Smart Attendance System using Aadhaar

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ABSTRACT

These days, world is turning more towards mechanization for diminishing human endeavours and is endeavouring to make the procedure keen, secure and dependable. Smart participation the board framework for Mumbai University (MU) utilizing finger impression or an extraordinary recognizable proof stick acknowledgment is a savvy method for stamping participation which is more secure and time efficient when contrasted with effectively existing gathering activity frameworks including broadened manual exertion. The proposed framework records subtleties without permitting any odds of intermediary attendances by the understudies, shortcoming in denoting any understudy's present or enter any false/off base data. The proposed framework incorporates Aadhaar's one of a kind IDs and a figure print scanner which is associated with the concentrated database framework. This gadget can be mounted at any area or handheld and flowed among the understudies in the establishment. So as to recognize individual particularly different things are utilized, for example, iris, ID, unique mark. In this paper we have created Student Attendance Management System which is utilized to recognize the understudies particularly utilizing their Fingerprints. By utilizing this we have created framework which is putting away data of the understudy, confirming point of interest and produce report for the future use. During the participation check understudy will put their finger against the scanner and framework will stamp their participation and send a warning to the understudies, also create a receipt with their name and subject name. By utilizing this framework educator can spare their time and increment exactness in the outcomes.
Keywords-component; Biometrics, finger print,Aadhaar card.

1. INTRODUCTION

The present is that the progressive time of innovation. A large portion of the works relies upon PC application. The conventional understudy participation incorporates every one of the issues of move calling and very time devour of the understudies just as instructors for leading the classes in the division. The procedure is unfathomably exhausting and truly time-expend of the researchers in like manner as scholastics. In this way, a substitution approach will be required to deal with this technique. This rouses United States to style a solid framework for understudy gathering activity. The Biometric Identification Systems are broadly utilized for particular recognizable proof of people, similar to understudies, for the most part for confirmation and distinguishing proof. Additionally, the use of biometric alternatives in understudy gathering activity the board framework might be a protected methodology. A biometric framework is either partner 'recognizable proof' framework or a 'check' (confirmation) framework. A few biometric highlights are utilized for client confirmation. These are DNA Matching (Chemical Biometric), Ear(Visual Biometric), Eyes (Iris Recognition and Retina Recognition), Face Recognition (Visual Biometric), Fingerprint Acknowledgment (Visual Biometric), Gait (Behavioural Biometric), Signature Recognition (Visual/Behavioural Biometric), Speech and Speaker Recognition (Auditory Biometric), and so forth. Structuring and building up an understudy gathering activity framework bolstered unique mark acknowledgment oversees records for participation. The participation the board framework likewise gives an email notice to the understudies at whatever point they have examined, in this manner keeping up a record on both the finishes. In the proposed framework , understudies instructive subtleties are incorporated with Aadhaar card, at whatever point any semester tests are directed rather than physically denoting the participation, sensor gadgets can be utilized, consequently giving progressively solid and secure participation framework and furthermore sending email notices to the understudies. For understudy distinguishing proof, a unique mark acknowledgment based for the most part ID framework is utilized. Unique mark alternatives are thought of to be the best and fastest approach for ID. These alternatives are more secure to utilize and unmistakable for every individual. AADHAAR is a venture activity by Government of India to give one of a kind distinguishing proof number to every occupant in India. The recognizable proof number is a 12 digit special number issued by the Unique Identification Authority of India (UIDAI) in the interest of the Government of India. UIDAI attempts to empower an all-inclusive personality framework by supplanting all other character cards, for example, proportion card, PAN card and so on.

The two noteworthy strides in the AADHAAR verification procedure are (a) enrolment and (b) confirmation.

Following are the some significant highlights of the AADHAAR framework.
1) It will just give personality, not rights, advantages or qualifications
2) Envisions full enrolment of the inhabitants, with an emphasis on poor and oppressed networks to improve administration conveyance to poor people
3) Helps to give appropriate confirmation of personality
4) Leverages the current framework of government and private offices crosswise over India
5) Provides an adaptable model for Registrars for their procedures including issuing cards, estimating, gathering information of inhabitants and in confirmation
6) Ensures no duplication and gives online confirmation
7) It won't share inhabitant information and gives information straightforwardness In the customary frameworks, to get an administration from any office requires the occupant to demonstrate his/her character by showing a few qualifications. These certifications could be physical archives, for example, a character card issued by organization, passbook issued by a bank or something comparative and stick number, secret phrase and so forth. AADHAAR verification empowers organizations to check character of inhabitants utilizing an on the web and electronic methods. It immediately checks the character by giving the AADHAAR number and various identifiers gathered by the organization dependent on the necessities of the administration. The primary reason for this examination work is to make the participation the executives framework progressively productive, secure, versatile, simple to utilize and less tedious.

