ATTENDANCE MONITERING SYSTEM BASED ON FACE RECOGNITION

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ABSTRACT:

With the advancement of modern technologies areas related to robotics and computer vision, real time image processing has become a major technology under consideration. So here a try has been made for a novel approach for capturing images from the Pi Camera in real time environment and process them as we are required. This project portrays a machine learning approach for face recognition to accomplish this process very quick with high identification rates using OpenCV. Here in this project depicts a basic and simple equipment execution of face location framework utilizing, which itself is a minicomputer of a smallest low cost. The framework is modified utilizing Python programming language. The destinations of the face recognition are to recognize appearances and its spatial area in any pictures or recordings. The proposed frame work distinguishes the faces present in a grey scale and color image. This project center around usage of face detection framework for human recognizable proof in light of OpenCV library with python. Here in this project the idea of identification has been built up by composing distinguishable code for dataset generator, trainer and indicator Effectiveness of the frame work is examined by ascertaining the Face recognition rate for every one of the databases. The outcomes uncover that the proposed framework can be utilized for face detection even from low quality pictures and shows incredible execution level. At last, the data that will be shown alongside recognized n photograph has been put away on database. This concept has a higher scope on

security and surveillance projects and various operation.

Key Terms: attendance monitering system, based on face recognition, Haar casecade classifier algorithm, open cv

1. INTRODUCTION:

An automatic attendance management system is needed tool for huge organizations. Many organizations have been used face recognition system such as train stations, airports, and companies. the matter that has to be taken into consideration in the future is a methodto guarantee users' privacy. Whenever an image is stored on servers, it must be impossible for unauthorized person to get or see that image. face recognition is one of the important biometric methods; it deals with automatically identifying or verifying a person from a digital image or video source by comparing selected facial features. It is a form of identity access management and access control. Moreover, face recognition is considered a passive and non-intrusive approach to verifying and identifying people. Though there are other forms of identification such as password, PIN (personal identification number), fingerprints and iris but in some cases, it is better to havean identification approach that is closer to the way human beings recognize each other and this informed the application of the proposed hybridized face recognition algorithm to students' attendance taking in tertiary institutions. the Goal of this project is also to involve Machine Learning in Face recognition instead of a static program (like using Open CV). In this way the efficiency can be increased by the past experiences. this device helps in bringing punctuality in the organization because they keep records of employees in and out timings. The software for these systems is capable of generating industry standard

2. LITERATURE SURVEY:

TITLE - I: "Face Recognition-Based Mobile Automatic Classroom Attendance Management System" in *ICASSP 2017*.AUTHOR: Refik Samet, Muhammed Tanriverdi.

It proposes a correlation-based approach that utilizes response maps from CNN models to detect faces in video sequences. That the face features of each identity are better aligned in the embedding space. Only a better way to detect face is tested and implemented. It corresponds to a pre-recordedvideos. Extracting embeddings from faces cropped by our approach *consistently* leads to better performance on public models such as VGG and LCNN. If faces are cropped by our approach and the embeddings are extracted from the same network structure (LCNN), the performance can be improved93.0%comparedtotheresult 91.6%in and achieve comparable result to the state-of-the-arts. Recognizing faces in videos has gained much interest recently due to the fast growth of social media. In this context, each person is represented by a sequence of faces in video frames rather than one single image. Therefore, to improve the recognition performance, it is important to utilize the correlation between consecutive video frames to detect faces. If correlation information is not utilized and faces are detected independently for each frame, the discontinuity of the face images within each video sequence will introduce large variations in the embedding space leading to inferior performanc

TITLE – II: "Smart Attendance Monitoring System (SAMS): A Face Recognition based Attendance System for Classroom Environment" *in ICECA 2018.* **AUTHOR: Bhattacharya, Gowtham Sandeep Nainala, Prosenjit Das**

It talks about various algorithms like Adaboost, Haar cascades. Thispaper aims to help in understanding the best prerequisites for face detection using Open CV. Only a facedetectionalgorithms Use OpenCV algorithms (ML Algorithms are not considered).an application for tracking and detecting faces in videos and in cameras which can be used for multipurpose activities. The intention of the paper is deep study of face detection using open CV. A tabular comparison is performed in order to understand the algorithms in an easier manner. face recognition takes an93.0%comparedtotheresult 91.6%in and achieve comparable result to the state-of-the-arts. Recognizing faces in videos has gained much interest recently due to the fast growth of social media. In this context, each person is represented by a sequence of faces in video frames rather than one single image. Therefore, to improve the recognition performance, it is important to utilize the correlation between consecutive video frames to detect faces. If correlation information is not utilized and faces are detected independently for each frame, the discontinuity of the face images within each video sequence will introduce large variations in the embedding space leading to inferior performance.

TITLE – III: "Cloud-Based Class Attendance Record System" in ICTSS2019.AUTHOR:HuiminZhang,XinleiFeng,SujathKrishnamoorth. ,

The purpose of this research is to implement and develop face recognition algorithm provided by OpenCV 2.4.8. this research is also to test and develop face recognition as part of future multi-modal biometrics application. A face recognition algorithm using OpenCV. It's recognition percentage in different places reduces to 60% to 80%. coordinate of features such as width of mouth,

width of eyes, pupil, and compare the result with the measurements stored in the database and return the closest record.

