

QR-Attendance System

N.S.V.R.K Bharat^{*1}

^{*1}Student, Department of Computer Science Engineering, Centurion University of Technology and Management, Vizianagaram, AP, India

R. Drakshayani Sreya^{*2}

^{*2}Student, Department of Computer Science Engineering, Centurion University of Technology and Management, Vizianagaram, AP, India

Dr. Uttam Mande^{*3}

^{*3}Professor, Department of Computer Science Engineering, Centurion University of Technology and Management, Vizianagaram, AP, India

Abstract:- Student attendance system end in reducing the trouble in taking the class attendance. The former systems were time taking and high possibility in errors. The Ideal propose and usage of this system, is grounded to digital app. To ensure that the student attended to the classes, QR code is limited for a certain time and displayed at speaker donation. The pupil only demanded to overlook the projected QR using his/ her digital device or smartphone. The encrypted QR was also sent to the main server for storing attendance and continuing its process. The proposed work was designed and executed using unity game engine, Android Studio, Objective C, C#, C++ applications. It is already being implemented in recognised universities or institutions.

Keywords:- QR- CODE, Student Attendance System, Time Limited, Displayed, Server .

I. INTRODUCTION

Attendance is pivotal part of student academics. Taking or collecting daily attendance is being followed from Vedic period. We are still following the old manual methods. In higher education, many institutions and universities are rigged in terms of attendance. Student will be awarded grades for attendance, if the individual has high-rate attendance. Lectures are paused for taking attendance of the class. It is not for one time but for all the classes of the day, we can't make attendance just for once because it is can't sure of attending percentage, giving inconsistency monitoring. We aim to bring the Attendance system for solving this problem. By using Quick Responsive method, we can make a code, it can be projected by an educator in lecture. A QR-code scanning application will be available for students to scans QR-code of particular lecture. The record of data collected in cloud platform and attendance will be a Meta data of student. This data can be used in many beneficial ways for an organization or institution. Today's technology has developed to deep heights of human knowledge and everything is being to digital, and the old-fashioned practise in marking attendance should also be modernized. The proposed system comes with idea of reducing the workload to the faculty with saving numerous work time that could be utilized in further productive tasks. This decreases the initial effort and time of this process. Statistics and researches from top universities and research centres gave reports that 91% of smart device users are around the age of 16-28 years old. These age group are usually college students or high schoolers, so this paper addresses the problem with solution of using QR attending system at the beginning or ending of lecture.

II. LITERATURE REVIEW

Several attendance managing ideas are bought up in the history. They were included in setting up a device for scanning the biometric details of students. For this we should install internet and camera in a classroom. We plan for taking attendance using QR-Code in the proposed paper. The lecture should be registered with including date and time and class/subject strength, once the professor sets up with timer the code can be projected in class, then students should scan the code using their android devices, with in a limited time interval of the lecture. This creates the usage of two applications, an application is a webpage that's used for the data storing at main server and continuous monitoring, analysing attendance of the students. Another is an android app. The web Application is used by an educator to induce and display the code. This android app is for students, where two options for registration are given, college registration number and along with college@eMail. These will be gate keepers of the android application which will later on helps the student to see their overall attendance.

III. EXISTING SYSTEM

There have been many attendance collecting ways where organizations and universities follow majorly use paper-based method. An educator had to manually mark the status of the students and should log this data into multiple registers. Keeping these records for long time is not an easy task and storing them physically is huge burden and the chances of damaging is also highly possible. It is time-intensive and monotonous.

Biometric scanners are added alternative for recording the correct data of attendance, bio metrics like iris or fingerprints can' be possible best solution because it requires again and again physical labour work by students, which instead kills more time. This model requires a separate device which is daily maintained. An installation and continuous maintenance will be expensive and the perpetration is complex, Exposure to personal data and security might be at risk.



Fig 1 Biometric scanners

Face recognizing module is a machinery proficient of analysing the similarity of a human face from a digitally stored image. It uses artificial intelligence (AI) to find and identify face from previously collected data. The upkeep of the system is expensive. The model uses high resolution images so the occupancy of storage will be huge. Poor quality, imperfect images can limit the accuracy and effectiveness of facial Recognition Module.



