

REPORT

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## *Introduction*

Facial recognition is a type of biometric program that mathematically shows a person's facial features and stores it as a person. The program uses deep learning algorithms to compare direct or digital capture with a saved facial screen to verify a person's identity.

Apple iPhone X has a Face ID technology, which allows users to open and allow access their phones with a face tag that is displayed on the phone's camera. A telephone program developed with 3D models to transmit false images or masks that capture and compare more than 30,000 variables. From this message, you can use Face ID to authenticate your purchases through Apple Pay, iTunes Store, App Store and iBook Store.

Smart Airport Ads now allows you to determine the type, race, approximate age and send an advertisement to the demographic data of another person.

Facebook uses facial recognition to identify faces in images. Each time a person is labeled in an image, the program stores information about the person's characteristics. After collecting enough data, the program can use this information to identify the face of the person when it appears in the new image. To protect the privacy of people, Photo Review informs the selected Facebook member.

In this report, the discussion has been done on the implementation of the facial recognition technology in the cane, which has been developed by students in their project to help the blind people. The project has been made to help the blind people walk and have a normal life, by using the smart cane, which can recognize the people they meet, and inform the blind person carrying the cane about the information. There are many information that has been processed in the facial recognition that is done by the cane. The cane has been equipped with a camera, which can check the images and take the image for the processing. The processing of the facial recognition is not done at the cane itself, as it would need a much higher

processing power, which would be difficult to achieve. Hence, the data is sent over the internet to the cloud based server, where the analysis of the images and videos that has been collected is done. After the analysis of the video, the result of the facial recognition is generated and sent back to the cane from the cloud. This response is then analyzed, and the blind person with the cane is informed. The cane has also been provided with other features to make it a smart cane. Some of the features that are included in the case includes the GPS system, which can be used to track the person using the cane by their peers for any emergency. The cane has to be connected to the internet at all times so that all its features could work. The development of this cane has been recognized by many publications, and though the commercial production of the cane has not been started yet, it is expected to be achieved soon.

## *Discussion*

Open this system and discover the people around you. The result of the detection is reported to the blind through the vibration pattern. The proposed system is designed for real-time use and is equipped with a camera installed in the windows and a vibration motor connected to the device and the laptop. The camera connected to the camera sends the image to the laptop. The laptop recovers the functionality of the image, then detects the face with Ad boost. We use the MCT descriptor to extract the function. After the person has been discovered, information about the detected faces is collected.

As a classifier, we use the base compression L2. Kane is equipped with a Bluetooth module and receives information from someone on his laptop. The tabs create unique vibration patterns for each person so that the blind person knows who is detected by the camera.

Therefore, the blind person can know who is in front of them.

XploR Smart / Mobile Router uses the technology used in smartphones to distinguish familiar faces up to 10 meters high. It also has a GPS that helps navigation. This Smart Casbah will allow people with disabilities to easily identify their loved ones and friends.

The Birmingham City team consists of Richard Hewlett, Steve Adibo and Fahid Rafik. It was one of the main sources of inspiration for this invention, Steve, a blind grandfather. Smart bars will be very useful for the blind, especially when they need a warning from a close friend, relative or family member.

XploR is designed to detect people at a distance of up to 10 meters. The device will vibrate when it detects a famous person in the image database stored on the internal SD memory card. Clipper Clain will also direct users to family and friends through headphones and an audio guide. This will be activated by Bluetooth technology, where the information is sent. This device is something that was not created before. Millions of people with visual

impairments will be happy with the benefits of this smart platform. This device is easy to use and easy to use, and is an excellent source of satisfaction, especially with respect to navigation. This will make a big difference in the lives of the blind. In addition, it will help improve the quality of the services provided by medical companies to their clients.

An "intelligent" revolutionary team allows blind people to meet friends and family immediately in the near future, thanks to students at the University of Birmingham.

Xplor used a mobile channel developed by ICT students, Steve Odagbo, the only partner, Richard Howell, a smartphone to recognize familiar faces from a distance of up to 10 meters. The channel is also equipped with GPS navigation functions.

