

Specifications

- Input voltage: 3.3V
- Price: approximately 3\$ ([check best price on Maker Advisor](#))
- Frequency: 13.56MHz

Library download

Here's the library you need for this project:

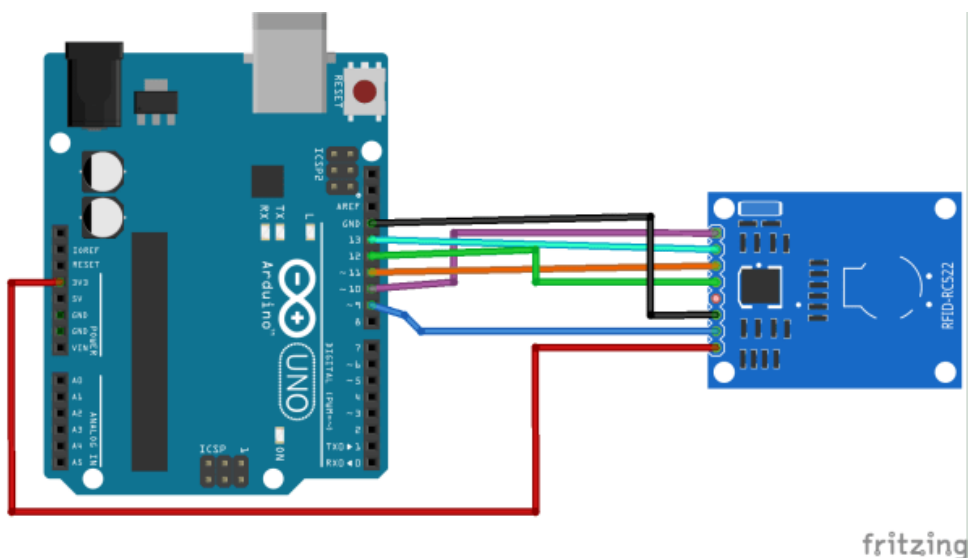
1. Download the [RFID library here](#) created by miguelbalboa
2. Unzip the RFID library
3. Install the RFID library in your Arduino IDE
4. Restart your Arduino IDE

Pin wiring

Pin	Wiring to Arduino Uno
SDA	Digital 10
SCK	Digital 13
MOSI	Digital 11
MISO	Digital 12
IRQ	unconnected
GND	GND
RST	Digital 9
3.3V	3.3V

Caution: You must power this device to 3.3V!