Fig 2 Face recognizing module

Another alternative is using RFID for completing the roll call. RFID system provides a wireless identification of users, when they approach the radiofrequency range of the RFID attendance reader. To mark the attendance automatically, the students need to carry the RFID tag that contains unique information about them.

IV. PROPOSED SYSTEM

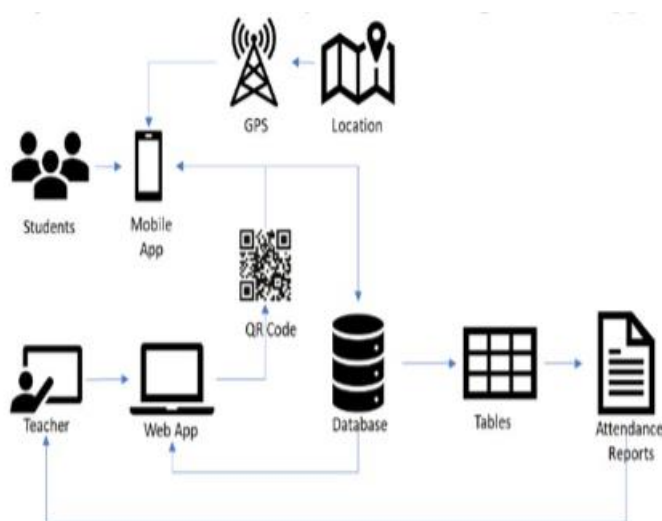


Fig 3 Proposed System



Fig 4 Attendance System

The proposed approach entails the creation of QR codes as well as a system that integrates the web and Android operating systems. Initially, the teacher should log in to the web app again at the start of the lecture by inputting the lecture details, producing the QR Code, and pressing the "Generate QR" button. Readers will be able to see the code on a smartboard website. The code replies will be kept in the database.

Students must now open the proper Android app on their phones and scanning the QR code to begin the digital smart location-based process. If they were first-time users, they would need to check in to the app with their credentials. After that, there will be certain primary possibilities for making users interactive and information relevant that are not Scanning. The camera starts when users pick the "Scan QR" button. The "attendance" form will include student information. The student will be informed whether or not the visit was successfully graded. The problem here is that after a student has received a photo of the QR code, it is easy for him or her to scan it outside of the classroom. As a result, a site test is conducted to prevent students from marking those who attended the session and those who did not. External equipment such as QR scanners or biometric scanners are not required because the system leverages web apps. As a result, maintenance and equipment expenditures are no longer an issue. The suggested method uses GPS (Global Positioning System) to track a student's whereabouts, even if the student is on campus, and to prevent fraudulent student presence from conferring musketeers on the student.

V. RESULTS

By implementing this initiative at colleges, digital presence will become more digital and manageable. Time will be saved by changing the numerous resources utilised to record customary presence. Once the student has confirmed the QR code, the student's information is saved on a website that the teacher can access in real time. As a result, teachers shouldn't be concerned about keeping track of the number of guests or verifying if students have logged any fraudulent visits to their pals. Teachers can then use their time appropriately. One GPS drawback is that, due to poor signal strength and accuracy, GPS does not deliver reliable readings in indoor situations.

