RFID Attendance System

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Introduction :

It is a NodeMCU based RFID attendance system. Being a WIFI board, it is connected to WIFI and that makes the project "smart". It uploads the details associated with each RFID UID to Google Sheets. This can be done by using AppScript(.gs). This enables an efficient system which makes taking attendance very easy. Combined with physical attendance, it will become more efficient.

Components Required :

- NodeMCU
- RFID – MFRC522
- LCD Module
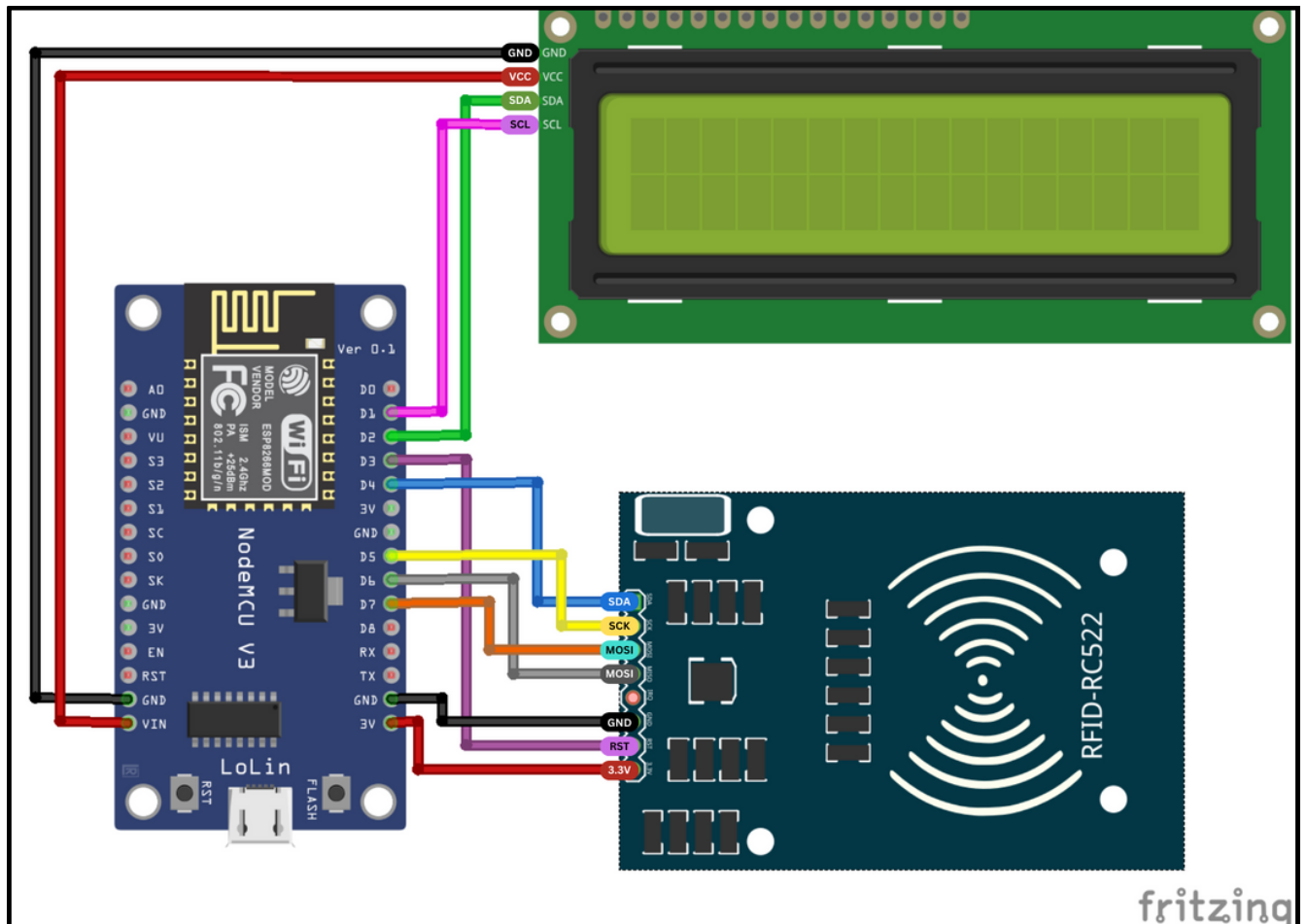- RFID Card and Tag
- Breadboard
- Jumper Wires

Libraries Required :