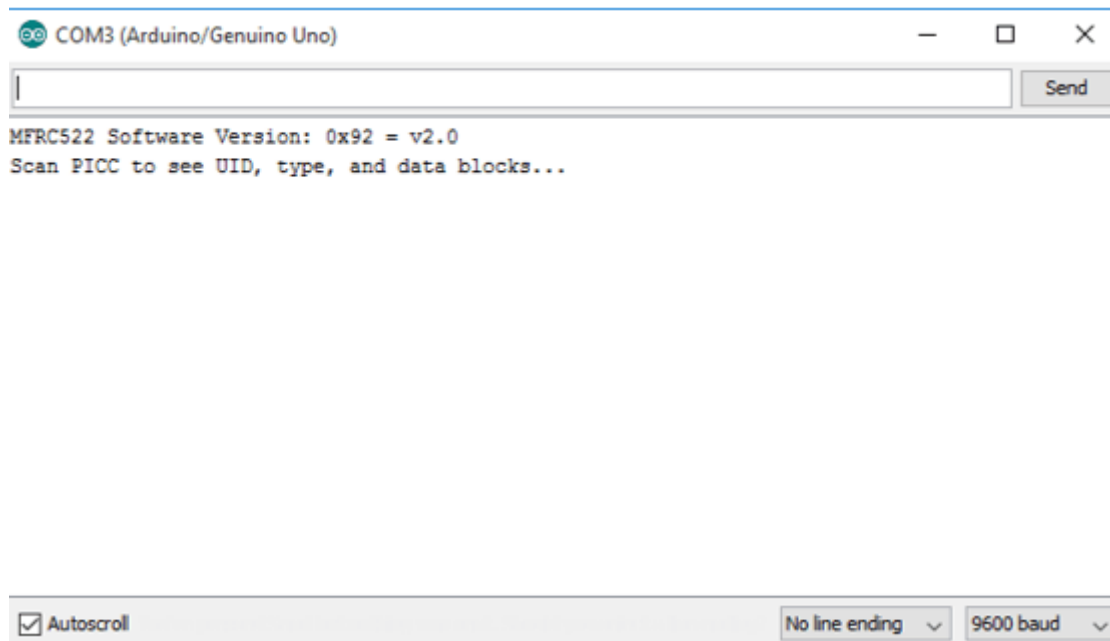
Circuit



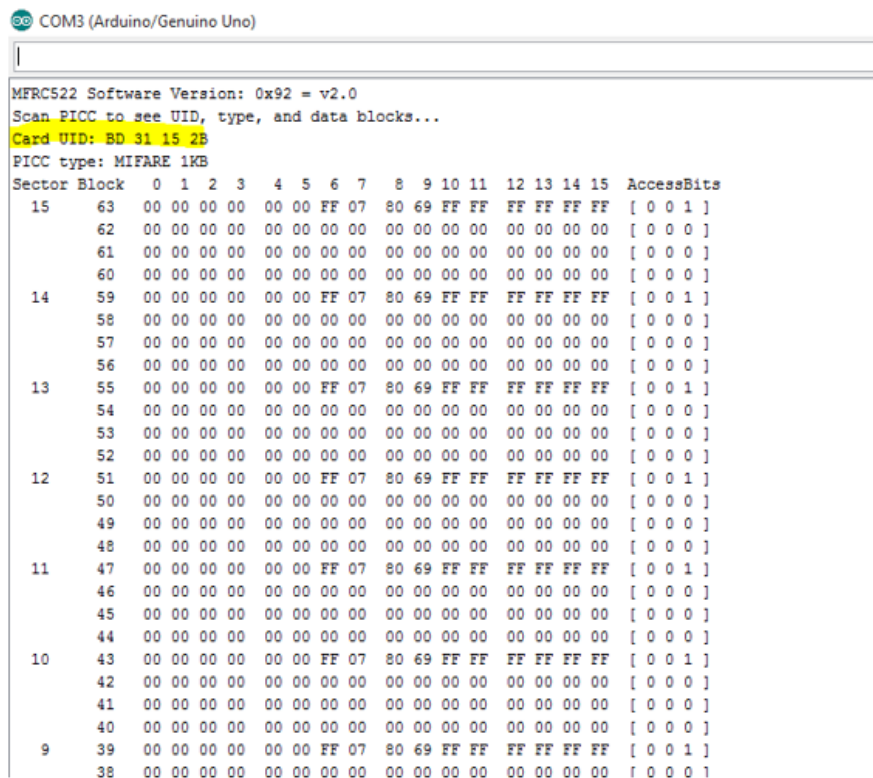
Reading Data from a RFID tag

After having the circuit ready, go to File > Examples > MFRC522 > DumpInfo and upload the code. This code will be available in your Arduino IDE (after installing the RFID library).

Then, open the serial monitor. You should see something like the figure below:



Approximate the RFID card or the keychain to the reader. Let the reader and the tag closer until all the information is displayed.



This is the information that you can read from the card, including the card UID that is highlighted in yellow. The information is stored in the memory that is divided into segments and blocks as you can see in the previous picture.

You have 1024 bytes of data storage divided into 16 sectors and each sector is protected by two different keys, A and B.

Write down your UID card because you'll need it later.

