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**RFID Attendance System using
Google Sheets**

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RFID Attendance System using Google Sheets

Abstract:

The RFID Attendance System using Google Sheets project aims to log the attendance data to the google sheets with name of the RFID tag holder. By employing Internet of Things (IoT) technology, the system scans the RFID tag/card using the RFID reader module. This system can be used for a company or college/school who wants to log the attendance data in Google Sheets such as attendance date, attendance time, and student or employee name. This is a real time attendance system. Utilizing Node-MCU along with components such as RFID Reader Module and RFID tags/cards by storing the employee/student information in those.

Requirement:

1. Hardware Components :-

- Node-MCU 8266
- MFRC 522 Reader Module
- Breadboard
- Buzzer (for visual indication)
- Male-to-Male connecting wires
- Tags and Cards
- USB cable

2. Software Components :-

- Arduino software
- Esp8266 drivers

Objective:

- i. Implement real-time processing of RFID tag data to identify individuals and record attendance.
- ii. Store attendance data securely in a cloud-based database or storage service for easy access.
- iii. Analysis and authorization mechanisms to ensure that only authorized individuals can access attendance records or perform administrative tasks.

Introduction:

The RFID Attendance System using Google Sheets project aims to log the attendance data to the google sheets with name of the RFID tag holder. This system helps to overcome the past traditional method of maintaining an attendance register and marking the attendance of each individual. Using RFID systems automate the process, **reducing the chance of human error**.

Every employee/student will be given a RFID card with their information stored in that particular RFID card. This will be their ID cards. By employing Internet of Things (IoT) technology, the system scans the RFID tag/card using the RFID reader module and the real-time attendance of the person gets recorded along with the date and time of entry. This can be done just by simply scanning the card. Taking attendance manually can be time-consuming, especially for large groups. RFID systems can quickly scan and record attendance data, **saving time** for both instructors and students.

The cloud based google sheet is used to store this info and hence only the person having access to the mail-ID will be able to view or change this. This will ensure that **only authorized individuals can access attendance records or perform administrative tasks**. This system can be used for a company or college/school who wants to log the attendance data in Google Sheets such as attendance date, attendance time, and student or employee name. This is a **real time attendance** system. Utilizing Node-MCU along with components such as RFID Reader Module and RFID tags/cards by storing the employee/student information in those. RFID modules work by using radio waves to wirelessly communicate between RFID tags and readers. This technology enables various applications such as inventory tracking, access control, attendance systems, and supply chain management.

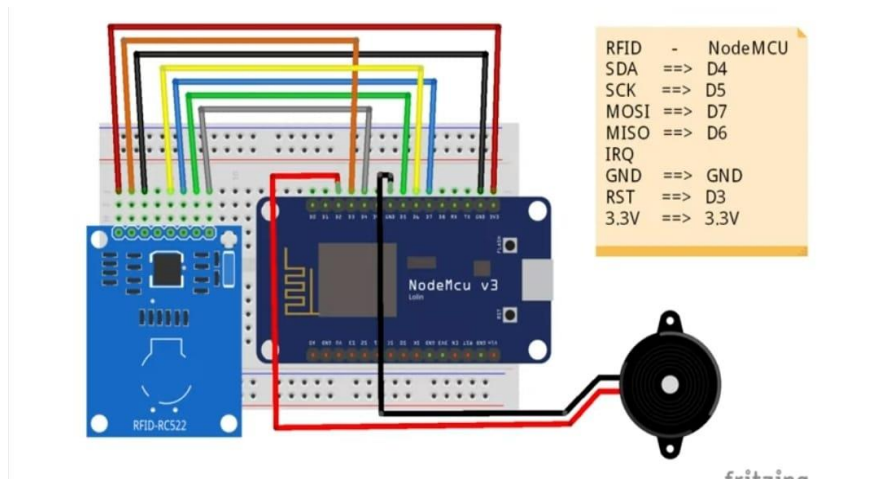
Working:

The **RFID Attendance System using Google Sheets** operates RFID (Radio-Frequency Identification) modules consist of three main components: an RFID tag, an RFID reader, and a controller or processing unit. When an RFID tag enters the read range of an RFID reader, the reader emits radio waves through its antenna & The RFID reader detects the modulated radio waves reflected by the tag and demodulates them to extract the information encoded in the tag's memory.

The reader forwards this information to the controller or processing unit, which can then take further action based on the received data, such as logging the tag's ID, updating a database, or triggering an event. In this case we are using the most convenient way to store this data i.e. Google Sheets. After reading from the tag is done the URL of are sheet is already been linked hence after scanning this data gets updated along with the date and time.

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Circuit Diagram:



Outcome:

1. Helpful in large offices or industries as will help reduced human efforts and time will be saved.
2. Google Sheets offers powerful analytics and reporting features, allowing instructors to analyze attendance trends.

Conclusion:

The RFID Attendance System using Google Sheets is an efficient and reliable solution to enhance attendance systems for large scale purposes.

Reference:

[1] Github

[2] Website :

<https://www.electronicwings.com/nodemcu/rfid-rc522-interfacing-with-nodemcu>

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