of previous works. More significantly, our proposed system completes the facial recognition process database achieves an accuracy of 85.13%, which is in the in less than 0.01 seconds.

[3] Although there are many face detection algorithms in the literature, only a handful of them meet the real-time constraints of a software- based solution without using any dedicated hardware engine. This paper presents a real-time and robust solution for mobile platforms which in general have limited computation and memory resources as compared to PC platforms. This solution involves combining our two previous real-time implementations for mobile platforms to address the shortcoming of each implementation. The first implementation provides an online or on-the-fly light source calibration for the second implementation which is found to be robust to various face poses or orientations. The real-time results obtained on an actual mobile platform indicate both the real-time and robustness capabilities of this hybrid facedetection solution.

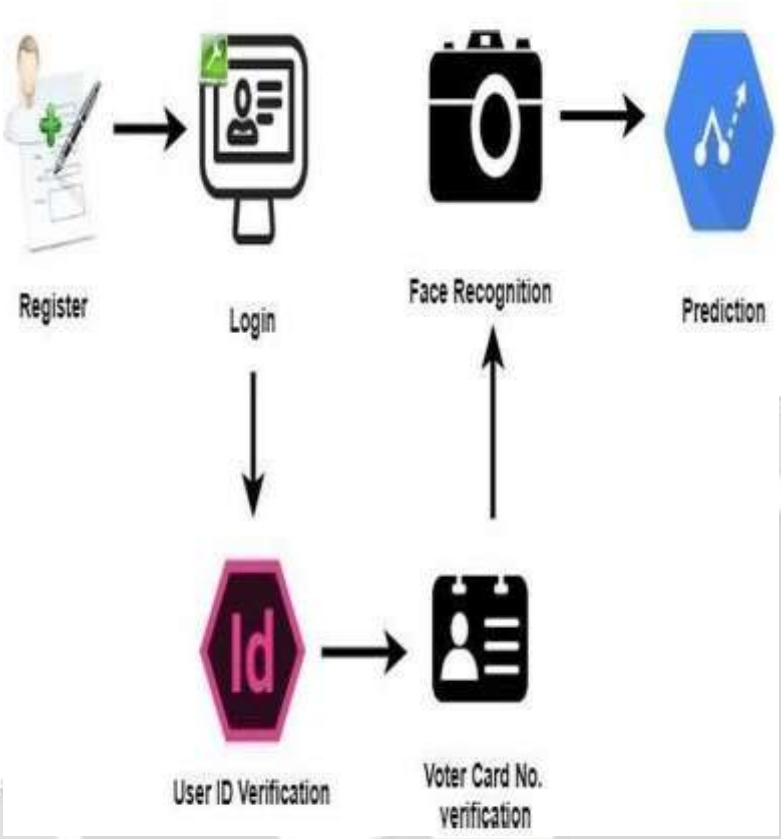
[4] We develop a face recognition algorithm which is insensitive to large variation in lighting direction and facial expression. Taking a pattern classification approach, we consider each pixel in an image as a coordinate in a high-dimensional space. We take advantage of the observation that the images of a particular face, under varying illumination but fixed pose, lie in a 3D linear subspace of the high dimensional image space— if the face is a Lambertian surface without shadowing. However, since faces are not truly Lambertian surfaces and do indeed produce self- shadowing; images will deviate from this linear subspace. Rather than explicitly modeling this deviation, we linearly project the image into a subspace in a manner which discounts those regions of the face with large deviation. Our projection method is based on Fisher's Linear Discriminant and produces well separated classes in a low-dimensional subspace, even under severe variation in lighting and facial expressions. The Eigen face technique, another method based on linearly projecting the image space to a low dimensional subspace, has similar computational requirements.Yet, extensive experimental results demonstrate that the proposed "Fisher face" method has error rates that are lower than those of the Eigen face technique for tests on the Harvard and Yale Face Databases.

[5] In this paper, design and implementation the feature extraction method of Speeded-Up Robust Features (SURF) and Support Vector Machine (SVM) classification method into the traffic signs recognition application. The output of this application is the meaning of the traffic sign with two languages, Indonesia and English. In the SURF method, the smallest large number of key points will affect the accuracy level to recognize an image. Based on the results, accuracy of this traffic signs detection has a high accuracy rate of 96%, when taking this image right in the green box displayed on the smartphone screen and taken when the brightness level of the light on 4106 lux up to 10896 lux.

