

# Design and Implementation of an IRIS Recognition Attendance Management System

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## Abstract

Iris recognition verification is one of the most reliable personal identification methods in biometrics. With the rapid development of iris recognition verification, a number of its applications have been proposed until now including time attendance system etc. In this paper, an iris recognition attendance management system is designed and implemented using Daugman's algorithm [1]. This system based biometrics and technique solves the problem of spurious attendance and the trouble of laying the corresponding network. It can make the users' attendance more easily and effectively.

Keywords: Iris recognition verification; personal identification; biometrics; attendance management;

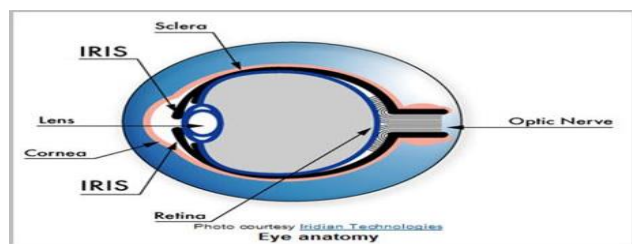
## Introduction

To start with, utilizing iris designs for individual ID was initially proposed in 1936 by ophthalmologist Frank Burch. By the 1980's the thought had showed up in James Bond films, however regardless it remained sci-fi and guess. In 1987 two different ophthalmologists, Aran Safir and Leonard Flom, protected this thought, and in 1989 they requested that John Daugman endeavor to make genuine calculations for iris acknowledgment. In any case, now, this innovation is additionally being utilized as a part of a few different applications

In today's world security is becoming more and more important. Authentication plays a major role in security. Authentication is the process of verifying the claimed identity of a person. Authentication is a means of defense against intruders. There are of various types like authentication using username with password, using card and using biometric. Most commonly, username with password is used for authentication, but password can easily be cracked or stolen because of human tendency to make password easy to remember and also note down the password so that there is no need to remember. Cards can be stolen and can be accessed by anyone. Therefore there is no way of knowing that the claimed person is the actual one. Biometric identification provides secure authentication of a person as biometric data can't be steal

and duplicated. Biometric data is unique and permanently associated with a person. Iris recognition is a method of biometric identification. Biometric identification provides automatic recognition of an individual based on the unique feature of physiological characteristics like fingerprints, DNA, palm, face, iris, vein and retina or behavioral characteristic like Handwriting, speech and signature. Iris recognition is a method of recognizing a person by analyzing the iris pattern. Iris pattern are formed by six months after birth. Iris pattern remains stable after a year and remain the same for life time that means it does not have aging effect. Iris patterns of identical twins differ and a person's left and right eyes have different patterns as well. Because of this iris differs from fingerprints. It is regarded as the most reliable biometric technology since iris is highly distinctive and robust [2].

This system is not exclusive for student's attendance this can be used to keep track of the employees in different organizations. Officials of the privately owned organizations usually face the challenge of getting workers through shift changes without long delays while maintaining accurate records of hours worked. Standard time clocks and cards resulted in long queues. There was also the potential of fraud, such as "buddy punching," where an employee clocks in or out for a friend. This system could reduce the lines as well as time fraud will also be eliminated. Using iris biometrics to automate the collection of employee hours reduces manual data review, correction time and payroll error, also it can be used in Prison Jails to keep track of the prisoners. Usually they count them manually if they apply this system and pass all of the prisoners through that system which scans their iris which will help them count total number of prisoners and mark them present in case if the prisoners which are not present this can alert the guards this will save a lot of time.

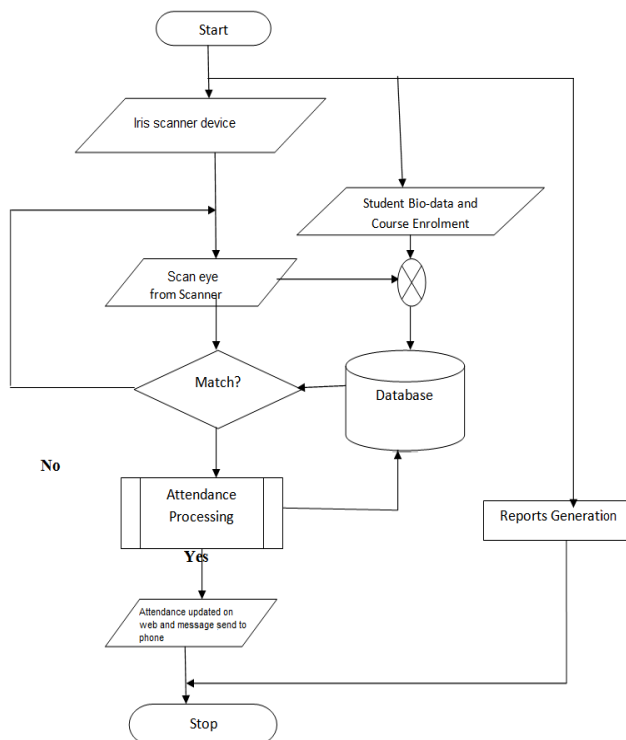


## Problem Statement

The main problem which led us to create this system of our university is manual system for marking attendance because many times we have seen many students whose attendance marked incorrect by teacher or any other issue they need to go student affairs or administration for correcting their attendance if there is no chance to mark incorrect attendance then problems will become less than before. We are making automated attendance system with iris recognition which will be very secure and will mark attendance when any person is available in the class on time otherwise if any person is late no matter what will be the reason there attendance will be marked as absent and this will give relaxation to the administration because every attendance will be marked automatically and will be saved in the database.