- SPI.h : For ESP8266 board
- MFRC522.h : For RFID module
- HTTPSRedirect.h : For connection with Google Sheets
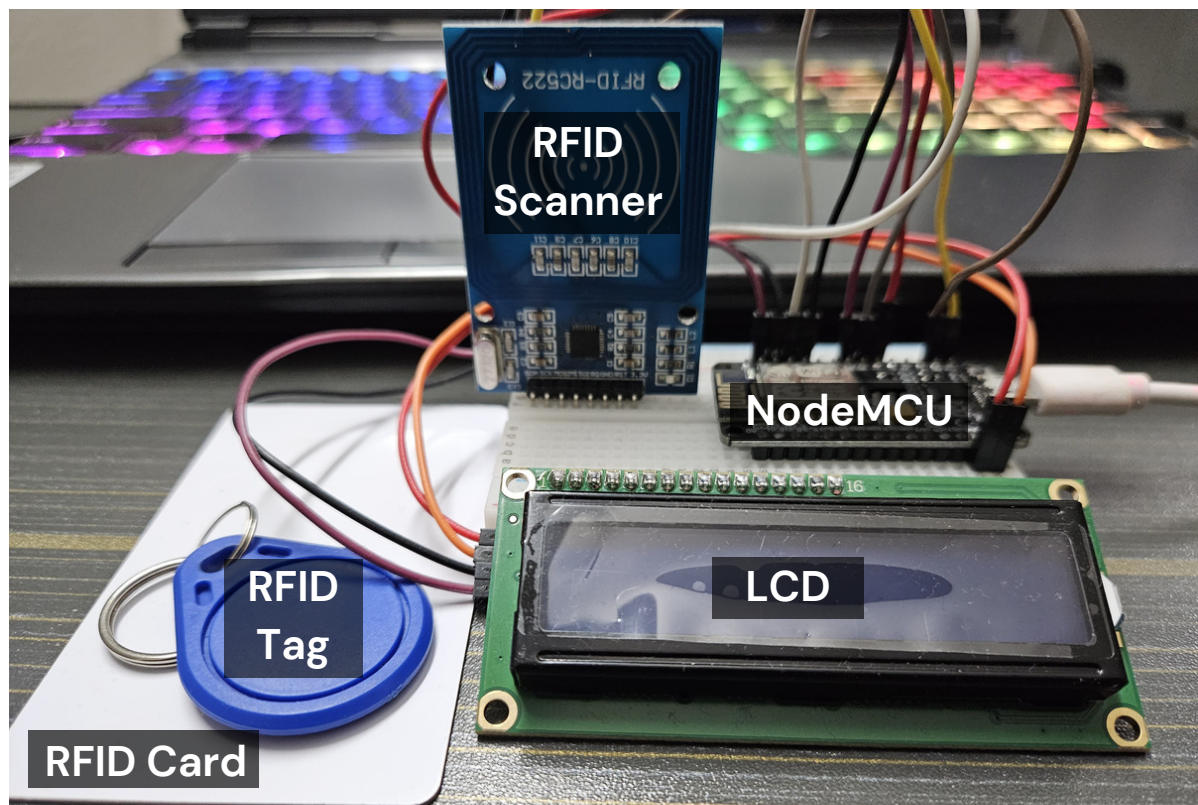- LiquidCrystal_I2C.h : For LCD module

Open – Source Help :

- https://github.com/StorageB/Google-Sheets-Logging
  - It is required for AppScript(.gs) file that runs in the background of the Google Sheets
- https://www.electronicshub.org/write-data-to-rfid-card-using-rc522-rfid/
  - Base required for writing data to RFID card and tag

Circuit Diagram :

Hardware :

Uses :

1. **Educational Institutions :**
   a. RFID attendance systems can be used to track student attendance in classrooms and libraries
   b. Secure access to certain areas of educational institutions.
2. **Workplaces :**
   a. Employee Attendance: Replace traditional manual attendance registers with RFID badges or cards for accurate attendance tracking.
   b. Access Control: Grant access to specific areas based on employee credentials.
   c. Time and Attendance Management: Streamline payroll processing and monitor employee punctuality.
3. **Healthcare** :
   a. Ensure that patients attend appointments, and staff adhere to schedules..
   b. Track the distribution of medications and medical supplies.
4. **Access Control and Security**:
   a. Control access to secure areas within a facility.
   b. Register and monitor the entry and exit of visitors.
   c. Quickly locate lost or misplaced items with RFID tags.
5. **Public Transportation**:
   a. RFID cards for commuters to access public transportation services like buses and trains.
   b. Automatically deduct fares from passengers' RFID cards as they board.