RESEARCH ARTICLE OPEN ACCESS

A Face Recognition and Spoofing Detection Adapted to Visually Impaired People

Dr K Sailaja,MCA, M.Tech, M.Phil, Ph.D [1], S GuruPrasad [2]

[1] Professor& HOD, Department of Computer Application
[2] Student, Department of Computer Application
[1],[2] Chadalawada Ramanamma Engineering College (Autonomous)

ABSTRACT

According to estimates by the world Health organization, about 285 million people suffer from some kind of visual disabilities of which 39 million are blind, resulting in 0.7 of the word population. As many visual impaired peoples in the word they are unable to recognize the people who is standing in front of them and some peoples who have problem to remember name of the person. They can easily recognize the person using this system. A computer vision technique and image analysis can help visually impaired people to recognize unknown persons. This system provides identity of the unknown persons .who is standing outside the home using face identification and spoofing detection system. This system also provide feature to add newly known people and keep records of all peoples visiting their home.

Keywords: - Visually Impaired, Health organization, Computer Vision, Face recognition.

I. INTRODUCTION

This system provides identity of the unknown persons .who is standing outside the home using face identification and spoofing detection system. This system also provide feature to add newly known people and keep records of all peoples visiting their home. The problem of face recognition adapted to visually impaired people has been investigated in their different ways. Below are summarized the work important, indicating for each the most important features that have been motivating development of the architecture proposed here. In existing, facial recognition system is presented in mobile devices for the visually impaired, but meetings mainly focused on what aspects as visual field captured by the mobile focus much of the subject.

II. RELATEDWORKS

S Dini and L Balduzzi proposed Low-cost face biometry for visually impaired users. In Biometric Measurements and Systems for Security and Medical Application. Present a work in progress on a face biometry system for visually impaired users - the result of a very close interaction among scientists, engineers, and a users group formed by visually impaired and social assistants. The prototype under development implements recent trends of video analysis and follows closely the suggestions given by the working group, with the ambitious goal of developing a device easy to use that can be an effective help to improve communication and inclusion of visually impaired population. The prototype works real-time processing the incoming video stream to the purpose of locating the presence of people and spotting known faces. Each event of interest produces a simple audio feedback to the user, allowing him or her to locate the presence of people before they start talking or highlighting known faces in noisy environments.

J Maata and A Habib proposed Face spoofing detection from single images using micro-texture analysis. In Biometrics. Current face biometric systems are vulnerable to spoofing attacks. A spoofing attack occurs when a person tries to masquerade as someone else by falsifying data and thereby gaining illegitimate access. Inspired by image quality assessment, characterization of printing artifacts, and differences in light reflection, propose to approach the problem of spoofing detection from texture analysis point of view. Indeed, face prints usually contain printing quality defects that can be well detected using texture features. Hence, present a novel approach based on analyzing facial image textures for detecting whether there is a live person in front of the camera or a face print. The proposed approach analyzes the texture of the facial images using multi-scale local binary patterns (LBP).

M Jones proposed Rapid object detection using a boosted cascade of simple features. In Computer Vision and Pattern Recognition. This project describes a machine learning approach for visual object detection which is capable of processing images extremely rapidly and achieving high detection rates. This work is distinguished by three key contributions. The first is the introduction of a new image representation called the "integral image" which allows the features used by our detector to be computed very quickly. The second is a learning algorithm, based on AdaBoost, which selects a small number of critical visual features from a larger set and yields extremely efficient classifiers. The third contribution is a method for combining increasingly more complex classifiers in a "cascade" which allows background regions of the image to be quickly discarded while spending more computation on promising object-like regions.

III. PROPOSED SYSTEM ARCHITECTURE

The proposed system has been validated with real users and a real environment simulating the same conditions as could give both the images captured by a video portero as images taken by a person visually impaired through their mobile device. Contributions are discussed below:
(i) First image acquiring is proposed.
(ii) Second propose face detection using computer vision.

(iii) Third explore effective algorithms such as local binary pattern, wavelet transform, CSLBP, support vector machine and k-nearest neighbour are used for face recognition and facial expression detection.

