QR based Intelligent Attendance Monitoring and College Vehicle Tracking Using IOT

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Abstract **- In this project an attendance management system and Bus tracking application whereas generated with using that mobile application. In the mobile app has two modules specified with this application. The first module approaches are in attendance system generated with whole campus marked attendance usage purpose and another approaches whereas bus tracking module using student and faculty user. The student module represent with students are entering details (Name, register number, Department, Bus route number and Boarding point etc.). when data are store directly in database using cloud computation then attendance register process using QR code scanner using online mode. The data are stored directly in cloud compute storage and then hosting the data from bar-code reader within the database using individually QR code usage from the student. The college attendance management process mostly generated with faculty user module specified student attendance entering process maintained. The faculty login credential used that opened with the attendance module detail from the marking student attendance using QR code Scanner. The admin module representation data monitoring and management of all end user working in this module specification for that admin user first login the credential for user create account in managed process. After that attendance register monitor data select from (Bus attendance, Examination attendance, Library attendance, canteen purchase attendance). The data view from the database using key identification number every register from server requests the select the attendance register that number is entering for open with automatically the excel sheet format in the data register then retrieve and view and update in the monitoring purpose.**

Index Terms **- Internet of Thing, Communication, Smart Campus, Secured, Arduino, Micro-controller.**

I.INTRODUCTION

In early days using attendance system are paper and pen marking attendance register then nowadays accommodate with automated attendance system application developed in using android application. If the campus attendance is maintained with purpose of examination, schedule list, bus attendance, library attendance, faculty attendance, class attendance, cafeteria purchasing attendance are accommodate with system user. The attendance is marking using with QR code scanner provided with application developed using IOT based embedded the QR coded scanner using within system application. In the QR scanner mainly specified with bar code reader scanned the attendance register present or absent marked with the student database are storing the data. Recently, the QR Code system has become popular outside the automotive industry due to its fast readability and greater storage capacity compared to standard UPC bar-codes. A QR code, is read by an imaging device, such as a camera, and formatted algorithmic ally by underlying software using Reed-Solomon error correction until the image can be appropriately interpreted. When the QR code scanner module placed at the faculty marking attendance register Component used. The data storage with using the cloud computing technique are sever maintained the data from database record in number of times updated the automatically attendance marking system very easily maintained present and absentees list identified. The attendance module consists of three module representations are student user, faculty user, admin user is generated with attendance system application used. The next module as bus tracking system generates with in our college many students and staffs are not aware of exact timing and location of the college bus. IOT places the major role that provides all details of the buses through the application on the smart phones to the students/staffs for easy transport system.

II ARCHITECTURE

A. Existing methodology

Attendance System:

Attendance marking system amount wrong details any issue created. The new technique used attendance marking after pen and paper for IOT using fingerprint, face recognition, RFID card attendance and then QR code based in the proposed system are developed in my attendance using QR code set up within the android application accommodated.

College vehicle tracking System:

In the thanks to rapid increase in population, there's need for efficient public transportation. there's increased burden on public transportation like bus simply because of population. Therefore, remote user needs a sensible system which provides real time information of bus. So, we proposed a replacement system which solves the disadvantage of current public transportation. So, our system handles all the info like current location of bus, management of buses and its schedule. the important time tracking of bus are often done by our proposed system and this information is then given to remote user who want to understand the important time bus information. If they some technologies are used for college vehicle tracking like as GPS, GPRS and GSM are developed purpose.

B. Proposed methodology:

In automated attendance marking proposed system generally the system lies between online learning and traditional learning as a facilitation for the attendance record-keeping process, during a way that enriches the lecture time in order that it can better be utilized in giving useful materials instead of wasting the time taking attendance. When the attendance process composed by quick response QR code generated marking attendance using Universal Product Code reader specified with student recorded from the info are stored with the database using the cloud computing technique used. during this project attendance monitoring system are whole campus attendance register using with bus attendance, library management, Examination attendance and schedule, Academic attendance purpose are maintained within the system application. The system requires an easy login process by the category instructor through its Server module to get an encrypted QR code with specific information. The QR code Scanned attendance and stored the info from the databases.