According to our recent studies on biometrics we have analyzed different types of attendance systems in which RFID cards, face detection or thumb impression devices were used widely but we chose iris recognition because each and every previous device has drawbacks and are less secured and can be hacked by different tricks keep that in mind iris has its own drawbacks.

## Algorithm Design

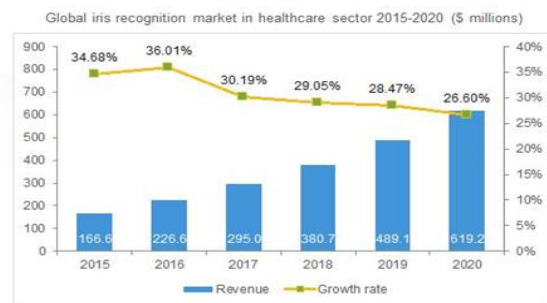


## Structure & Working of IRIS

The iris is a thin, round about structure inside the eye, in charge of controlling the picture estimate which is see by the individual from eye and therefore the measure of light achieving the retina. Eye shading is characterized by that of the iris. In optical terms, the understudy is the eye's gap, while the iris is the stomach. This irregular procedure is called enlistment. Every individual stands before a camera and has their eyes carefully shot with both conventional light and imperceptible infrared (a sort of light utilized as a part of night vision frameworks that has a marginally longer wavelength than normal red light) [6]. In iris acknowledgment, infrared shows up the interesting highlights of dimly hued eyes that don't emerge obviously in standard light. These two advanced photos are then examined by a PC that evacuates superfluous subtle elements, (for example, eyelashes) and recognizes around 240 extraordinary highlights (around five times more "purposes of correlation" as unique mark frameworks utilize). These highlights, interesting to each eye, are transformed into a straightforward, 512-digit number called an IrisCode that is put away, nearby your name and different points of interest, in a PC database. The enlistment procedure is totally programmed and as a rule takes close to a few minutes [5].

**“The iris acknowledgment framework utilizes three focal points to catch the picture flag.”**

As per the patent, "the iris acknowledgment framework utilizes three focal points to catch the picture flag, and afterward checks the iris of the client in view of the picture created and in addition other data." This other data will likewise incorporate pictures of the client's face for extra ID. The primary focal point may incorporate two limited edge focal points having slender edges of view to grow and catch pictures of areas of the eyes of the client. The second focal point may incorporate a wide-edge focal point having a wide point of view to catch a picture of the substance of the client. The primary focal point might be a zoom focal point, and the second focal point might be a short central length focal point.



Source: Technavio

## Comparison over different bio-metric system

The nations like Pakistan, Bangladesh etc. has far underneath being developed and improvements that is the reason there isn't any usage of iris framework just couple of significant spots where high security is required just execution there not at all like different nations they have as of now utilizing this framework in every one of the associations which is quick and less tedious for the most part puts in under developed countries they are utilizing fingerprints biometric which has a security issues in it that can be effectively open by anybody that is the reason we are taking a shot at iris participation framework which can't be access by anybody yes it is more dependable and more productive yet additionally costly then alternate frameworks.

These progressed biometric ID gadgets utilize individualistic attributes into represent perceiving a person for his/her actual character. Some of these inborn attributes are iris, unique mark, confront, voice, retina and so on. The prior strategies for biometric security additionally included written work and hand geometry yet these techniques are gradually getting to be noticeably out of date since they can be changed and controlled [3].

These days, a standout amongst the most broadly utilized and regularly discovered biometric gadgets is the unique mark acknowledgment framework. It is a well-established truth, with different investigations devoted to it, that every individual has an alternate arrangement of unique mark stamp. It is likewise cheap and quick to get to the unique mark and discover the genuine personality of the individual. It is additionally utilized at the season of criminal examinations and time participation frameworks in working environments. The propelled unique mark innovation utilizes sensor innovation and optical frameworks to catch fantastic prints. The pictures are fine and are as indicated by Federal Information Processing Standard 201 for individual distinguishing proof (FIPS 201/PIV). Making biometric gadgets traceable,

The other kind of biometric gadget is iris scanner that works by catching the picture of the iris in the eye. This strategy for ID, check and acknowledgment is a standout amongst the most trick verification frameworks to guarantee that no untouchable can get access inside the confined regions. Iris scanners don't include a high bar laser that can infiltrate the eye or is discomfiting. It includes a video based innovation that catches the picture of the eye. It is protected and utilizes infrared beams as it were.

As in opposition to biometric gadgets, for example, unique mark scanners finger impression scanners, iris scanners don't include any touch. They are thought to be more sterile and are more secure. It is a standout amongst the most progressive innovations today [4].

Biometric security has an assortment of utilizations and is broadly acknowledged as a component to guarantee more prominent security. Both the biometric gadgets are anything but difficult to adjust and can be added to any framework or application. Do they spare time as well as an extraordinary expansion to keep up control and security?

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## Conclusion

Our attendance system helps in recording attendance in a smart way in previous history of system using different biometrics we found many lacks like time taking error, update error, unable to manage huge data of persons. So our system is free from all hurdles which produce above mentioned problems and it will be one of the best attendance system which can be used by any type of organization.

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