The device attaches great importance to one of the developers, Steve Adibo, whose grandfather was blind. Steve said, "Very blind, I know that the benefit of this Reed device uses intelligent facial recognition technology to warn the user when he approaches a relative or friend. At this time, there is nothing like this ..."

The process of facial recognition depends on many key factors:

- Image quality: does the system try to distinguish between cooperative or non-profit elements? Collaboration problems are those that willingly allowed someone to be photographed. Non-commercial materials are those that are normally captured by CCTV cameras or a witness who uses a smartphone.

Facial recognition technology includes a wide range of applications, for example, the use of a camera built into a smartphone, tablet or computer. The software can recognize faces to replace passwords in access devices and user accounts. In law enforcement agencies, technology can help identify suspects, while in the process of introducing border controls, security operations can be improved. Another common use of facial recognition systems is to control access to high-value sites. In the commercial sector, retailers and retailers offer this technology as a means to gather important demographic data.

Face recognition systems use an algorithm that can predict if there is a coincidence of multiple points on the face. While the human eye is easily deceived by facial hair, hats or other factors, facial recognition technology is more accurate to watch games. Therefore, this technology is often used for security and surveillance purposes (for example, helping retailers identify known offenders and airports and identify people on terrorist checklists).

Although face recognition systems are not always 100% accurate, they do an excellent job of predicting a person's ability to join someone in the database. Accuracy is one of the most important factors in determining the success of a facial recognition system. Therefore, successful face recognition systems should provide high accuracy in their expectations.

With the growing problems of recognition of people, institutions and companies, different methods are used to identify people. These are some of the most common facial detection applications.

#### Biometric observation

Facial recognition is often used with fixed surveillance cameras. In general, cameras are optimized for corner and lighting conditions to provide the best image of the person's face. After capturing the photo, the person's face is set in the image database and you determine if that person can match the person you can see. For example, if a person enters a retail store, his face matches that of a well-known commercial criminal. Loss prevention specialists can actively monitor this person. Although conventional surveillance cameras are only a reaction (providing information after committing crimes), facial recognition allows crime prevention groups to prevent crime. Currently, facial recognition is used for surveillance purposes in retail stores, banks, casinos, sports stadiums, etc.

#### Detecting mobile people

Patrol officers often use mobile facial recognition programs to identify suspects in this area. For example, if they take someone and do not have their own driver's license, the employee can click on someone's image, maybe verify their identity and see if they have wonderful reviews. This can help employees save a lot of time and ensure the safety of communities.

Face detection can also be used to send alerts to mobile devices that inform security personnel where they are going, who should monitor them and what to do. For example, if a dangerous criminal enters a store, there may be a warning that he cannot assign someone, and instead call the police immediately.

### Geofencing

Facial recognition is sometimes used in geographic processing, which uses dynamic data to determine who should or should not be in a particular area. An example of this application is that the bank must use facial recognition to identify employees who have access to sensitive areas.

### Device / Application Security

The phones have already used biometric data in the form of fingerprints to provide access to various applications. From now on, face recognition will play an important role in ensuring security, as our phones and other devices will begin to use facial recognition to provide access to different applications.

### *Conclusion*

Facial recognition uses many uses, but none of them is as important as the next. A group of students at the University of Birmingham is developing a smart device called XploR, which



uses a combination of hardware and software to help people easily recognize family and friends. The device features smartphones, GPS and facial recognition features via Bluetooth, allowing blind people to detect faces up to 33 feet. If a tongue identifies someone, it sends a signal of vibration to the person and directs it through the part of the ear; As a reference, photos of your loved ones can be stored on the SD card. The camera and face recognition program works in tandem. The camera, directly under the handle, has a 270-degree lens to capture the easiest-to-use environment. The built-in Reed program supports a database of images extracted from services such as Gmail and Outlook (and the teams also plan to include LinkedIn). You can add as many faces to the database as you want by clicking on the image with a sugarcane camera. Once the camera detects a person, their software (the open source computer vision algorithm) will begin to examine the face to see if there is a match. If the scanned images match the image in the database, the corresponding name and location will be returned to the cable transporter through a segment of the auditory channel that uses vibrations to transmit information and reduce the dispersion of the audio.

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