Attendance Structure Description:

a) Student user:

The attendance system is generated with student information first stored within the database then academician open the appliance and marking the attendance using QR code.

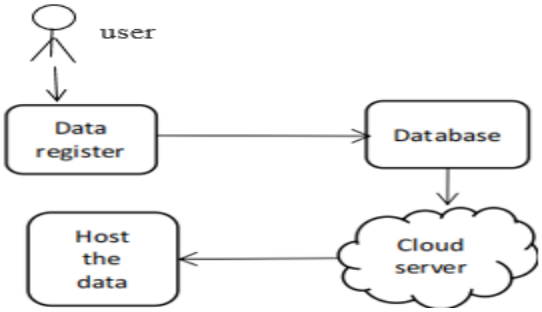


Fig2.1. Student module

b) Faculty user:

The faculty user module first time opened the application then login the credential of user account specified the chosen register attendance and taking attendance that automatically opened the QR code scanner trademark for a kind of matrix bar-code (or two-dimensional bar code) first designed for the automotive industry in Japan. Bar codes are optical machine-readable labels attached to items that record information associated with the item. it had been initially patented; however, its patent holder has chosen to not exercise those rights. Recently, the QR Code system has become popular outside the automotive industry thanks to its fast readability and greater storage capacity compared to plain UPC bar-codes. The Qr code scanner are generated with create data segment, fit to version number, Concatenate segments, add padding, make code words, Split blocks, add ECC, interleave. the knowledge encoded could also be made from four standardized types ("modes") of knowledge (numeric, alphanumeric, byte / binary, Kanji) or, through supported extensions, virtually any sort of data QR code, is read by an imaging device, like a camera, and formatted algorithmic ally by underlying software using Reed-Solomon error correction until the image are often appropriately interpreted. The QR code scanner accommodated with attendance marking used scanned bar-code in student information specified.

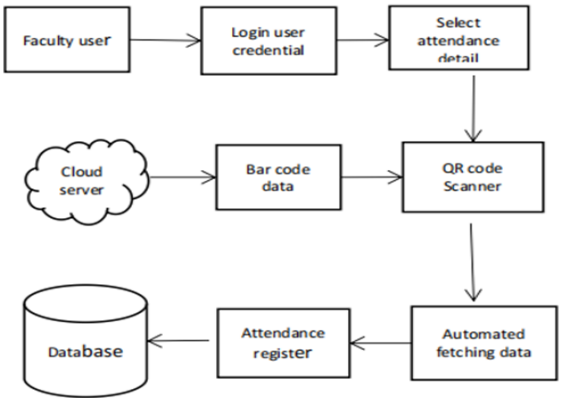


Fig 2.1. Faculty module

C)Admin user:

The admin module process is generated with monitoring and managing the attendance register data select from (Bus attendance, Examination attendance, Library attendance, canteen purchase attendance). the info view from the database using key number every register from server requests the select the attendance register that number is entering for open with automatically the excel sheet format within the data register then retrieve and consider and update within the monitoring purposes.