2. LITERATURE REVIEW

This literature survey gives general idea about how to effectively manage attendance of the class. These papers give brief information about various strategies that can be used to apply smart attendance management system while taking attendees of the students.

Naveed Khan Balcoh, M. Haroon Yousaf have proposed [1] framework which uses certain picture handling system to successfully oversee participation of the understudies. Right off the bat, they have caught picture through camera and played out specific advances like picture securing, histogram standardization, commotion expulsion, skin characterization, face discovery, face acknowledgment, participation. In this, they have utilized histogram standardization for zooming of the complexity. For the expulsion of clamors and smoothing of the picture, they have utilized low pass channel, middle channel. At that point at long last they have stamped participation of understudies by utilizing face database and participation database. In the face acknowledgment, they have edited the identified faces and afterward contrast and the database. At that point, understudy countenances are checked one by one with the face database utilizing Eigen face technique.

Ajinkya Patil, Mrudang Shukla have proposed [2] framework in which as opposed to utilizing face location and face acknowledgment instrument, they utilized system to recognize faces from non faces in the picture, which is significant for exact participation the executives. Likewise, Raspberry pi module is utilized in their framework. A camera is associated with the Raspberry pi module which catch the picture of the entire class. Working framework is introduced on the Raspberry module. From that point onward, Student database is gathered in which understudy name, roll no, pictures is put away. Additionally, Raspberry pi module is introduced in the framework at the front side of the class. For discovery of faces, they have utilized Viola Jones calculation and for the acknowledgment of faces they have utilized half breed calculation from Principal Component Analysis (PCA) and Linear Discriminant Analysis (LDA).Firstly, they need caught picture through camera at that point they'd reawakened RGB picture into dark scale picture for the any procedures. At that point different picture handling techniques are utilized which are utilized in the above proposed framework.

Mrunmayee Shirodkar, Varun Sinha have proposed [3] framework in which they have extensively arranged the framework into two classifications that is face identification in which picture is caught through top quality camera which is useful to manage issues like light, pivot and scaling. In the second class for example face acknowledgment, they have utilized neighborhood twofold pattern(LBP).As the picture comprises of number of pixels. A 3*3 lattice is made in the picture and there exist 9 pixels in every one of grid. Unique LBP administrator names the pixels inside the picture. In the picture pixel positions are set apart as either 0 or 1 and thus parallel lattice is gotten. This lattice is then changed over into decimal framework. When the decimal incentive for every pixel is gotten then the histogram is acquired. At that point highlight extraction step is performed. At long last, participation of understudies is stamped utilizing the face data.

K.Senthamil Selvi, P.Chitrakala have proposed [4] framework in which they isolated the framework into two classes. In top of the line, face discovery is done through different calculation like Ada help, Float support calculation, Bayes classifier. In below average, face acknowledgment is done through appearance based

strategies like surface highlights of countenances in the picture, include put together procedures which are based with respect to mouth, nose, eyes, eyebrows, face and so on.

Nirmalya Kar,Mrinal Kanti Debbarma have planned [5] framework inside which they need identified and removed faces and spared information of countenances in a very record having augmentation of .xml for any sort of reference. In learn and train picture module, they have determined eigen vector and eigen esteem for the picture. Additionally, PCA calculation is connected in this module. At last, they have perceived and coordinated face pictures with existing face data which is in xml format.

Jomon Joseph,K.P.Zacharia have proposed [6] framework which comprises of MATLAB area in which face acknowledgment is finished. For the extraction of appearances from picture caught by the camera, for camera settings, for getting to of camera they have utilized MATLAB picture handling and obtaining tool kit. Rest modules are comparative as in the previously mentioned framework.

Rasika Naik, Maumita Mal, Shweta Koli, Aakash Karnani, Bhavesh Chetwani have proposed [7] as The technique of utilizing the framework is envisioned as the Teacher carrying a Handheld Device to the class. He/she can check the finger or can offer this gadget to the understudy and start educating. Each understudy can put his or her finger on the scanner of the gadget and all individuals who are available can get the going to for that class/address. The information of understudies present will be sent to the PC through the ZigBee module and subsequently the going to of express understudy would be set apart for a particular address/subject. This learning are frequently more be prepared and furthermore the report of each and every understudy address savvy, subject insightful, date and time shrewd can be seen.