3. SYSTEM DESIGN:

The system uses a combination of techniques in two topics; face detection and recognition. The face detection is performed on live acquired images without any application field in mind. Processes utilized in the system are white balance correction, skin like region segmentation, facial feature extraction and face image extraction on a face candidate. Face recognition is done by Haar cascade algorithm. This recognition system uses biometrics to map facial features from a photograph or video. It compares the information with a database of known faces to find a match. Facial recognition can help verify personal identity, but it also raises privacy issues is used to recognize the face by using positive and negative images.
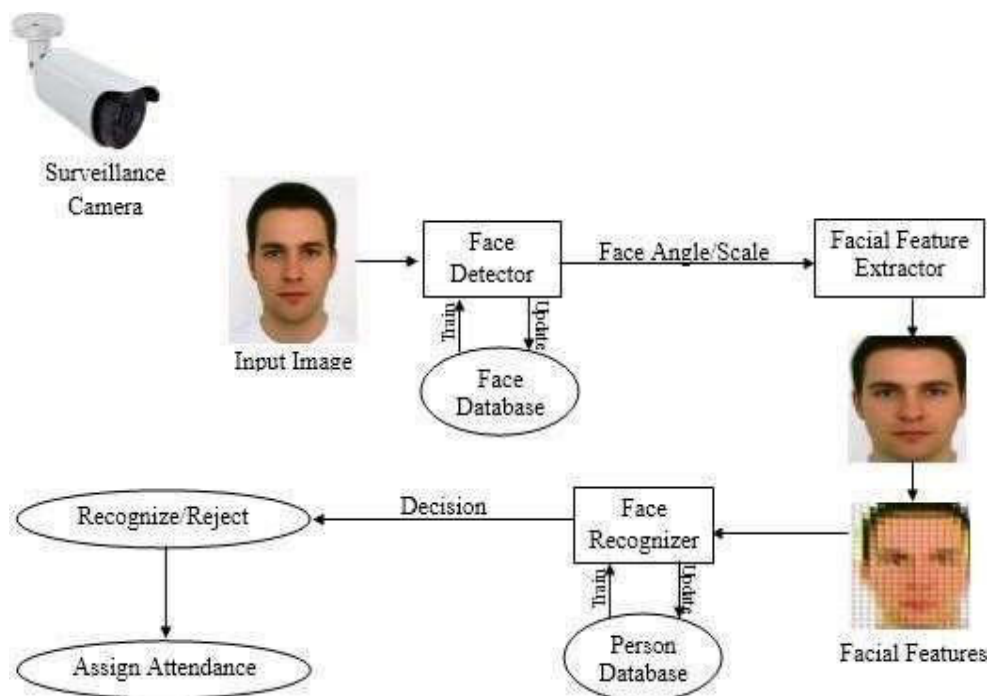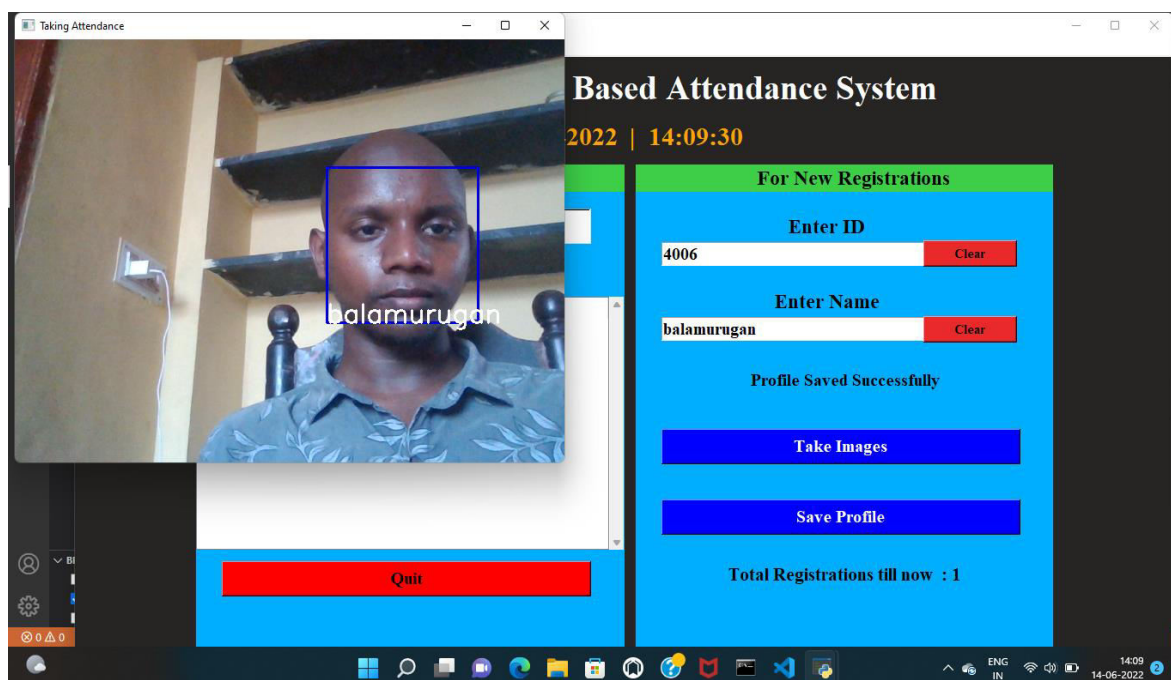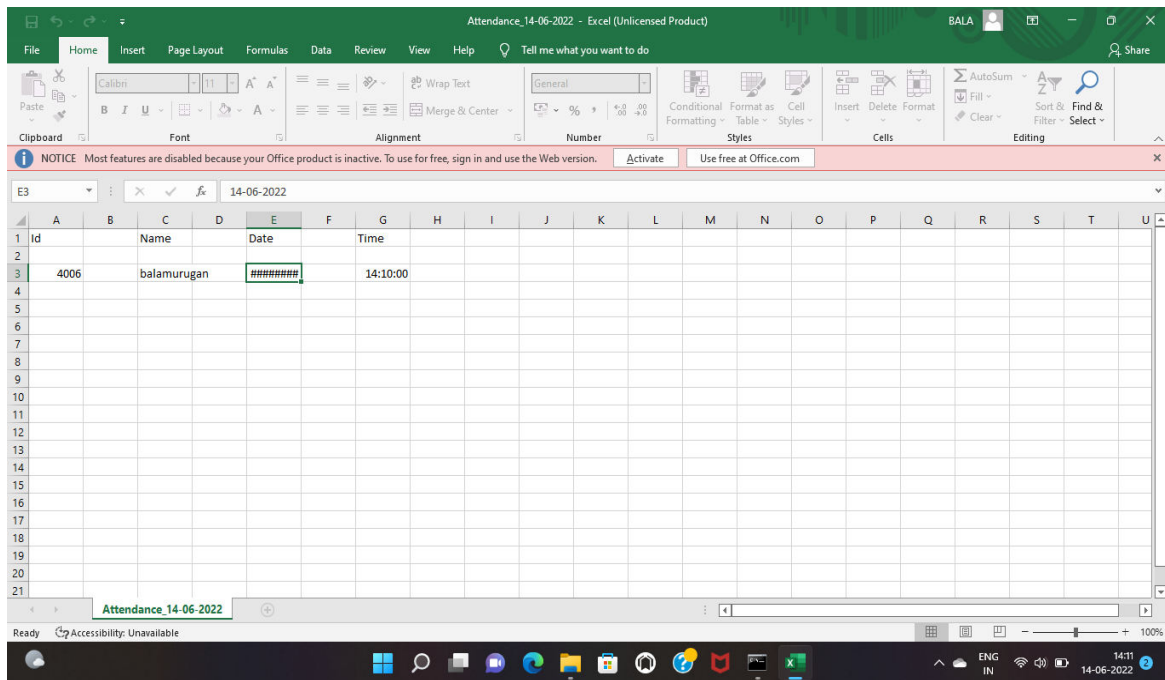

