Department of Computer Science
Technical University of Cluj-Napoca

Design with Microprocessors

Laboratory project 2019-2020

Project title: Card Detector using RFID module

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Contents

Chapter 1

Hardware Components

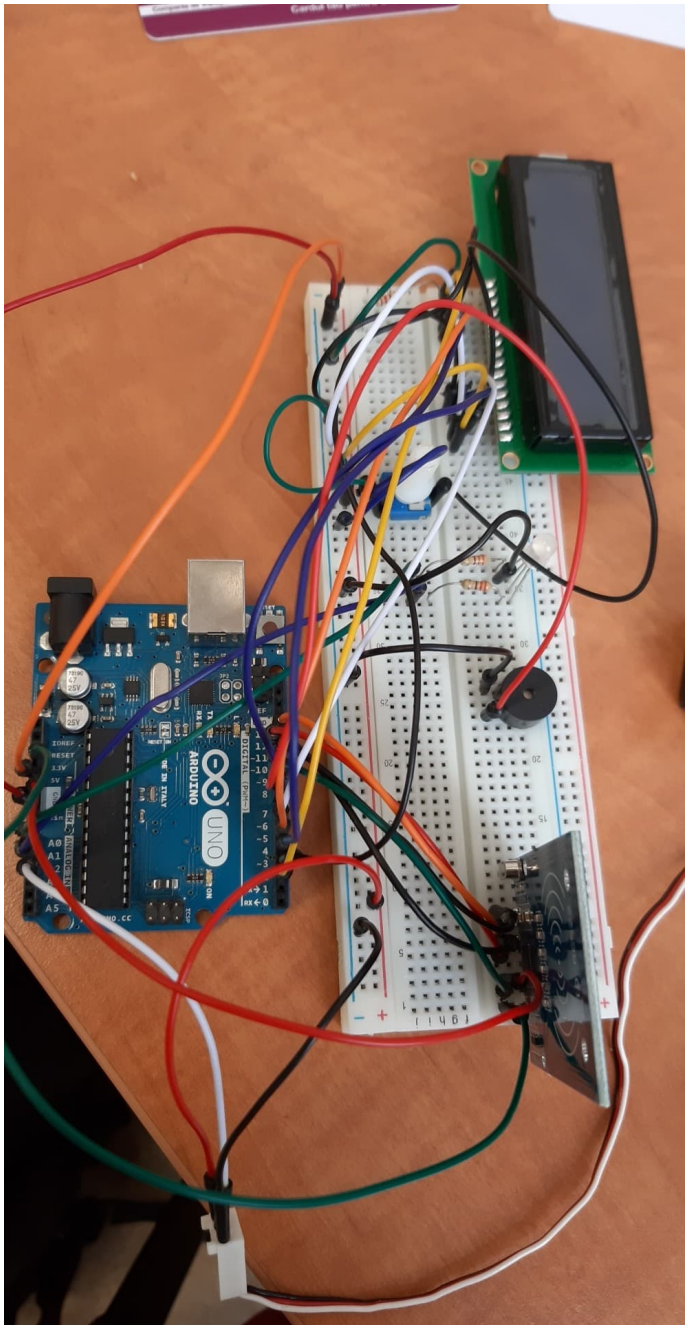
- Arduino UNO board
- RFID RC522 module with different tags
- Adafruit Standard LCD - 16x2 White on Blue
- Servos Motor
- RGB LED
- Buzzer
- Resistor 221 ohm
- Breadboard (generic)
- Jumper wires (generic)

Software apps and online services:

- Arduino IDE

Chapter 2

Schematics



Chapter 3

Description of the project

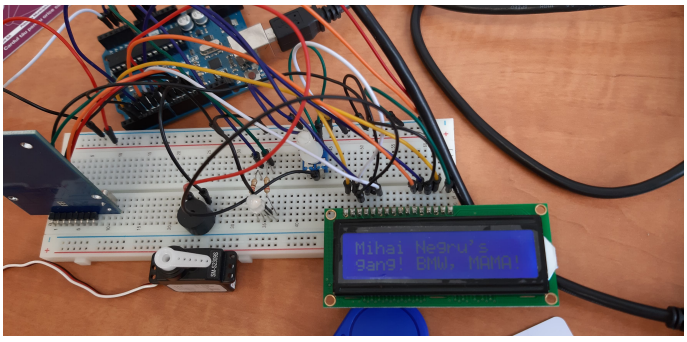
When we see sophisticated door management system(s), the price tag struck immediately along with the utility of-course. So, we decided to test a simple and cheap prototype to see if such a robust system could be developed using the tool of our choice, Arduino Uno.

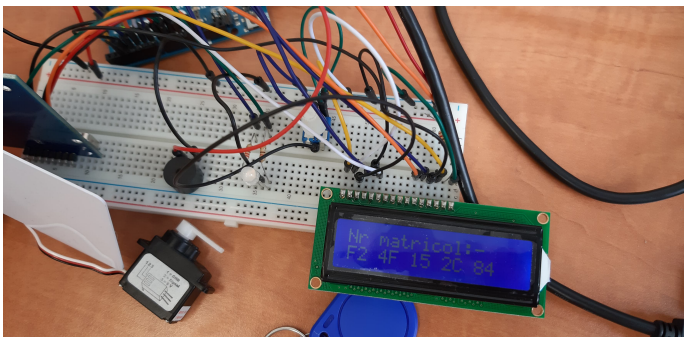
Using the RFID RC522 module and the SPI communication protocol, we scan different tags and get their encription code. In our application we can set a specific tag as the default one. The other ones will be used to show that the access based on the id is denied.

Suggestive messages will be displayed on the LCD such that the user will be guided.

Firstly, a tag is scanned and its unique id will be displayed. If it matches the default one, the RGB LED will turn on yellow/green light, a short music tone will come from the buzzer, then the servo motor will roatate with an angle of 179 degrees and will remain in this position for about 10 seconds.

If the card tag has not the default set id, the RGB led will turn on the red light and another music tone will start. Then the projectb will be set to the begining and other tags can be read.

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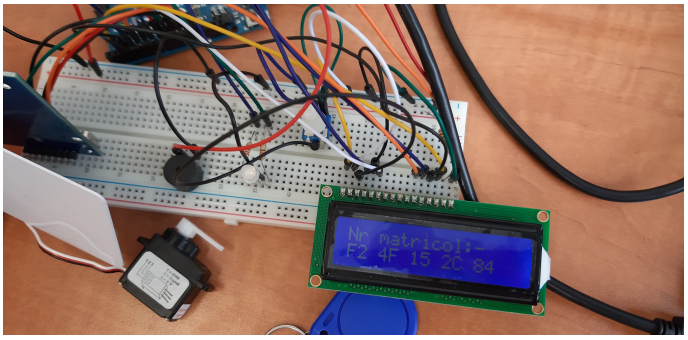
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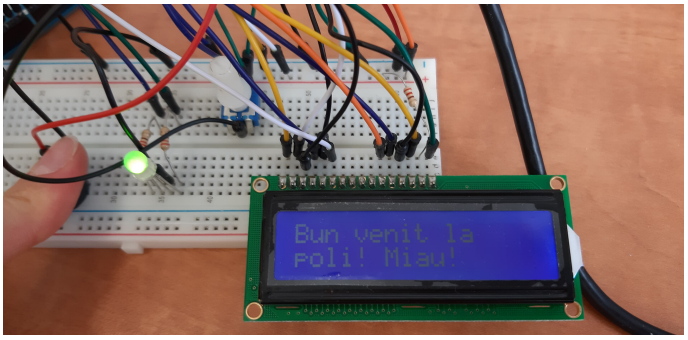
Bun venit la
poli! Miau!


Mai incearca si
la toamna ;)