(iv) Finally estimated person name and expression is converted into voice for visually impaired people.

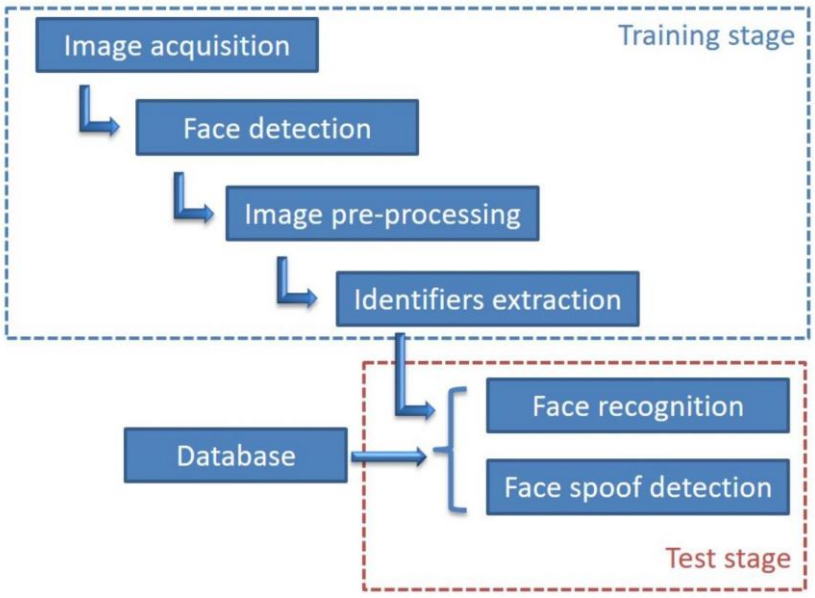

Fig.1 Proposed System Architecture

The proposed system contains two modules:

1. System: It contains Data Cleaning, Image Acquisition, Preprocessing, Features Extraction using Local Binary Pattern, Classification using KNN, Generate feature, Generate Facial Expression detection.
2. User: It contains Get Image Dataset, Uploading Image from dataset, View features, View Facial expression detection.

IV. RESULTS AND DISCUSSION

The output screens obtained after executing and running the system are shown from Fig.2 to Fig.

