

# Personal Identifier for Voice Recognition Utilising

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## ABSTRACT

An apparatus and technique that allow the visually handicapped to positively identify an individual. Through incorporating Mask Detection with OpenCv and Keras into our project, we have updated our technique to add the phase of storing several instructions to help visually impaired people identify people based on their face and/or voice features. The process begins with listening for speech signals from people around the visually impaired person, then moves on to taking pictures of that person and their environment, and finally stores the processed data in a database or other storage device. The information will be sent to an AWS server or a local storage device so that it may be analysed and identified using the database that is currently in our possession. Following processing and identification using facial and voice recognition modules, the visually

impaired user's name is delivered to their phone via text message. Their virtual assistant on the phone will then read the name aloud.

## INTRODUCTION

This Structure goes likely an Brilliant specialist which helps in carrying the earth nearer and nearer to the environment a supported spot over living for Visually obstructed individuals. The Person is seen, and the personality of the individual is gotten the message out about for the customer, which is another case that would be an issue to recognize and there is a probability of getting cheated and this ensures security and prosperity by alerting the user. The face acknowledgment (also simply called as face Recognition) [1, 2] is the one able to recognize and see a person by their facial characteristics. The face is multidimensional and consequently requires a ton of

mathematical computations. Face affirmation system is essential and huge for giving security, mug shot planning, law approval applications, customer affirmation, customer access control, etc., and is commonly used for affirmation for various applications. These all applications require a compelling Face affirmation system.

## **LITERATURE REVIEW**

### **Web-based online embedded door access control and home security system based on face recognition.**

Smart home security control system has became indispensable in daily life. The design and development of a home security system, based on human face recognition technology and remotely monitoring technology, to confirm visitor identity and to control door accessibility has been reported in this paper. This paper describes about the implementation and deployment of wireless control system and accessibility in to a home environment for authenticated people only. A wireless network technique Wifi based and image processing technique PCA based, dedicatedly make the security system alive as per the request. Wifi module and electromagnetic door lock module combinedly operate the door accessibility,

has been designed and developed. Face detection and recognition algorithms, as well as a wireless interface are used to detect and identify visitors and send an email and/or an alert message about the current home environment status via GSM network automatically to the home owner's mobile phone or any communication devices. The concerned authority can control the system through his/her mobile phone or any communication devices by sending AT Commands to GSM MODEM or by taking necessary actions for authentication through email, which is again password protected. Users can monitor visitors and control the door lock on active Web pages enhanced with JavaScript and HTML. This system finds a wide application in areas where physical presence is not possible all the time. The entire control system is built using ARM1176JZF-S microcontroller and tested for actual use in home environment.

### **A face recognition method based on LBP feature for CNN**

The traditional face recognition technology is more complicated for the extraction of facial image features and the selection of classifiers, and the recognition rate is not high. With the continuous maturity of the convolutional neural network from

handwritten digit recognition to face recognition, A face recognition algorithm that tests CNN using the Python+Keras framework. The method mainly involves two aspects. One is to observe the influence on the network by changing the number of neurons in the hidden layer; the other is to observe the influence on the network by changing the number of feature maps of the convolutional layer 1 and the convolutional layer 2. The best CNN model is 36-76-1024 through multiple sets of experimental tests. The model can automatically extract facial image features and classify them. Using adam optimizer and softmax classifier for face recognition can make training faster convergence and more. Effectively improve accuracy and use the Dropout method to avoid overfitting. The experimental results show that the recognition rate of the CNN model on the OlivettiFaces face database is 97.5%. When the optimal CNN model is used, the average recognition rate is close to 100%, which verifies the validity and accuracy of the algorithm and model.

### **Faces and facial features detection in color images.**

Human face detection is concerned with finding the location and size of every human face in a given image. Face detection plays a

very important role in human computer interaction field. It represents the first step in a fully automatic face recognition, facial features detection, and expression recognition. There are many techniques used in face detection, each one has its advantages and disadvantages. The face detection system presented in this paper is a hybrid of known algorithms. First stage of the proposed method is applying skin detection algorithm to specify all skin locations in the image. Second, extract face features like eyes, mouth and nose. At the last, a verification step is applied to ensure that the extracted features are facial features. In experiments on images having upright frontal faces with any background our system has achieved high detection rates and low false positives.