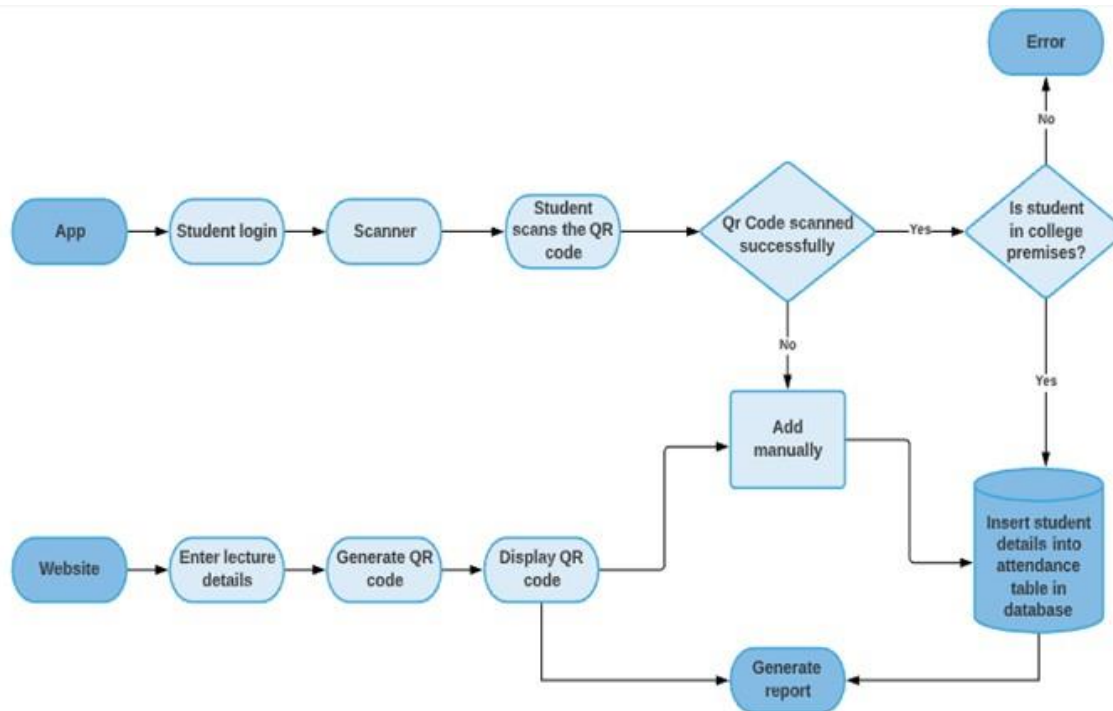


Fig 1 Flow Diagram

A. What is QR-CODE?

A QR code, like a matrix barcode, is a quick-response code. It is made by connecting a locator, an identifier, or tracker to a website or application. To save data efficiently, it employs four consistent encoding methods: numeric or an alpha-numeric, byte/binary, and kanji.

A QR code is made up of gloomy cubes arranged in a quadrangular network on a bleached background that can be scanned by a camera and processed using Reed–Solomon error correction until the appearance can be comprehended. The required information is then extracted from configurations that exist in the spitting image's equally straight and erect modules. Figure 3 shows a QR code design that is frequently used in programs. It can be processed with any imaging equipment that supports QR scanning, such as cameras or smartphones, or by installing the required application. Small data-filled squares are deleted, and the error is repaired once more. The process will be sped up by using a QR code, which will cut the time spent on most typical processes in half. It will do away with the necessity to keep track of reports. As a result, the proposed system requires very little maintenance.



Fig.7- Quick Response Code

B. Mobile Application

We can use a mobile device to scan an encrypted QR code in a secure manner.

When scanning the code, the following information will be examined.

1. A check will be made to see if the student is registered in the course.
2. The QR code's validity is examined to see if it is live or expired.

Only if the student's attendance falls within the defined range will it be marked.

The distance between the university's coordinates and the student's coordinates is calculated for the location check. The Haversine formula is used to calculate the distance. The shortest distance can be calculated using the Haversine formula. Given the latitude and longitude of two places on a sphere