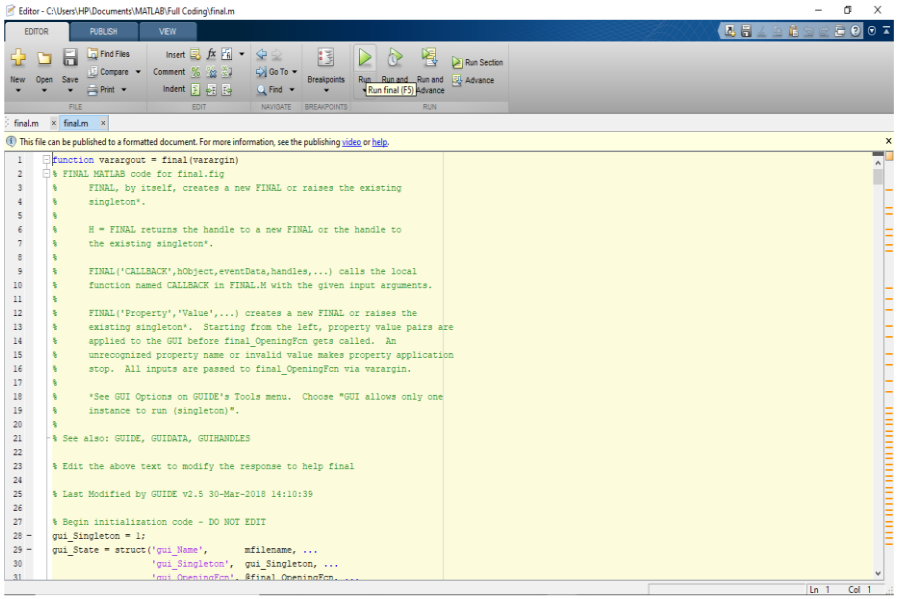

Fig.2 **Running Program on console**

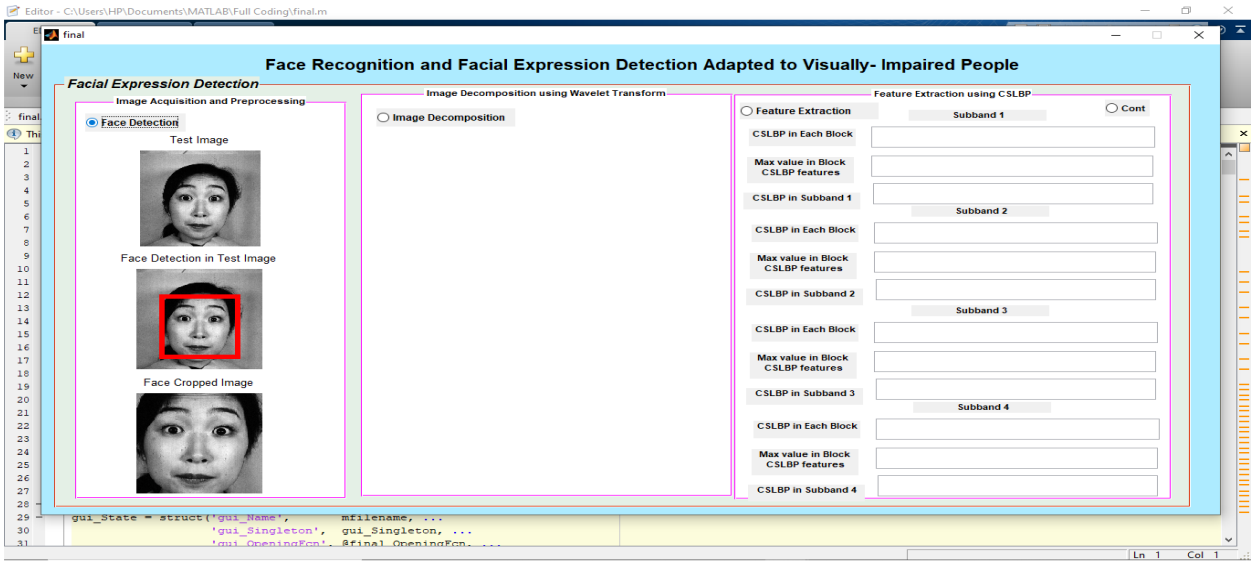

Fig. 3 **Uploaded Test Image**

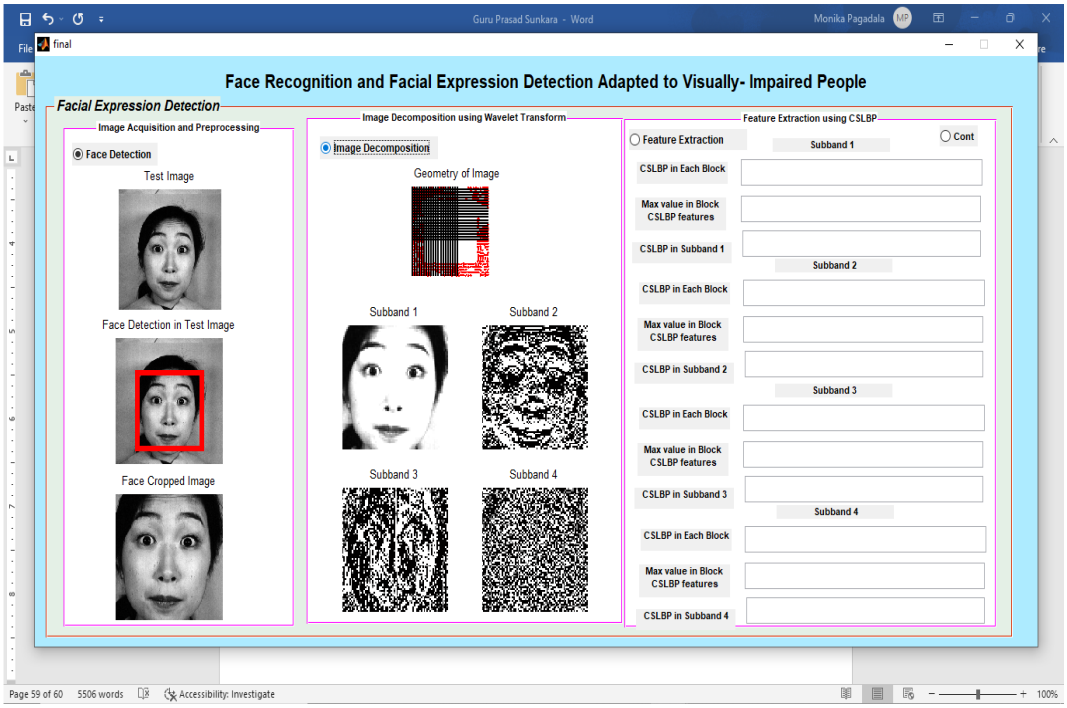

Fig. 4 **Decomposing Image**

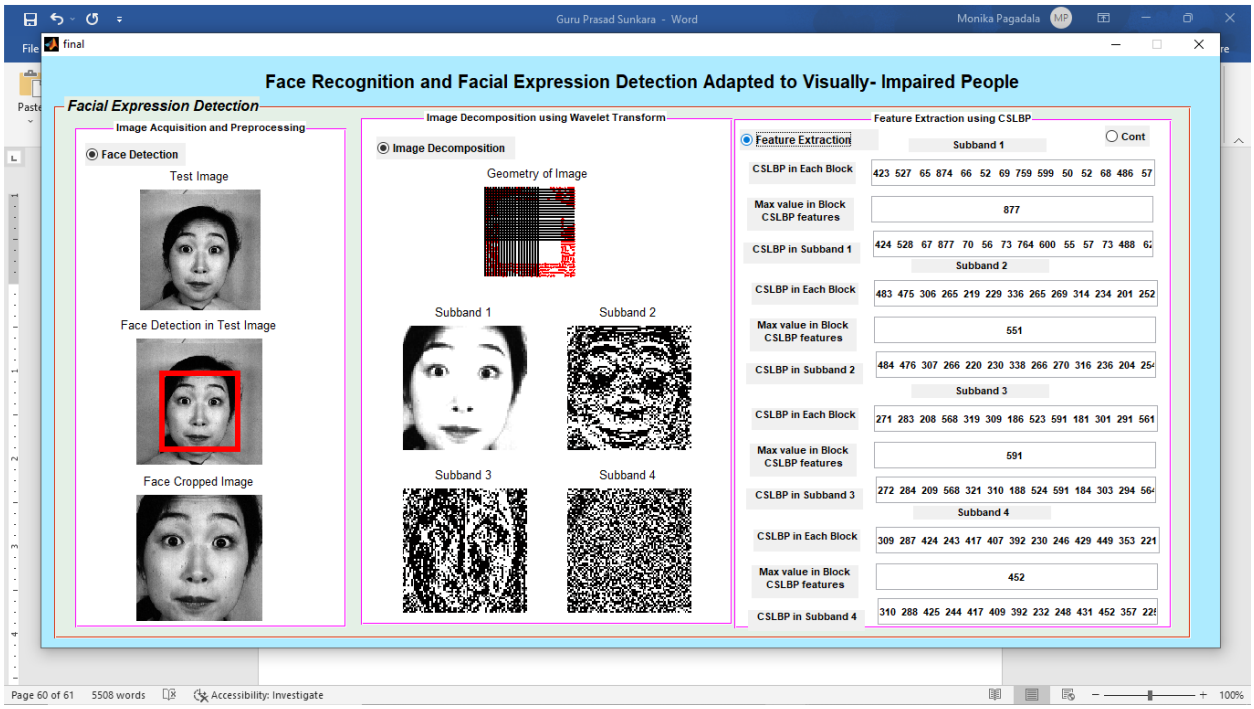

Fig. 5 Feature Extraction

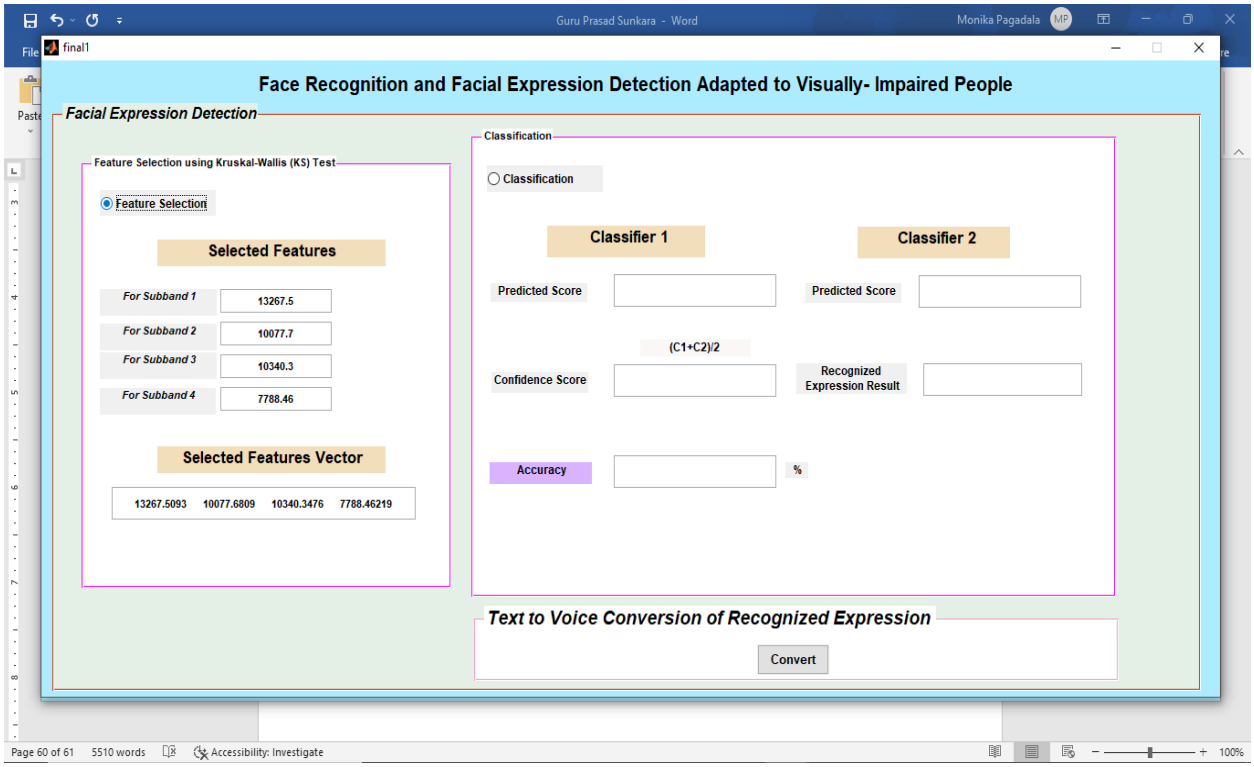

Fig. 6 Feature Selection

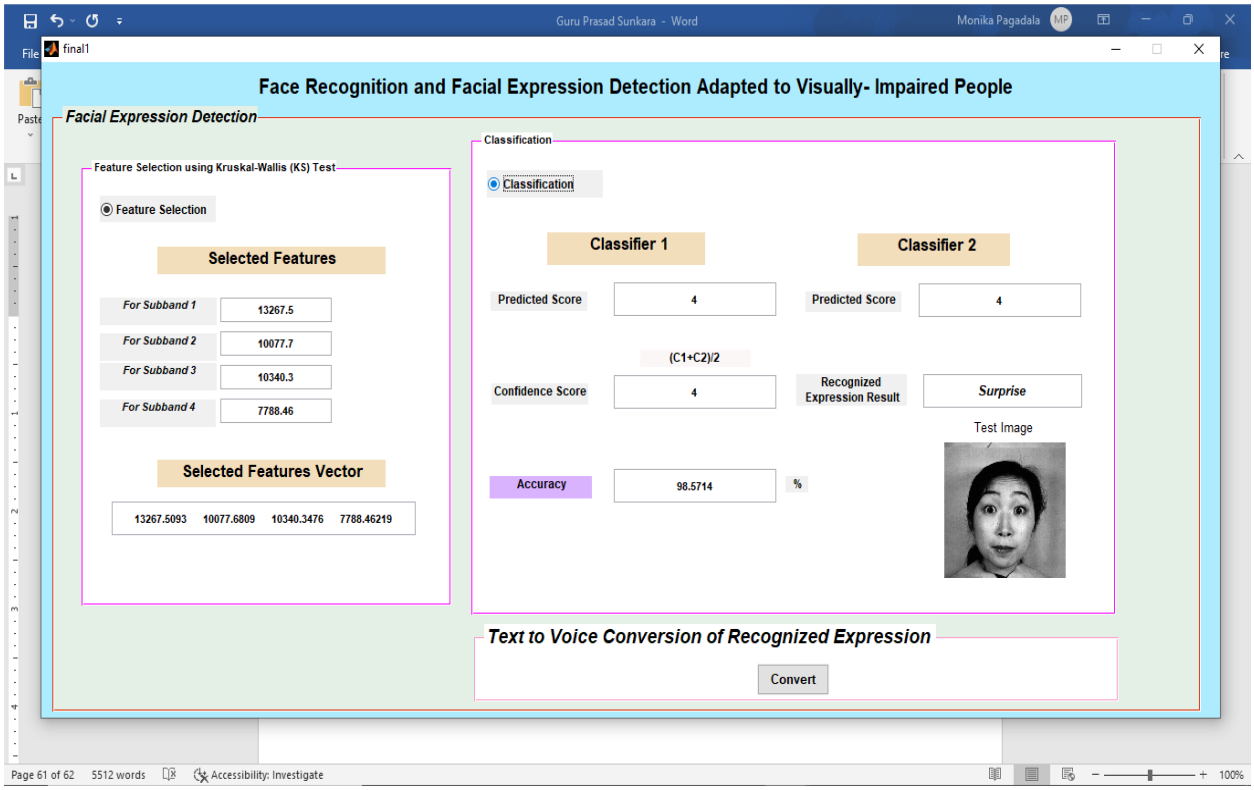

Fig. 7 Classification

V. FUTURE SCOPE AND CONCLUSION

