

Sports Academy Players Attendance System using Biometric Fingerprint Identification

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ABSTRACT

As per the traditional manual system for marking the attendance of the students in a evening/morning games class or sports academy using Manual Intervention with Pen and Register by using handwritten attendance sheet make it very time consuming for large count of sports practioners. The paper presents the development of attendance system based on fingerprint identification. This system provides an efficient way for administrators and Physical Trainers to manage and track students attendance. To develop the system, we uses spreadsheet software with Biometric fingerprint identification machine.

Keywords : Attendance, Fingerprint, Enrolment, Verification/Identification, Template, Match, Database.

I. INTRODUCTION

Biometric recognition refers to the use of physical or behavioral traits for identifying the person. Fingerprints are fully formed at about 5 years of fetus development. Finger ridge configuration do not change throughout the life of an individual except due to accidents such as bruises and cuts on the fingertips.

Fingerprint recognition systems have been deployed in a wide variety of application domains, ranging from forensics to mobile phones. Fingerprint is becoming an essential component of effective person identification solution because fingerprint identifiers cannot be shared or misplaced and it intrinsically represent individual's bodily identity. A biometric fingerprint system may be called either a verification system or an identification system, depending on the application context :-

A verification system authenticates a person's identity by comparing the captured fingerprint characteristic with her previously captured (enrolled) fingerprint reference template pre-stored in the system. It conducts one-by-one comparison to confirm whether the claim of identity by the individual is true. A verification

system either rejects or accepts the submitted claim of identity.

An Identification system recognized an individual by searching the entire enrollment template database for a match. It conducts one-to-many comparison to establish if the individual is present in the database and if so, returns the identifier of the enrollment reference that matched. In an identification system, the system establishes the subject's identity without the subject having to claim an identity.

II. SYSTEM DESIGN

The overview of system architecture is illustrated in Figure 1. During a particular day, students will scan their fingerprints on the scanner every time they enter or leave the games area. After verification and identification processes, if a student fingerprint template exists in the database, hie/her attendance status for that corresponding day will be updated. The administrator and Physical Trainer have the authority to access the update student's details in the database. The system can be accessed via USB, thus more flexible in managing student attendance from various places.



Figure 1 : System Architecture

Several approaches have been identified and selected during this work. The overall system implementation and development is depicted in Figure 2

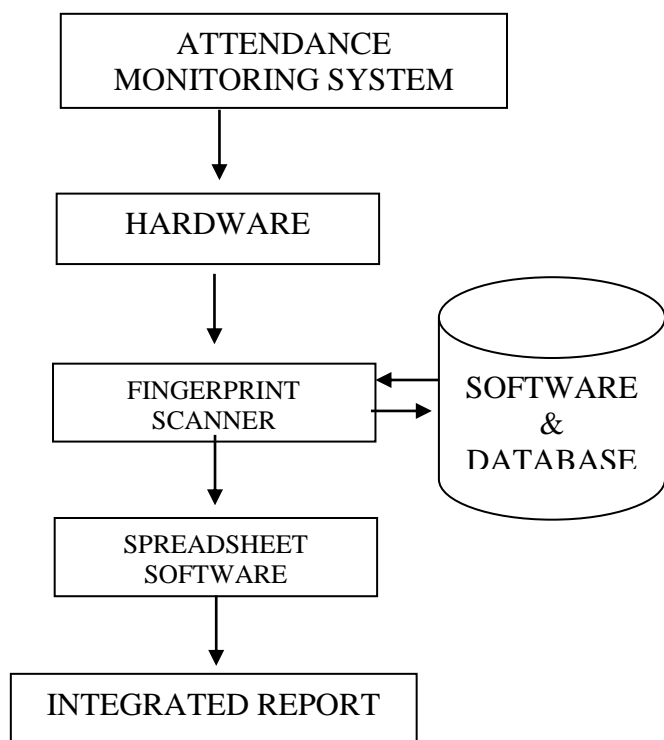


Figure 2 : Overview of System Development

III. SYSTEM IMPLEMENTATION

The players database which was designed in the Attendance Machine itself stores the information of each player registered for a particular game or activity. The fingerprint image of each player is stored as fingerprint template in the database and will be used during the verification process.

Verification Process

When a player puts a finger on the sensor in order to be verified or identified, a verification template is created. The fingerprint matching process uses a proprietary algorithm to calculate the probability that a verification template and a registration template come from the same finger. If the verification process is successful, player attendance system for the corresponding game or activity will be updated as 'PRESENT' otherwise their status is considered as 'ABSENT'.

IV. CONCLUSION

This paper presents the development of Sports Academy Players Attendance system using Biometric Fingerprint Identification technology. As for future expansion the application of the system can be accomplished with Payment Management System to collect the fees at the terminal. This technique can be linked with the other softwares and can be online through networking and can be implemented in more better way.

I was working with 150 players who came to the academy and punch In & Out regularly both the times, they came in and went back, number of times they came In or went out, they punch on the machine, further when we check the attendance, we were able to get approx 98% accuracy, 2% was not there due to following reasons –

- Skin was changing
- The fingerprint of the kids were not proper due to age
- Skin disease
- Poor Fingerprint quality
- Impurity / dirt on fingerprint
- Unclear projection of image sensor
- Fingers not fully rolled
- Fingerprint impression missing
- Fingerprint patterns not visible

- Fingers are too dry
- Fingers are too moist
- Images are blur or indistinct
- Impression smudged
- Multiple images in boxes
- Physical abnormality
- Transposed fingerprint

V. REFERENCES

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