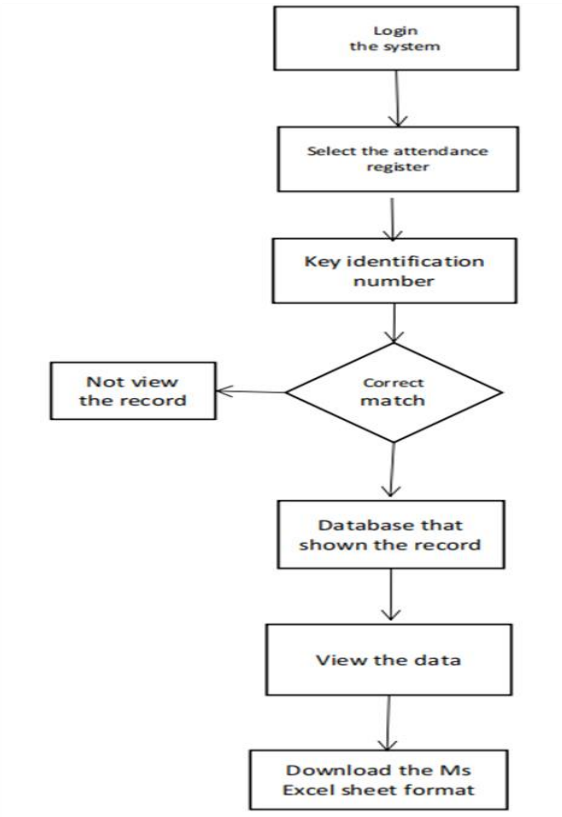


Fig2.3. Admin module

III.SYSTEM PROCESS

A.Qr code Generator:

QR code (an abbreviation of Quick Response) may be a trademark for a two-dimensional bar code that consists of little black squares arranged on a white background within the sort of a square. IT contains in horizontal and vertical directions and represents machine-readable information within the sort of a grid (unlike classic bar code that store data in horizontal form only). To decipher the knowledge captured during a QR code, which is typically a hyperlink or text, a tool does not require an online connection (although you would probably need it to figure with deciphered data).

Fig 3.1 Qr code Scanner

Detail visit: https://www.nayuki.io/page/creating-a-qr-code-step-by-step

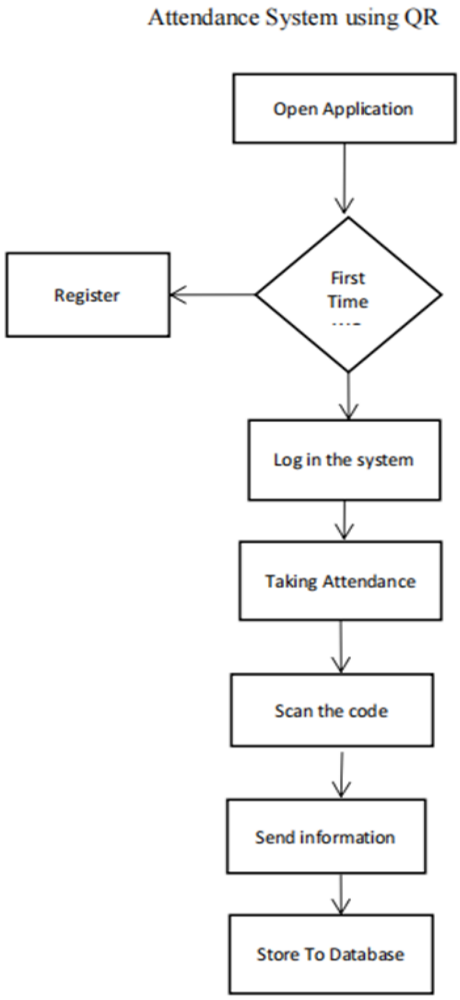
Step by step followed by Qr code:

Analyze Unicode characters

Number of code points in the input text string: 17

1. Create data segment
2. Convert each character to bits. The created single segment:
   Mode: Byte
   Count: 17 bytes
   Data: 136 bits long
   Fit to version number
3. Concatenate segments, add padding, make code words.
4. Split blocks, add ECC, interleave
5. Draw fixed patterns
6. Draw code words and remainder
   Compute the zigzag scan (which starts from the bottom right corner) to visit all unfilled modules (i.e. skipping function modules)
   Draw data/ECC modules according to the zigzag scan order and bit values from the final sequence of code words
7. Try applying each mask

8. The mask pattern (only affects non-function modules):
   Xor mask pattern to the modules of data, ECC, and remainder:
9. Find penalty patterns.
10. Calculate penalty points, select best mask.



