

Survey Paper on: College Automation System using Face Recognition with RFID

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Abstract - In the age of scientific development, people are becoming more and more dependent on mobile phones. This mobile application is designed to reduce the manual work and ease out teaching and learning in academics. We are developing an Android based College Application. Video will be taken by camera and sent to server. Faces will be detected from that video. Teacher will have RFID reader. Students will mark his attendance using RFID tag. The result should be calculated and displayed on the spot. The portal should include few test series such as an examination for Phd level, or assignments or any BE Level exams.

Key Words: Image Processing, RFID tag, RFID reader, Face Recognition, APK (Android Application Package) file, Automated Attendance System.

1. INTRODUCTION

In this modern era everything is handled digitally and everyone has a smart phone. So why don't we take an advantage of this? To overcome the problem of manual system we are developing this system. In this system, the student shows face to Face Recognition System/Camera, face is captured and recognized so that partial attendance is marked and stored. At the time of entry in classroom RFID tag is read and it will be mark full attendance. Here student which pass through face recognition phase only those are able to RFID phase. Student information is stored, when both phases are completed & student status is sent to parent mobile application. In the web portal student and staff attendance, student marks, events information, admission update, study material, exam schedule, notification etc. entities are uploaded by Authorized person (principal/staff). According to students profile relevant notification, student library status, fee dues, exam details, circulate to student application, and individual student progress and attendance is send to parent through application.

2. EXISTING SYSTEM

In traditional class seating, student attendance record is one of the important issues deal with any school, college and university. To keep the student attendance record valid and correct, the faculty staff should have a proper mechanism for verifying and maintaining or managing that attendance record on regular basis. Faculty staff may experience difficulty in both verifying and maintaining each student's record in classroom environment on regular basis, especially

in classes attended by a large number of students. In practice, the manual system also requires more time for recording and calculating the average attendance of each enrolled student. On the other hand searching and issue books from library, checking fee dues are time consuming and boring work. Most of the parents are unaware about their child behavior and progress. Due to limited storage new files can't be added [3]. Staff have to fill attendance and upload manually. [5] Images with static face is detected faces with expressions can't be detected. [9]

3. PROPOSED SYSTEM

In a modern era Automated attendance system is a very good demonstration of automation. It requires less time, less bulky. This system is used for generating an attendance report of personnel and used for security purpose also. In the market various automated attendance systems are available. Biometric attendance system, punch card, swipe card are examples of automated attendance system. To overcome some problems related with these system. We are combining techniques that are RFID card and Face recognition. Large database is used to maintain records. The system also helps the faculty to easily find out defaulters in a single click. In this system we can take attendance of student at college gate by using face recognition, here input is face of student. Block algorithm is used for face recognition to match faces of student with trainee data. Again in classroom attendance is taken by RFID tag, RFID Reader. These two records then merge to map and generate final attendance report. Monthly, weakly attendance report of student is generated by system, average attendance of student is calculated and teachers can give term work marks depend on average attendance of particular student. Attendance report is send to the web portal by the system. Authorized person decide to which notification, notices send to parent and Student Application through web portal. Android application is used for interaction between teacher, parents and student. Teacher can send student attendance, marks, daily record of student to parents, also can send important notes, exam timetable, Library information notice to student. Student can give feedback to teacher using same android application.

1.1 Scope

Parent can see student attendance, marks, review of his child, admission process, fees, office timings on app.

1.2 System Architecture

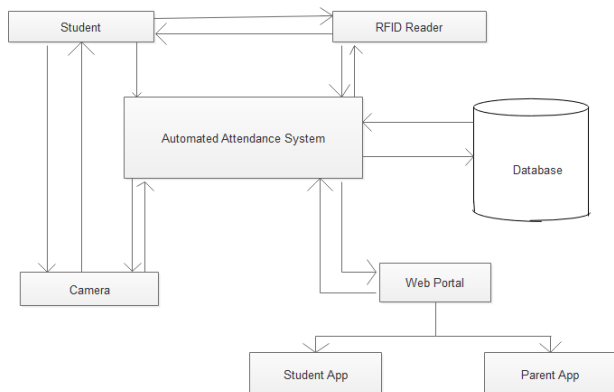


Fig -1: Architecture Diagram

In our system students come at the gate. Through camera video will be captured. Then faces will be detected from that video. Using automated attendance system captured faces or students are verified. This automated attendance system is connected to the database. Where students' data will be stored. Then in classroom students' attendance mark using RFID tag-reader. Every student has a unique identification provided by RFID tag. When RFID and face recognition both phases are completed then student attendance is marked and attendance report generated in automated attendance system. Then this attendance report is sent to the web portal. Using web portal we can send notification, exam marks, weekly and monthly or as per the requirements attendance report is sent to the parent and student application.

In student application we provide feedback system, notices, event, library information, due fees and hostel information. Parent can see student attendance, marks, review of his/her child, admission process, fees, office timing on app. Student will get user ID and password from college for access app.

3. ALGORITHM

3.1 Block Matching Algorithm

In our system Block Algorithm is used for face recognition. In this algorithm, face image is reshaped into standard size (128*128). Then next step is divide face image into equal size blocks. Using Grey level co-occurrence matrix features are extracted from each block. This procedure is applied to both face images, means training image and queried images. After feature extraction Block Machine algorithm is applied. Then using Euclidean distance between the stored images and queried images is calculated. Euclidean distance less than that image that will match as the recognized face.

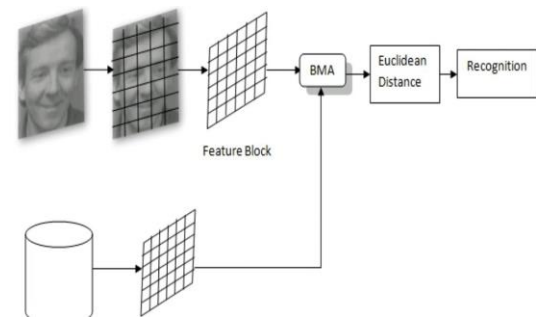


Fig -2: Block Matching Algorithm

4. CONCLUSIONS

This proposed system gives automated attendance of students via RFID and Face Recognition. Typically students' attendance is marked by the lecturer manually which spends a lot of time. Also amount of proxies gets recorded in manual system. RFID will mark the attendance robotically when student's card is passed through the reader and student enters the class. While face recognition will assist in validating student and marking the attendance of that individual student ensuring avoidance of proxies.

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