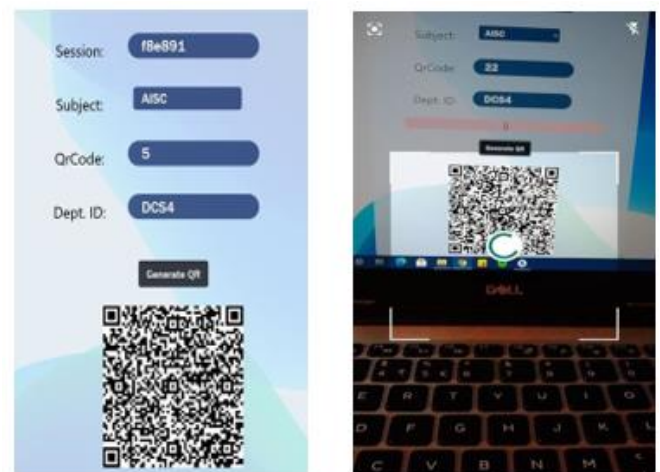


Fig 8 Mobile Application

C. Website

The Quick-Responsive code can be generated using the website. Because the session id is generated at random, it will differ from session to session. After the QR code has been generated and the students have had a few minutes to scan it, a popup will appear showing the number of pupils who have scanned it. The faculty can also manually add attendees. The time ID is also used to generate reports on the website. Most reports can be created independently if there are many sessions on the same day.

D. Database

We use MySQL as a database in which the data is deployed on the cloud. It is set-upped for an easy access, managing and updating. It typically stores files, records.

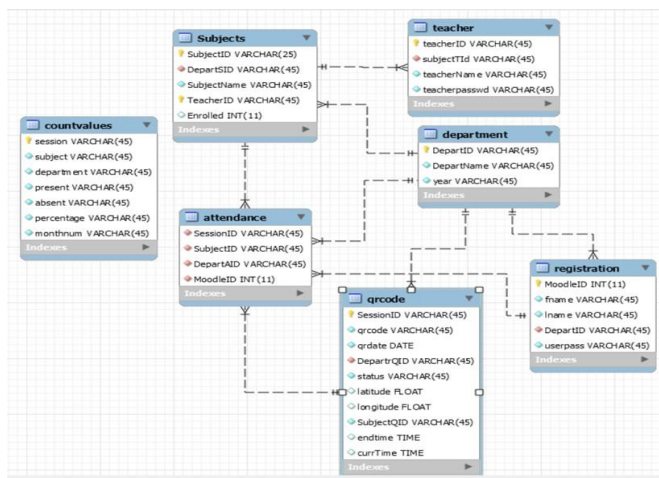


Fig 10. Database Schema

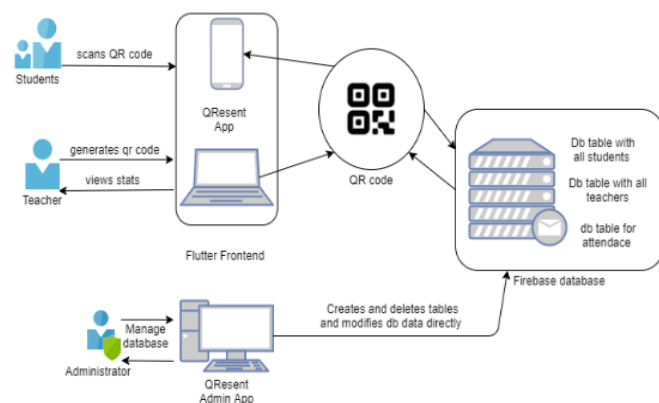


Fig 11 Database Schema

VI. CONCLUSION

In this digital age, educational institutions must embrace cutting-edge technologies. Personal input is the most prevalent method of recording attendance, which might result in erroneous and misleading statistics. As a result, it is critical that institutions implement a system. Almost all domains, particularly education, have experienced paradigm shifts as a result of the Internet. In this research, we present an efficient and cost-effective attendance system that eliminates human labor. The computer's thinking has taken the place of bundles of massive paper records. The proposed system is well-

organized and efficient. The procedure/method is straightforward, and anyone who has logged in can utilize it. Additional devices, such as biometric devices, ID card scanners, specifically built ID cards (which raise prices), and so on, are not necessary in addition to a smartphone. As a result, the proposed system is cost-effective. All of this is done via the internet and is saved in a secure database that students and teachers can access by providing their email and password.

