Study on: Advancement of Smartphone Security by using Iris Scan Detection

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Abstract - *Mankind usually invents new era to make existence easier and better to stay. As a way to shield this generation security devices performs a very critical function. In this technology, the gadget includes biometrics in conjunction with virtual code lock which response within the way for matching or mismatching the code. The purpose of these studies to have a look at human-computer interaction. Eye monitoring turns into a more and more essential manner to analyze human behavior. However, a right analysis of statistics obtained from a watch tracker takes place to be a difficult venture. For biometrical analysis, Iris scanner is getting used in order to be monitored with the help of microcontroller through the sensors of the biometric sensors. This study targeted on growing an HCI era completely the use of one of the telephone's growing of onboard sensors. This research supplied the implementation and evaluation of the HCI prototype. Even though preliminary, studies consequences imply that HCI is a promising approach to riding cell packages in a hands-loose manner.*

Key Words: Human computer interaction, Smartphone security, Iris Scanner

1. INTRODUCTION

As far as we speak of humans all we have three such things which differ in all of us, the first is 'DNA' second is our 'fingerprint' and the third is the 'pattern of our iris'. In normal 'Fingerprint scanner' use for biometric access, where we have to give access to the selected person or not. The 'DNA' we use in forensic science, we do not use it in normal life because it becomes quite complicated to use. The last option that we have is 'IRIS SCANNING'. If we talk of normal consumer product and day-to-day life, we can also do fingerprint scanning and an iris scanning or even if we can use both. Fingerprint scanning is quite simple enough to come by the time we use it and it is very cheap, so we use it even today and will continue to use it.

[1]Biometric system grants access to authorized users by means of verifying their unique physical or behavioral characteristics such as fingerprints, face recognition, voice recognition, vein detector, iris scanner etc. [2] Eye movements are unique behavioral responses that have not only a reaction time and an accuracy, but also a location (where one moves), an amplitude (how far one moves), and a duration (how long one fixates a position). Researchers looking to examine the effects of stimulus or condition manipulations typically use a combination of these measures. [3] Eye tracking becomes more and more important way to analyse human behaviour. However, a proper analysis of data obtained from an eye tracker occurs to be a challenging task. Traditional visualization techniques like scan paths or heat maps may reveal interesting information, however much of useful information is still not visible, especially when the temporal characteristics of eye movement is taken into account. This paper introduces a technique called gaze self-similarity plot (GSSP) that may be applied to visualize both spatial and temporal eye movement features on one two-dimensional plot. The technique is an extension of the idea of recurrence plots, commonly used in time series analysis.

When we speak about IRIS scanner it is not so common that it will see us in a little specific place. But this technology is securer than the fingerprint scanner. It is quite faster and more efficient as compared to fingerprint scanning. Now we talk about how iris scanner work, see the pattern that we have in the middle of our eyes, blue eyes, black eyes, or we call it as an iris. This pattern and the fine granular dictates inside it vary from person to person. This iris does not change until the death of a particular person it is the same for a lifetime.

The principle which is identical to fingerprint scanning that we scanned iris once then we compared it to the result that came on next scanning and system tell us the result of scanning is a match or not. But fingerprint scanning consists of at least 40 to 45 points to scan a single fingerprint. In the case of iris scanner system scanner scans at least 200 to 250 points to identify. It matches with high-level security until all the requirements are not fulfilled.

Now see how a scanner work, it has an infrared camera and a normal camera both of them take a very high-resolution photo of your iris and pick up an important data like where we see diversions, arcs, and curve it identifies everything. After scanning these 240 to 250 points, make a code that we call the iris code. For example, If the person 'A' did an Iris scan, the system makes the code for the person 'A'. After encryption, it will name it as code for the person 'A'. After that next time when person 'A' goes for iris scanning on the same system or mobile then both cameras take pictures of the iris again, this information is converted into the code again then system check all scanned code and compare this

code with other saved scanned until it matches with the code of the person 'A' or not.