3. PROPOSED SYSTEM

A computerized framework disposes of the need for paper following and rather utilizes scanner tag identifications, electronic labels, contact screens, attractive stripe cards or maybe biometry (fingerprints, retinal sweeps and facial highlights). This makes life simpler for both the instructors and understudy ,This wipes out the likelihood of participation sheets getting lost or controlled. It additionally spares a ton of time for the higher experts to confirm the sheets over and over. A few kinds of mechanized participation frameworks are accessible, for example,

Radio Frequency Identification Cards Based Attendance System, Barcode Attendance Tracking System , Smart Card Access Control Attendance Systems, Punch Card Based Attendance System, Magnetic Stripe Card Based Attendance Systems, Biometric Attendance System, and so forth. This incorporates the expansion of the various choices, for example, Fingerprint Based Attendance System, Retina Based Attendance System and Face Recognition Attendance Frameworks. In the proposed framework , understudies instructive subtleties are coordinated with Aadhaar card, at whatever point any semester tests are directed rather than physically denoting the participation, sensor gadgets can be utilized, subsequently giving progressively solid and secure participation framework and furthermore sending email notices to the understudies.

4. FINGERPRINT RECOGNITION

Fingerprints are pondered to be the most straightforward and speediest system for ID. They are secure to utilize, unmistakable for every individual and don't alteration in one's life time. A unique mark acknowledgment framework works either in confirmation mode or in recognizable proof mode.

Computerized unique mark recognizable proof is that the strategy for precisely coordinating one or a few obscure fingerprints against an information of best-known and obscure prints. Robotized unique finger impression confirmation could be a firmly associated strategy used in applications like participation and access control frameworks. On a specialized dimension, confirmation frameworks check a guaranteed personality (a client may profess to be John by exhibiting his PIN or ID card and check his character exploitation his unique mark), though distinguishing proof frameworks affirm character principally dependent on fingerprints. The coordinating equation assumes a key job in an exceedingly unique mark acknowledgment framework. Coordinating calculations are acclimated look at prior hang on layouts of fingerprints against hopeful fingerprints for verification capacities

Mix of unique mark, face and iris biometric qualities of the inhabitants is utilized to give validation. ISO 19794 arrangement of Biometric benchmarks for unique mark, face and iris are utilized. The Biometric Solution Provider (BSP) is an element in the AADHAAR engineering which will configuration, supply, introduce, arrange commission, keep up and support biometric parts of the UIDAI framework . The biometric check module which is built utilizing Software Development Kit (SDK) gives confirmation inside the verification server. The formats are kept up in memory inhabitant data by the UIDAI validation server

application. On the off chance that the approaching solicitations contain a biometric picture, the confirmation server will utilize SDK to remove the element and furthermore to produce examination score of the example.
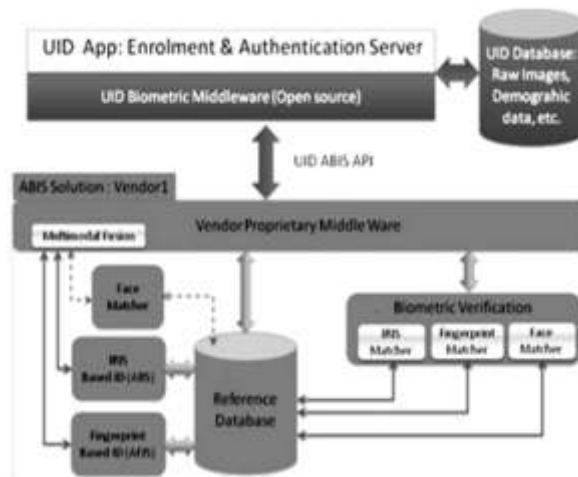

Fig.1 demonstrates the validation server design utilized in AADHAAR venture.

5. PROPOSED SYSTEM

Step 1:
Integrate all the students detail with their respective Aadhaar card as Aadhaar's unique IDs can also be used by the vocational education sector as a tracking mechanism that can link to a record of a person's vocational skill set as well as his or her academic history.

Step 2:
When any exam is conducted, instead of providing manually attendance to the students, A scanner device should be placed outside the exam hall.

Step 3:
All the students must mark their attendance before entering the exam hall, thus preventing the manually rotation of attendance sheet.

Step 4 :
If any student's biometric authentication fail's then teachers can manually enter the respective students Unique Identification Number (UID).

Step 5:
Students can receive their attendance acknowledgement via email and/or can in the form of receipt with their name, date and exam details.