REFERENCES

- [1]. Abhijeet Singh, "Attendance using Artificial Intelligence," SSRG International Journal of Computer Science and Engineering (IJCSE), ISSN: 2348 – 8387, Volume 5 Issue 9, USA, September 2018.
- [2]. Fadi Masalha, Nael Hirzallah, "A Students Attendance System Using QR Code," International Journal of Advanced Computer Science and Applications (IJACSA), Vol. 5, No. 3, 2014, United Kingdom.
- [3]. Jon Lee August, "How do smartphone QR/barcode scanner apps work," Quora scientific Blog, Jun 6, 2018. Available online, <https://www.quora.com/How-do-smartphone-QR-barcode-scanner-apps-work>
- [4]. Smartphone Users Around the World – Statistics and Facts, Available online, <http://www.go-gulf.com/blog/smartphone/> visited on February 12, 2014.
- [5]. Jamil, T. ; Dept. of Electr. & Comput. Eng., Sultan Qaboos Univ., Al Khod, Oman, Automatic attendance recording system using mobile telephone , Telecommunications Forum (TELFOR), 2011 19th 1297 – 1299.
- [6]. Shehu, V. ; Contemporary Sci. & Technol., South East Eur. Univ., Tetovo, Macedonia ; Dika, A. , Using real time computer vision algorithms in automatic attendance management systems, Information Technology Interfaces (ITI), 2010 32nd International Conference on 397– 402.
- [7]. Aryachandran S., Jyothi R L, "Secure Color QR Codes," IOSR Journal of Computer Engineering (IOSR-JCE) e-ISSN: 2278- 0661,p-ISSN: 2278-8727, PP 77-85. Enhancement of QR code Student's Attendance Management System using GPS DOI: 10.9790/0661-2104011830 www.iosrjournals.org 30 | Page
- [8]. Hiroko Kato and Keng T. Tan, "Pervasive 2D Barcodes for Camera Phone Applications", IEEE Computer Society 1536- 1268/07/2007 IEEE
- [9]. W. Chen, G. Yang and G. Zhang: "A Simple and Efficient Image Pre-processing for QRDecoder":2nd International Conference on Electronic & Mechanical Engineering and Information Technology (EMEIT2012)
- [10]. Y. Liu and M. Liu: "Automatic Recognition Algorithm of Quick Response Code Based on Embedded System": Proceedings of the Sixth International Conference on Intelligent Systems Design and Applications (ISDA'06).
- [11]. K.Nurwono,R.Kosala:"Color Quick Response Code For Mobile Content Distribution": in Proc. 7th Int. Conf. Adv. Mob. Comput. Multimedia, Dec. 2009, pp. 267-271.

- [12]. Michael Rohs: "Real-World Interaction with Camera-Phones": Proc. 2nd Int. Symp. Ubiquitous Computing Systems (UCS 04), 2004, pp. 39-48.
- [13]. S, Chitresh and K, Amit. An efficient Automatic Attendance Using Fingerprint Verification Technique, International Journal on Computer Science and Engineering (IJCSE), 2(2), 264-269, 2010.
- [14]. O, Longe. Implementation of Student Attendance System using RFID Technology, B.Tech Project Report, Ladoke Akintola University of Technology, Ogbomoso, Nigeria, 2009.
- [16]. A, Qaiser and A, Khan. Automation of Time and Attendance using RFID Systems, 2nd International Conference on Emerging Technologies IEEE-ICET. pp. 60-63, 2006.
- [15]. D.Narendar Singh, Chaitanya kumar Munukoti, "Attendance Monitoring System Using ARM9 with QR Code," International Journal of Latest Trends in Engineering and Technology (IJLTET), Vol. 2, Issue 1, January 2013

AUTHORS



1 N.S.V.R.K BHARAT

Is currently in his third year in Computer Science and Engineering at Centurion University of Technology and Management (CUTM), Vizianagaram, India. He is passionate about Game Development and Animations. At present he is pursuing AR/VR and working on QR- code attendance system, game characters developing.



2 R.DRAKSHAYANI SREYA

Is studying her third year in Computer Science and Engineering at Centurion University of Technology and Management (CUTM), Vizianagaram, India. She is pursuing Data science and machine learning concepts. At present, she is currently working on a project QR based attendance system to reduce the proxy during the attendance and its advancement of the system.



3 UTTAM MANDE

Received the Bachelor of Computer Applications from Andhra University, Visakhapatnam and proceeded to do his Masters and received PhD in Computer Science and Engineering from CSE department of JNTU, Kakinada.