IV. COLLEGE VEHICLE TRACKING SYSTEM

Proposed System:

The bus tracking system provides the relevant information regarding all the bus numbers going from users source & destination alongside the route details, real time location. Generally, our system is operated by GPS which is attached with the bus. Firstly, GPS receives the satellite signals then the position co-ordinates with latitude and longitude are determined by it. the situation is decided with the assistance of GPS and mechanism. After receiving the info, the tracking data are often transmitted using any wireless communications systems. a true clock (RTC) may be a computer clock that keeps track of the present time. during this project Arduino UNO may be a micro controller to program with RTC. supported IOT the students/staffs can access this information of a bus supported users source and destination through the android application.

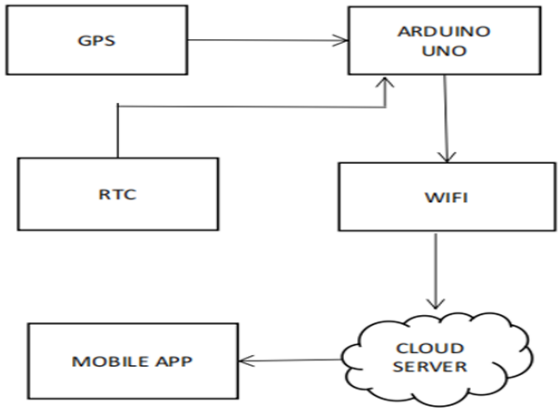


Fig 4.1 Bus Tracking System

GPS (Global positioning service):

The GPS may be a system for calculating position from signals sent by a network of satellites. To accurately determine the position and it is ready to determine the strong signals. GPS tracking system is straightforward to use, mobile friendly, as intuitive interface and is meant to speak with a good sort of GPS devices. The GPS receivers were much simpler than today, they provided only the latitude and longitude position, the remainder was on account of the user who needed to calculate the map.

RTC

A real clock may be a computer clock that keeps track of the present time. RTC are present in almost any device which must keep accurate time. The DS3231 is out there in commercial and industrial temperature ranges, and is obtainable during a 16-pin, 300-mil SO package.

WIFI

WiFi is a technology that uses radio waves to provide network connectivity. Devices that can be use Wi-Fi technology include personal computers, Smart phones and tablet. The different versions of Wi-Fi are specified by various IEEE 802.11 protocol standards, with the different radio technologies determining radio

bands, and the maximum ranges, and speeds that may be achieved.

ARDUNIO UNO

The Arduino UNO is an open-source microcontroller board based on the Microchip ATmega328P micro controller and developed by Arduino.cc. It allows easy to access to input-output pins and make uploading of the program very easy. In the Arduino UNO are out of 14 i/o ports,6 pins can be used for PWM output. It allows the designers to control and sense the external electronic devices in the real world.

IOT

The internet of things (IoT) is a catch- all term for growing number of electronic that are not traditional computing devices but are connected to the internet to send the data, receive instruction or both. There is an incredibly broad ranges of things that umbrella internet-connected "smart" version of traditional appliances like refrigerator and light bulb; gadgets that could exist in an internet.

Result:

The android application is easy to maintain attendance monitoring system whole campus information present and absentees list followed application then the staff member identifies student data easy to manage and maintained. The proposed system did not mark with wrongly attendance in the system. The bus tracking system gives the information about the college bus for students and staffs. The proposed system is more user friendly than existing system. co-ordinates with latitude and longitude are determined by it. The location is determined with the help of GPS and transmission mechanism. After receiving the data, the tracking data can be transmitted using any wireless communications systems.

V. CONCLUSION

The attendance monitoring system generates for reduce paper and pen for marking the attendance then this project automated identified the present and absent list in college attendance are maintained and monitoring. In this attendance system are used various purposes are examination, library, bus attendance, canteen purchase list data, academic attendance very useful. The bus tracking attendance are implementing this idea, we can improve the transportation safety and the quality of services to the college buses. The system will have latest technology and optimized algorithms with moderate cost. The system may focus on accurate arrival time and position of the bus.

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