VIETNAM NATIONAL UNIVERSITY, HO CHI MINH CITY

HO CHI MINH CITY UNIVERSITY OF TECHNOLOGY

EMBEDDED SYSTEM PROJECT

TOPIC:

RFID Based Door Lock System Using Arduino Uno

CLASS: TT01 - GROUP: 7 - SEM232

STUDENTS' INFORMATION

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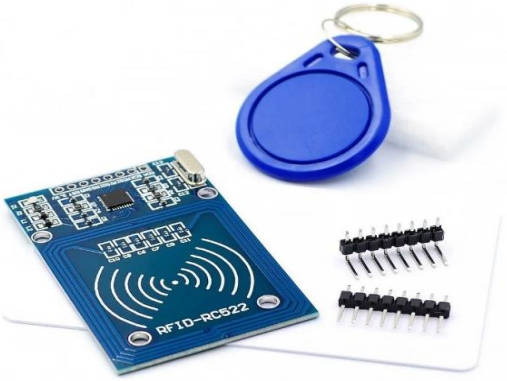
HO CHI MINH CITY, 2024

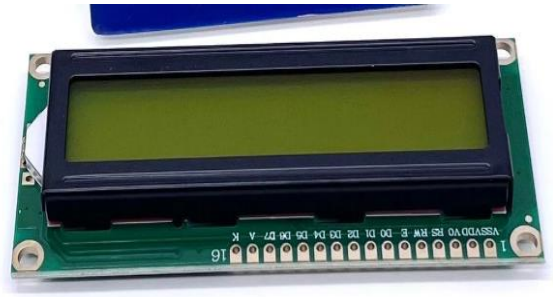
DESIGN SPECIFICATION

Hardware selection

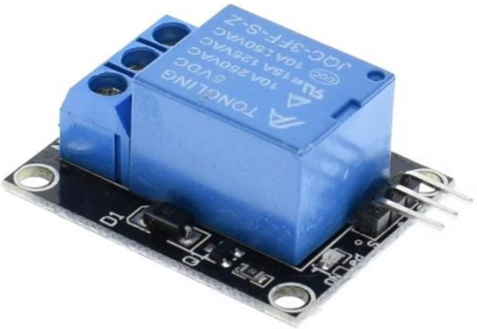
Arduino Uno



RFID Module (RC522)



I2C LCD Display

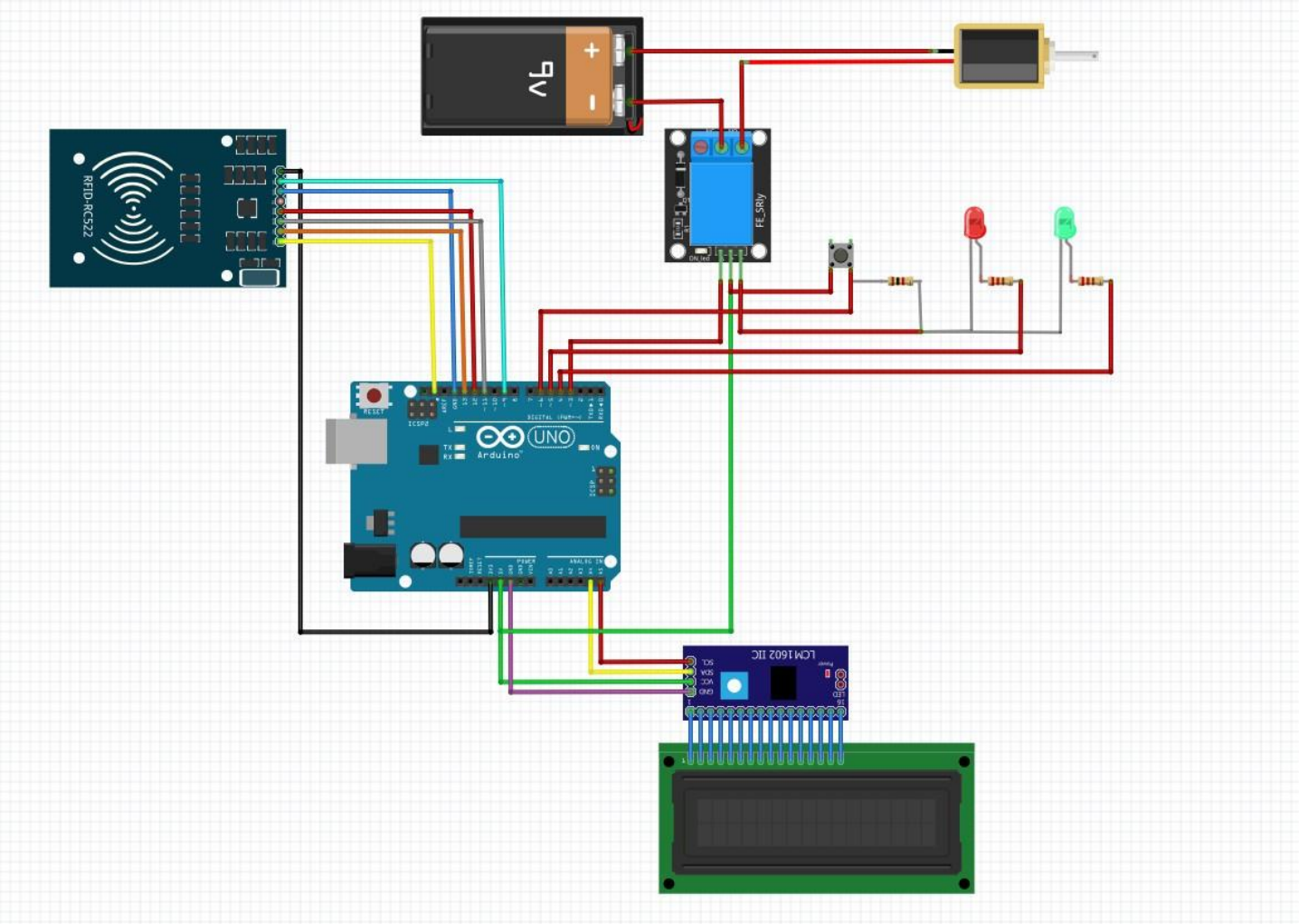


1-Channel Relay Module

Solenoid Lock

I2C module

Schematic



When power ON this door lock, the LCD displays as “Scan your RFID Door Locked”. Then when the RFID tag is moved closer to the RFID reader, it is scanned. Then, if the RFID tag is correct, the solenoid lock is activated, and the lock is pulled back. The LCD shows “Door Unlocked” and the green LED will turn ON. The lock will be pushed forward again after scanning the correct RFID tag in 3 seconds. You can use the push button to unlock the door from inside. If a wrong RFID tag is used according to the program, it will be displayed as “Invalid RFID Tag” on the LCD and the red LED will turn ON.

Block Diagram