If the code does not match with the saved scanned code system shows an error message.
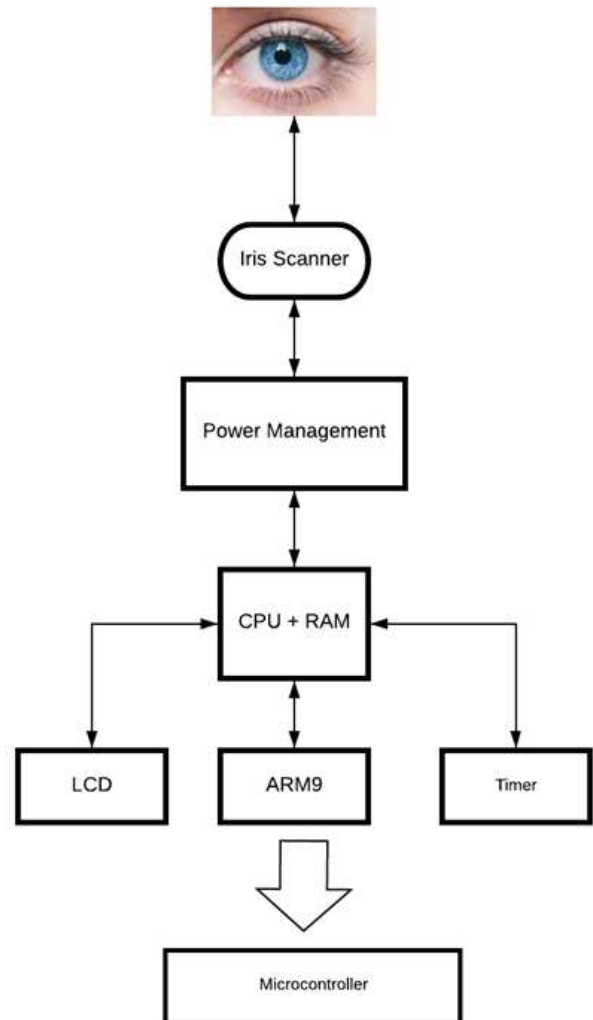
2. METHOD & MATERIAL

An Iris scanner is much creative in nature but it is just simply a charged coupled device that is a mobile camera which uses infrared light to capture a desolated high-definition photo of a person's Iris. The main use of this close infrared light is to separate the pupil and the Iris of a person as the pupil part is extremely dark in nature and it moreover making simple for the computer to detect.

When we check or investigate an Iris scanner the camera takes the photo which 3 to 10 from the person's eyes. Now here starts the work of the mobile system it collects the data such as the focal point of the pupil, the edge of the pupil, the edge of the Iris and the eyelids and eyelashes, now in that point, discrete the example in the Iris and make an interpretation of them into a layout. With the modern improvisation of technologies, Iris scanners are turning into a wellspring of confirmation of individuality, as we know that Iris is unique in nature and is much secured biometric and this doesn't change time to time. Even an Iris remains unaltered after a serious eye operation has been done. Even blind people can also use this Iris scanner system.

In this system, the nearness of the spectacle or contact lenses focal point is not going to show some serious issue. Here the equipment that is going to be used in this Iris acknowledgment framework is Iris acknowledgment checking module, a control module, and a screen or LCD for display. Here Microcontroller interface through transmitting and getting information parcel using the help of a system that is present. The LCD shows the verification is confirmed or not that is demonstrated in figure.
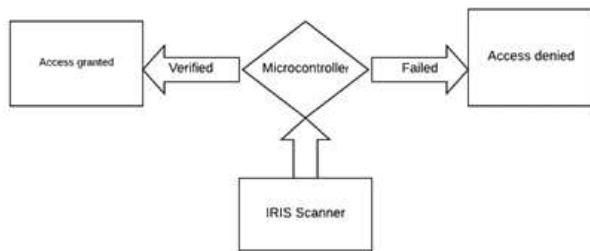
2.1 Figure:

2.2 PROPOSED ALGORITHM

- ➔ Step 1: Take Input_Data: Biometric data of human Iris.
- ➔ Step 2: Begin
- ➔ Step3:Input_Data=Request_Data(Users(Biometric_Iris))
- ➔ Step4:Valid_Data=Retrive_Data (databased (Users(Biometric_Iris)))
- ➔ Step 5: If Input_Data = valid_Data Then Access(Iris_matched)
- ➔ Step 6: Get_ready_for_Next_Process

2.3 PROPOSED FLOW MODEL BASED ON ALGORITHM

This starts with the Iris scanner where, the Iris of the person is reviewed using an extraordinary machine, which compares with the record that is store in the database at the time of the opening the locker.

At last when required verification is done this result is interfaced with microcontroller which checks the authenticity. In this way the smartphone is kept safe.

2.4 RESULT & DISCUSSION

In this proposed system there are merits and as well as demerits as the flow of the proposed system starts with the Iris scanning mechanism as we know its unique and can't be forged but a person needs to be in close distance with the iris scanning device to be enrolled on the system properly. In some cases, it is hard to perform an iris scanning due to the presence of reflections and it is expensive.

3. CONCLUSION

General operation was both smooth and successful enough to serve as an additional mean for human computer interaction. This study has focused on developing an HCI technology solely using one of the phone's growing of on-board sensors. Study presented the implementation and evaluation of the HCI prototype. Although preliminary, study results indicate that HCI is promising approach to driving mobile applications in a hand-free manner.

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