The main aim of the system is to develop an automated system using a computer vision techniques and image analysis which can be helpful for visually impaired peoples as well as those peoples who have problem to remember identity of person and their expressions. This system provides safety to visually impaired peoples from crimes. Thus we will be implementing face recognition and facial expression detection system for visually impaired peoples. So, visually impaired peoples are more immune to such crimes they faces the many problems in the real environment. For this purpose, security is provided by this system. This will more beneficial for visually impaired people.

REFERENCES

[1]. A. B. Auto Gómez-Ulla of Irazazábal, F., & Ondategui-Parra, S. (2012). Report Blindness in Spain

[2]. Vision 2020: The Right to Sight. World Health Organization (WHO) and International Agency for Prevention Blindness (IAPB). Action Plan (2006-2011).

[3]. Eurostat web portal, 2011.

[4]. Diabetes Atlas. International Diabetes Federation. 2010.

[5]. Maiden Baum, S., Harass, S., Abound, S., Buchs, G., Chebat, DR, Levy-Tzedek, S., & Amedi, A. (2014). The "EyeCane", a new electronic travel aid for the blind: Technology & swift learning behavior. Restorative Neurology and Neuroscience, 32 (6), 813-824.

[6]. C. Kramer, KM, Hedin, DS, & Rolkosky, DJ (2010, August). Smartphone based face recognition tool for the blind. In Engineering in Medicine and Biology Society (EMBC), 2010 Annual International.