IOT Literature Survey

RFID BASED ATTENDANCE SYSTEM USING ARDUINO UNO

Document 1: <u>(IJACSA) International Journal of Advanced Computer Science and Applications, Vol. 9, No. 1, 2018</u>

This document shows the implementation of the attendance system using Arduino Uno.In this through RFID tag, the attendance will be noted.After the data is read, it will be sent to a remote server through the help of an "Ethernet Shield Module".After that, if the data sent is present in database, attendance will be noted, else an error message will be returned back to the Arduino UNO.

Document 2: <u>Jour of Adv Research in Dynamical & Control Systems, Vol. 10, 04-Special Issue, 2018</u>

This document shows the implementation of attendance system using RFID and Arduino UNO. In this implementation, the device won't be able to connect to internet, but instead it will save the data locally to an SD card. This will be done using "SD CARD MODULE". This also makes use of a physical number pad to allow access into the room. The only major disadvantage is, it not being able to connect to internet.

Document 3: <u>International Journal for Modern Trends in Science and Technology, 7(01): 40-43,</u> 2021 <u>ISSN: 2455-3778</u>

This document implements the attendance and it also records the time of the attendance being taken. This also makes use of an LCD display. This is able to record current time by using the "DS 3231 RTC MODULE". With this, the student will also be able to know if he got his attendance noted or not.

Document 4: IEEE-8987434

In this document, the authors proposed an attendance system by using IoT approach and connecting it to internet. They were able to achieve it by interfacing it with the computer network. But instead of connecting to a cloud server, they were able to achieve it locally by using their computer's intranet. They are able to provide a web based GUI to check attendance.

Document 5: IEEE-8204180

The authors of this proposed an automated attendance system by using IoT approach by integrating it with Thingspeak, a free cloud service for IoT based applications. They use an SD Card Module to store the data first and then later send it to the PC and use it's network interface to interact with Thingspeak cloud. Then it stores and shows the data graphically.

Document 6: ISSN: 2278-0181

This document uses a new approach. Instead of an LED display, when the attendance taken is correct, it will give a "SUCCESS" announcement. Else, it will give a "FAILURE" announcement. This approach of using audio is called "VOICE GREETINGS" and the audio for different greetings is stored on an SD CARD using the SD CARD Module.

Document 7: IEEE-8658705

In this approach, the authors have connected Arduino Uno R3 with a Real Time Clock (RTC), a LCD display, a Radio Frequency Module (RFID), 2 IR sensor modules. When the system will initialize, the LCD display will ask the student to show his tag or card. After the card being identified, the LCD will display the ID number the along with the time of his entrance. As he passes across the IR sensor, the system records the count of the student and displays the number on the LCD. If someone leaves classroom, counting goes down. They have also implemented a face recognition system.

Document 8: IJRESM - 327/302

In this approach, the authors have made use of an LCD and a buzzer to alert the student whether he got in successfully or not. They made use of Microsoft Excel to store the data. To integrate arduino with it, PLX-DAQ, an add-in for Microsoft Excel. It can have upto 26 channels data from microcontrollers and the numbers are dropped into as they arrive.

Document 9: SSRN-3372734

In this document, the authors have suggested to use a graphical user interface. The GUI is a web based one made with the help of VB.net. For storage purpose, the authors have recommended to go along with MySQL instead of Microsoft Excel because Excel maintains only 2GB storage. With MySQL, we can have a more reliable and resourceful database.

Document 10: IEEE-9074448

In this documentation, the authors have used a buzzer along with a GSM modem that is connected with Arduino Mega R3 microcontroller. In most of the cases, it has been done with Arduino UNO. But, here its Arduino Mega. Instead of sending requests through the connected PC's network, it is being sent through a GSM module. GSM module is a module that helps Arduino UNO and MEGA boards to connect to a cellular network, send and receive SMS and make calls.Through this, the system became from an automated system to an IoT.

Document 11: RSPSCIENCEHUB-Article 23389

In this approach, the authors have used an Arduino UNO and and an RC522 RFID module to receive the attendance data. After that, they have interfaced it with local network from PC and then through an API key, they integrated it with Amazon AWS.They have used Amazon EC2 for hosting the web application, Amazon RDS for storing the database, Amazon S3 for storing the generated attendance report files(in either xlsx or csv format).

Document 12: IEEE-7955639

In this paper, an attendance recording and consolidation system (ARCS) is implemented using Arduino and Raspberry Pi microcontroller boards. The attendance recording component (ARD) was developed using Arduino, and Raspberry Pi was employed as the Web server. The utilization of ZigBee technology allowed for attendance data transmission from ARD to the server. To present the data, a web page was constructed using PHP, showcasing the aggregated attendance percentage for each student across various college classes. This also has a keypad for two factor authentication for more secure and proxy-proof attendance.

Document 13: DOI:10.1080/01969722.2023.2166243

This documentation shows the application of an IoT Based RFID Attendance System Using Arduino ESP8266 & Adafruit.io. In this system, Arduino and RFID scanner is utilized for scanning the electronic object attached to the RFID tag. That scanned data are uploaded to adafruit.io using cloud computing technology by using ESP8266 Wi-Fi module. The logged-on information on the software platform can be acquired and monitored by the officials anywhere. The data can be view over the internet.

Document 14: IEEE-8974778

This document provides a very detailed algorithm on all cases and workings for the IoT based Door system with Arduino UNO and RFID reader. First the data is recorded using RFID reader and then it goes to PC and from then, it will be connected to a cloud platform and the attendance data is posted from where it can be downloaded in the form of xlsx or csv format. There will also be a way to represent it graphically.

Document 15: IEEE-9441704

This document explains the IoT based attendance system integrated with Google Sheets. The outcome is subsequently utilized for assessing the microcontroller ID that is stored in the memory. Following a specific order, this information is transmitted via the internet to Google Sheets. In case locating the ID within the memory proves unfeasible, both the LCD and the PC display an error message. Each time the system is activated, there's no necessity to configure the time. Utilizing Arduino's ethernet-shield module, attendance is promptly conveyed to Google Sheets. Using a container to transfer Arduino data to Google Sheets via the internet, alongside a JSON script formulated and executed as a web application within Google, facilitates this process.

REFERENCE LINKS:

Document 1: https://thesai.org/Downloads/Volume9No1/Paper_37-Attendance_and_Information_System_Using_RFID.pdf

Document 2: https://www.researchgate.net/profile/Haider-Alrikabi-2/publication/328051941_Attendance_System_Design_and_implementation_based_on_Radio_Frequency_Identification_RFID_and_Arduino/links/5d7264244585151ee4a0f01f/Attendance-System-Design-and-implementation-based-on-Radio-Frequency-Identification-RFID-and-Arduino.pdf

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