5.1 Algorithm for the proposed system
Step 1: Initialize Fingerprint Scanner from Serial Port
Step 2: Get sensor information
Step 3: Start service to read a finger
Step 4: Wait that finger is read
Step 5: Checks if finger print is not already enrolled go to step 8
Step 6: Print message acknowledging the present of student and the name of subject
Step 7: Send Notification to the student regarding the same
Step 8: Manually Enter the Aadhaar Pin Number
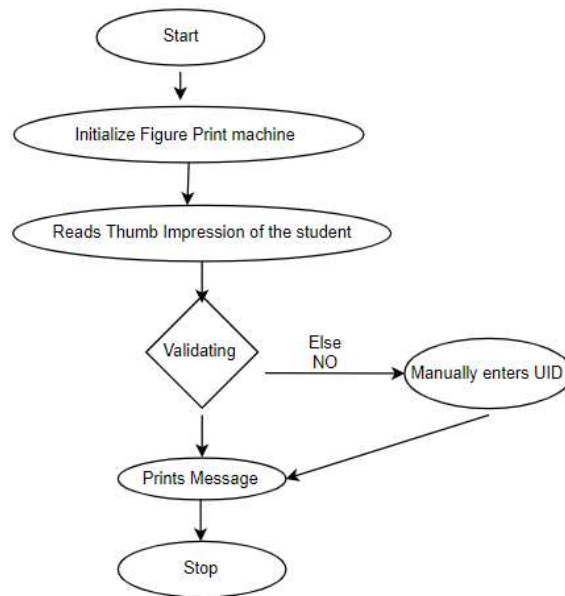Step 9: Go to step 6
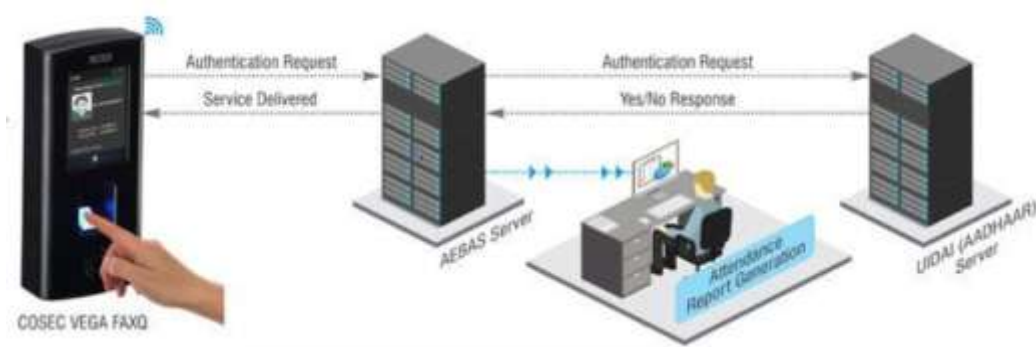Step 10: Stop

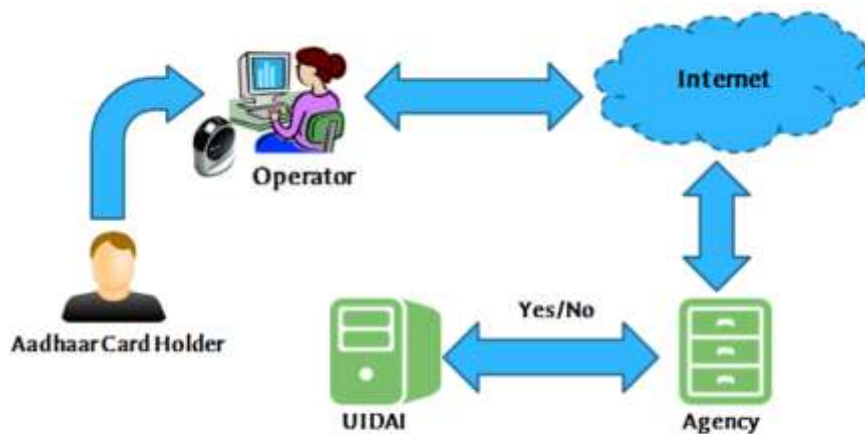Fig : 1.2 Flow Diagram

Fig 1.3 working of purposed diagram

Fig 1.3.1 working of purposed diagram

5.2 Qualities of the Proposed System
• User Friendly: The proposed framework is incredibly agreeable, as it is anything but difficult to utilize and straightforward.
• Reports are effectively produced: Defaulter Reports are frequently created very well inside the arranged framework all together that client will produce the report according to his/her interest.
• Reduced Manual work: The proposed framework does not require manual paper work. Furthermore work turns out to be simple in light of the fact that there is no compelling reason to keep information on papers.

5. 3 Focal Points over Traditional Method

• Device are regularly breathed easy understudies will put their finger and imprint participation PC application oversees participation.

• rather than conventional participation method in scholastic establishments that devours additional time.

• There are less probabilities of false participation courses in Academic environment.

• Secured framework as the unique finger impression is a one of a kind bio-metric substance.

6. CONCLUSION

This model isn't just easy to use, low power devouring structure, effective and up gradable to other kind of information obtaining framework yet additionally is anything but difficult to introduce like in biometric. In future, all the departments can implement this system and can make attendance system easier and more reliable to use.

7. REFERENCES

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