3. PROPOSED SYSTEM

In our proposed system, we are proposing three levels of verification which is very effective in reducing the false voting scenarios. The first includes the unique id generate at the registration which would be given to the voter. After which, in the second level of security when given id to the Election Commission Officer where it would be cross-checked by the officer and now the new tier of verification through which the voter needs to go, will greatly enhance the security, here we would be matching the current facial features of voter with the one present in database, this would reduce the chances of false casting of voting and make the system safer and accurate. we will discuss the one algorithm used in the field of facial recognition. We have also measured the accuracy of this algorithm by practically implementing it and evaluating it on the test set here we use RBF model which uses very less dataset and also gives best accuracy.

4. SYSTEM ARCHITECTURE



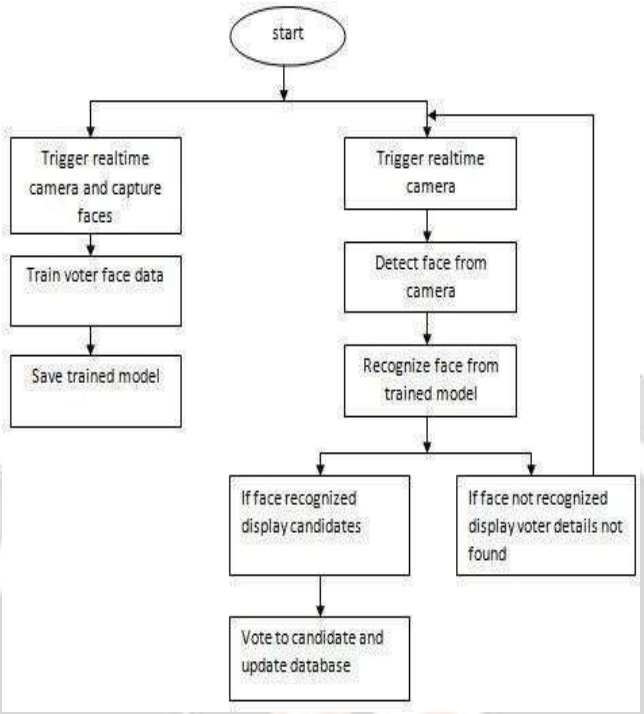
A system architecture is the conceptual model that defines the structure, behavior, and more views of a system. An architecture description is a formal description and representation of a system, organized in a way that supports reasoning about the structures and behaviors of the system.

An entity relationship diagram (ERD), also known as an entity relationship model, is a graphical representation that depicts relationships among people, objects, places, concepts or events within an information technology (IT) system. An activity diagram visually presents a series of actions or flow of control in a system similar to a flowchart or a data flow diagram. Activity diagrams are often used in business process modeling. They can also describe the steps in a use case diagram. Activities modeled can be sequential and concurrent.

Use-case diagrams describe the high-level functions and scope of a system. These diagrams also identify the interactions between the system and its actors. The use cases and actors in use-case diagrams describe what the system does and how the actors use it, but not how the system operates internally.

A sequence diagram is a Unified Modeling Language (UML) diagram that illustrates the sequence of messages between objects in an interaction. A sequence diagram consists of a group of objects that are represented by lifelines, and the messages that they exchange over time during the interaction.

5. FLOW OF IMPLEMANTATION



A flowchart is a picture of the separate steps of a process in sequential order. It is a generic tool that can be adapted for a wide variety of purposes, and can be used to describe various processes, such as a manufacturing process, an administrative or service process, or a project plan. Testing does a variety of things, but the quality of the software we develop is most importantly measured. This view presupposes that there are software vulnerabilities that wait to be identified and this assumption is frequently contested. Various factors make validation a high priority for all software development activities.

6. FUTURE ENHANCEMENT

In future work, we plan on increasing the training dataset and applying other important techniques like SIFT, deep learning neural network, etc. Face detection and facial feature extraction are significant for the face tracking, facial expression recognition and face recognition. Facial feature extraction plays a crucial role in the areas of human computer interaction , video monitoring and person identification the system can have more security like implementing blockchain to store the votes and use finger print authentication for more secure login.

7. CONCLUSION

Face recognition has been since its advent a more secure and trustworthy form of authentication by including this feature with our present voting system we could enhance the capabilities of the system and can make it more secure and free from false voting. we have provided a one algorithm, that is, RBF. Along with this, we have also compared their performance based on how they classify faces in the images. Our training set consisted ofimages. The images in the training set were augmented for further enhancement of their features. Each augments set constituted of 4 more samples per image. So the complete set constituted of 2316*4, that is, 9264 images. On the basis of our research, we observed that the accuracy of the algorithms based on the training data. The training data consisted of 2316 labeled image.

8. REFERENCES

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