

FACE UNLOCK BASED SECURITY ON SMARTPHONES

Rajesh Bhatt^[1], Dr. Devesh Katiyar^[2]

^[1]Students of MCA, ^[2]Asst. Professor

Department of Computer Science and Information Technology
DSMNRU Lucknow, Uttar Pradesh, India

Abstract

In this world the security of our crucial data is important as without it data confidently will be an issue. Data should be secure so we should take appropriate measure to solve this problem. Data should be secure and it should not be accessible by any unauthorized person, for this many security measures have been taken to solve this problem. The technology by which we can secure the devices from other person is by using features like face unlock. This paper represents one of those problems present in face unlock based security systems in mobile phones and the method to resolve it and make the security of crucial data.

Keywords: Face recognition; biometric; Capture; Extraction; Comparison; Matching

Introduction

In today's world we purchased smart phone for all of our work .We do all our stuffs on smart phone like clicking pictures, watching video, playing games and we also store our crucial data on smart phone like bank details information, password and other essential documents. So security of that crucial data is important as without it the security of that crucial data is a concern so for this we should have the proper method for these security of our device from getting hacked by unauthorized user as if your device is getting hacked it will cause a big issue in the future' also so it is important to secure our crucial data from hackers or getting used by unauthorized person. For security we had developed many methods but in every method there is some drawbacks so for this we keep on developing various new methods for more security. Before face unlock came into presence there is many other security method available in the market. Some of them are mentioned below:

(1)Pin and password: Pin as well as passwords are among the best methods for the unlocking of our mobile phones by simply setting the pin code of four digit number or setting a unique password of numbers, character or some other special symbols. They have also had some drawbacks because it can be crack by hit and trial method.



(2)Fingerprint Security:It is among the fastest biometric technology by which we can unlock your device. It is a method by which we can unlock our phone by placing our finger on fingerprint sensor. It may also be assumed as the best methods as fingerprint of one person is different from another person. This technology is also used in many fields and sectors where the user want secure authentication. There are various techniques used for fingerprints they are optical reflexive, capacitive, mechanical and thermal. In this technology there is also an drawback i.e. if the person is sleeping or is unconscious, then any other person can access their phone by simply placing his finger on the sensor of that person so this is also an issue in that technology.



(3) Voice recognition: In voice recognition, it is a software program which decodes the voice of the person and it is basically used for operation of devices. In this technology there is also a drawback that if the person is the person have cough the voice of the person changes a bit and also today a number of voice artist also so these are the reasons of the security issues by using voice recognition features.



(4) FaceUnlock Security: It is also a technology by which users can access the device by simply placing the face in such a manner that the camera sensor is able to recognize it. In this technology, today face unlock software is advancing everyday. It's a technology which can verify or recognize a person with the help of a digital formatting of image.



(4.1) Working: The working of face unlock is follows

(4.1.1) Capture: It is a system to collect physical or behavioral samples in a predetermined conditions. Picture of your face is clicked from a photo or video. This photo or picture is unique from many other person as it is your own image that has been captured.

(4.1.2) Extraction: After that the software (face recognition) reads your face such that distance in the middle of your two eyes and the distance between the nose and mouth basically it reads your total geometry of your face. It basically identifies the facial landmark on your face. One system detects 68 facial landmarks that is the way by which you can differentiate your face to another person. After that all the collected data should be extracted from the given samples to create templates based on them.

(4.1.3) Comparison: A digital signature is made which is basically is a mathematical formula which compared databases of known faces that it has system databases. Gathered data is compared with existed templates.

(4.1.4) Matching: A determination is created such that your face image should be match with the face recognition system databases, so that it helps in unlocking your device in well and efficient manner. This process generally takes few seconds.

(4.2) Drawbacks: Face unlocking is one of the best method of authentication or unlocking of your device but it has also some drawbacks. Anything made is not perfect it may have some limitations also as by using face unlocking technology there are following drawbacks in existing system. In the existing system anyone can fool it by using masks by using masks it can make the system to fail to detect your face so it is also a drawback for the same. If there are twins in the family the face recognition feature does not work properly because it confuses in the both twins faces and does not function properly and unlocks device a numerous

number of time. These are the following drawback which we have to overcome that has to be overcome to get proper authentication and security of our crucial data.

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THE PROPOSAL SYSTEM

To overcome this problem some proposed system can be executed to resolve this problem:

(1) Movement based face unlock system: In this system to unlock, the users have to simply do some movement with the face parts that is only known by the owner of that phone such that moving your eyes in a pattern that is only known by the user. We can also apply it on the other parts of our face such as moving eyebrows in a pattern. This will help in the increasing the security and improve the system or mobile authentication as unlocking the device by an unauthorized person should be difficult as the person cannot be able to hack or crack the face unlock password correctly. So this will create an extra security in the face unlock based system as with the help of these it will create an extra security. This system works efficiently by just understanding the gestures which is only known by the user and this will create a face unlock to functions more efficiently. Suppose there are twins in the family if the face unlock features do not differentiate between the faces but the gestures feed into it should be unique and it will not easily be hacked by another person.

CONCLUSION

In this modern world and fast moving world security issue is a concern. We cannot totally remove it but we could minimize it to an extent. So the proposed model that I have given should be implemented so that it helps to cope up the security issue in this unlocking system.

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