4. IMPLEMENTATION:

For Face Detection module, here we are using Haar cascade algorithm. It is an Object Detection Algorithm used to identify faces in an image or a real time video. The algorithm uses edge or line detection features proposed by Viola and Jones in their research paper "Rapid Object Detection using a Boosted Cascade of Simple Features" published in 2001

(a) Edge Features
(b) Line Features
(c) Four-rectangle features
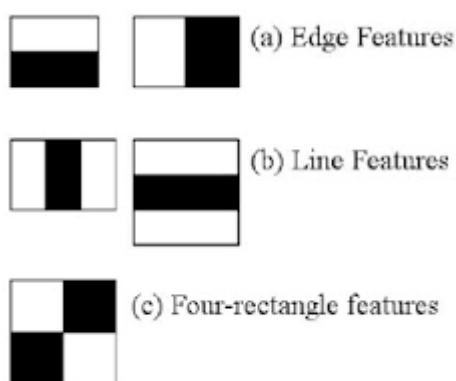
5.OUTPUT:

6.CONCLUSION:

Face recognition systems are part of facial image processing applications and their significance as a research area are increasing recently. Implementations of system are crime prevention, video surveillance, person verification, and similar security activities. The face recognition system implementation will be part of humanoid robot project At ılım University. The go a researched by face detection and recognition methods. Knowledge Based face detection methods are used to find, locate and extract faces in acquired images. Implemented methods are skin color and facial features. Neural network is used for face recognition. RGB color space is used to specify skin color values, and segmentation decreases searching time of face images. Facial components on face candidates are appeared with implementation of Log filter. Log filter shows good performance on extracting facial components under different illumination conditions. FFNN is performed to classify to solve pattern recognition problem since face recognition is a kind of pattern recognition. Classification result is accurate. Classification is also flexible and correct when extracted face image is small oriented, closed eye, and small smiled. Proposed algorithm is capable of detect multiple faces, and performance of system has acceptable good results.

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