### **Keyword spotting for Google assistant using contextual speech recognition.**

We present a novel keyword spotting (KWS) system that uses contextual automatic speech recognition (ASR). For voiceactivated devices, it is common that a KWS system is run on the device in order to quickly detect a trigger phrase (e.g. “Ok Google”). After the trigger phrase is detected, the audio corresponding to the voice command that follows is streamed to the server. The audio

is transcribed by the server-side ASR system and semantically processed to generate a response which is sent back to the device. Due to limited resources on the device, the device KWS system might introduce false accepts (FA) and false rejects (FR) that can cause an unsatisfactory user experience. We describe a system that uses server-side contextual ASR and trigger phrase non-terminals to improve overall KWS accuracy. We show that this approach can significantly reduce the FA rate (by 89%) while minimally increasing the FR rate (by 0.2%). Furthermore, we show that this system significantly improves the ASR quality, reducing Word Error Rate (WER) (by 10% to 50% relative), and allows the user to speak seamlessly, without pausing between the trigger phrase and the voice command.

### **Voice recognition based home automation system for paralyzed people.**

Automation is a trending topic in 21st century making an important role in our daily lives. Automation reduces the human labor, time, effort and some human errors. The key objective of our project is to design a system for physically handicapped persons to control and operate home appliances and their own wheel chair by their own voice. Both these

qualities are present in our project which has the capability to replace existing technologies. the design of the low cost voice recognition based home automation system for the physically challenged people suffering from quadriplegia or paraplegia (who cannot move their limbs but can speak and listen) to control the various home appliances just by his/her voice commands according to their need and comfort. We also implemented a messaging concept. In this whenever the patient or the person needs a help, if he/she pronounce as help a message will be sent to their respective represented family member. The resultant system can provide a great assistance to the physically handicapped people without any need of third person.

### **Arduino based voice controlled robot.**

This project was developed in a way that the robot is controlled by voice commands. An android application with a microcontroller is used for required tasks. The connection between the android app and the vehicle is facilitated with Bluetooth technology. The robot is controlled by buttons on the application or by spoken commands of the user. The movement of the robot is facilitated by the two dc servo motors connected with

microcontroller at the receiver side. The commands from the application is converted in to digital signals by the Bluetooth RF transmitter for an appropriate range (about 100 meters) to the robot. At the receiver end the data gets decoded by the receiver and is fed to the microcontroller which drives the DC motors for the necessary work. The aim of Voice Controlled Robotic Vehicle is to perform the required task by listening to the commands of the user. A prior preparatory session is needed for the smooth operation the robot by the user. For the same a code is used for giving instruction to the controller.

### **Human face detection algorithm via Haar cascade classifier combined with three additional classifiers.**

In many automation systems it became difficult for human being to retrieve the large datasets and data analysis and the same in image analysis. Now-days face detection has great impact in our daily life communication systems. Hence, face detection system is one of the important technology and playing important role in face recognition. Face Detection and Recognition both have active research areas over the past few decades and have been proven effective in many applications such as computer security and artificial intelligence. Conventional method

of identification based on the exclusive knowledge like a social security number or a password are not all together reliable. Somehow password can be forgotten or compromised. But a face is undeniably connected to its owner. It cannot be borrowed or stolen. The system can compare scans to records stored in a central or local database. The software first captures an image of all the authorized persons and stores the information into the database. Having many applications this project is mainly for future features like security, safety, monitoring and control to home automation. A day to day home security level grown up to provide security to our house based on face recognition can be implemented. A standard web camera to capture the image to identify the visitor. It's a method that identifies the visitor. If the face recognizes visitor, the door will be unlocked or opened. If they are not identified door will not be unlocked. The system will perform detection and recognition rapidly in real time when face in front of camera. This project basic utilizes the camera, and raspberry pi system to create a door unlocking mechanism. If the user at the door is recognized, door will be unlocked.

### **Conclusion**

Hence, by using the IOT and implementing its use cases like Security, Media and Automation, we can provide a physically challenged person with identifying a person who is standing Infront of him. Meanwhile in the process of updating our process it is also going to find whether a person is wears a mask or not which plays a major role in every days life. This helps in his security and helps him make sure that he is not cheated on by some random people and this would make a lot of change to people who are challenged and also helps in social distancing.

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