Upload the following code.

```
/*
 *
 * All the resources for this project: https://randomnerdtutorials.com/
 * Modified by Rui Santos
 *
 * Created by FILIPEFLOP
 *
 */

#include <SPI.h>

#include <MFRC522.h>

#define SS_PIN 10

#define RST_PIN 9

MFRC522 mfrc522(SS_PIN, RST_PIN); // Create MFRC522 instance.

void setup()
{
  Serial.begin(9600); // Initiate a serial communication

  SPI.begin(); // Initiate SPI bus

  mfrc522.PCD_Init(); // Initiate MFRC522
```

```

Serial.println("Approximate your card to the reader...");

Serial.println();

}

void loop()

{

  // Look for new cards

  if ( ! mfrc522.PICC_IsNewCardPresent())

  {

    return;

  }

  // Select one of the cards

  if ( ! mfrc522.PICC_ReadCardSerial())

  {

    return;

  }

  //Show UID on serial monitor

  Serial.print("UID tag :");

  String content= "";

  byte letter;

  for (byte i = 0; i < mfrc522.uid.size; i++)

  {

    Serial.print(mfrc522.uid.uidByte[i] < 0x10 ? " 0" : " ");

    Serial.print(mfrc522.uid.uidByte[i], HEX);

    content.concat(String(mfrc522.uid.uidByte[i] < 0x10 ? " 0" : " "));

    content.concat(String(mfrc522.uid.uidByte[i], HEX));

  }

}

```

```

Serial.println();

Serial.print("Message : ");

content.toUpperCase();

if (content.substring(1) == "BD 31 15 2B") //change here the UID of the
card/cards that you want to give access

{

    Serial.println("Authorized access");

    Serial.println();

    delay(3000);

}

else {

    Serial.println(" Access denied");

    delay(3000);

}

}

```

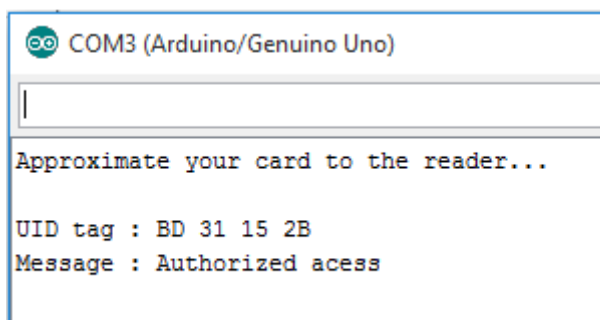
[View raw code](#)

In the piece of code above you need to change the *if (content.substring(1) == "REPLACE WITH YOUR UID")* and type the UID card you've written previously.

Demonstration

Now, upload the code to your Arduino and open the serial monitor.

Approximate the card you've chosen to give access and you'll see:



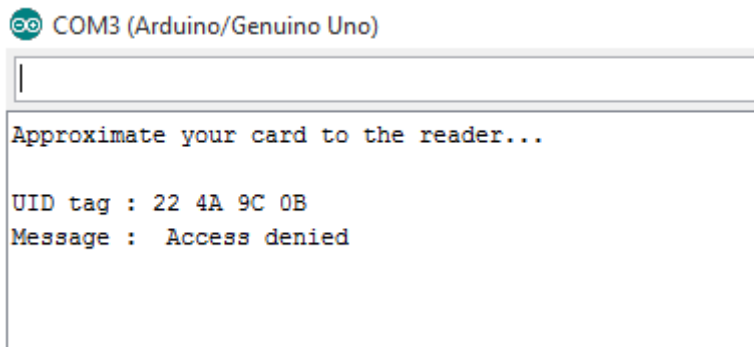
The screenshot shows a serial monitor window titled "COM3 (Arduino/Genuino Uno)". The output text is as follows:

```

Approximate your card to the reader...
UID tag : BD 31 15 2B
Message : Authorized access

```

If you approximate another tag with another UID, the denial message will show up:



```
COM3 (Arduino/Genuino Uno)
|
Approximate your card to the reader...
UID tag : 22 4A 9C 0B
Message : Access denied
```

I hope you found this tutorial useful.

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Thanks for reading,

-Rui Santos