

Cisco Calls This Opportunity the Internet of Everything (IoE)

Networked Connection of People, Process, Data, Things



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RFID

Introducción al Internet del Todo

Aplicación de las Telecomunicaciones

Arduino & Cisco



Introducción al RFID con Arduino.

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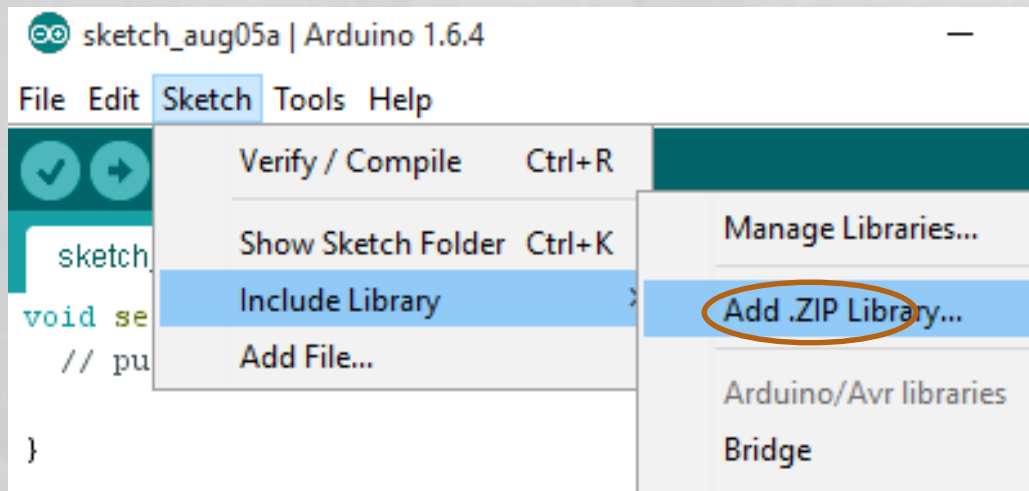
Descripción del Sensor

- **RFID** (siglas de *Radio Frequency IDentification*, en español **identificación por radiofrecuencia**) es un sistema de almacenamiento y recuperación de datos remoto que usa dispositivos denominados **etiquetas, tarjetas, transpondedores o tags RFID**.
- El propósito fundamental de la tecnología RFID es transmitir la identidad de un objeto (similar a un número de serie único) mediante ondas de radio.

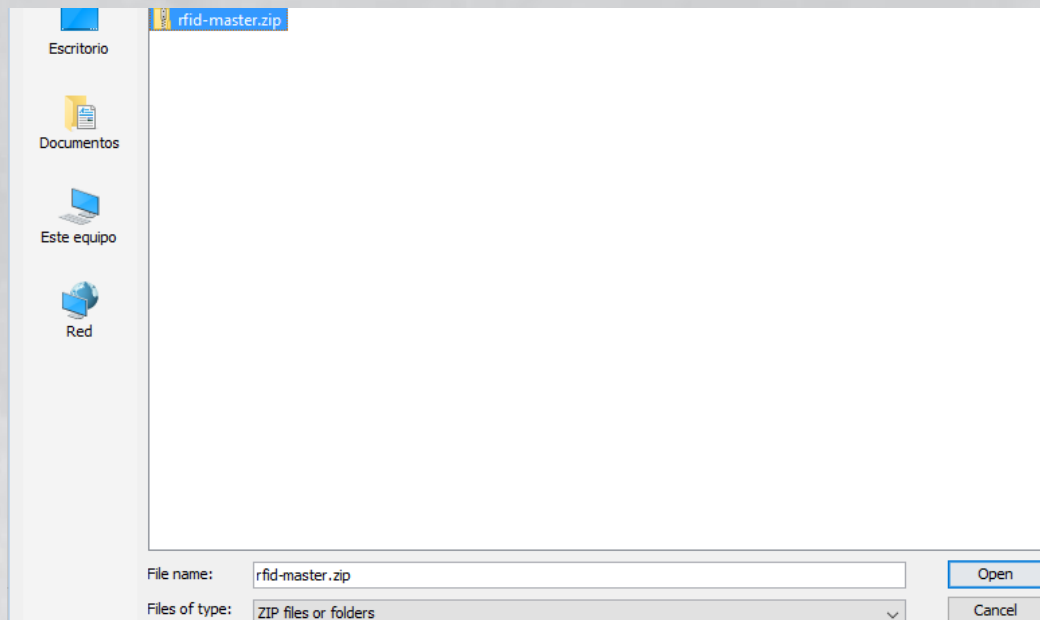
Tabla del Cableado

ARDUINO UNO	RFID RC552
DIGITAL PIN #10	SDA
DIGITAL PIN #13	SCK
DIGITAL PIN #11	MOSI
DIGITAL PIN #12	MISO
N/A	IRQ
POWER GND	GND
DIGITAL PIN #5	RST
POWER 3.3 V	3.3 V

Librería DHT



Reiniciar el programador



SKETCH

```
#include <SPI.h>
#include <MFRC522.h>

#define RST_PIN          5
    //
#define SS_PIN           3
    //

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

void setup() {
    pinMode(SS_PIN, OUTPUT);
    Serial.begin(9600);
    // Initialize serial communications with the
PC
    //while (!Serial);
    // Do nothing if no serial port is opened
(added for Arduinos based on ATMEGA32U4)
    SPI.begin();
    // Init SPI bus
    mfrc522.PCD_Init();
    // Init MFRC522
    ShowReaderDetails();
    // Show details of PCD - MFRC522 Card Reader details
    Serial.println(F("Scan PICC to see UID, type,
and data blocks..."));
}
```

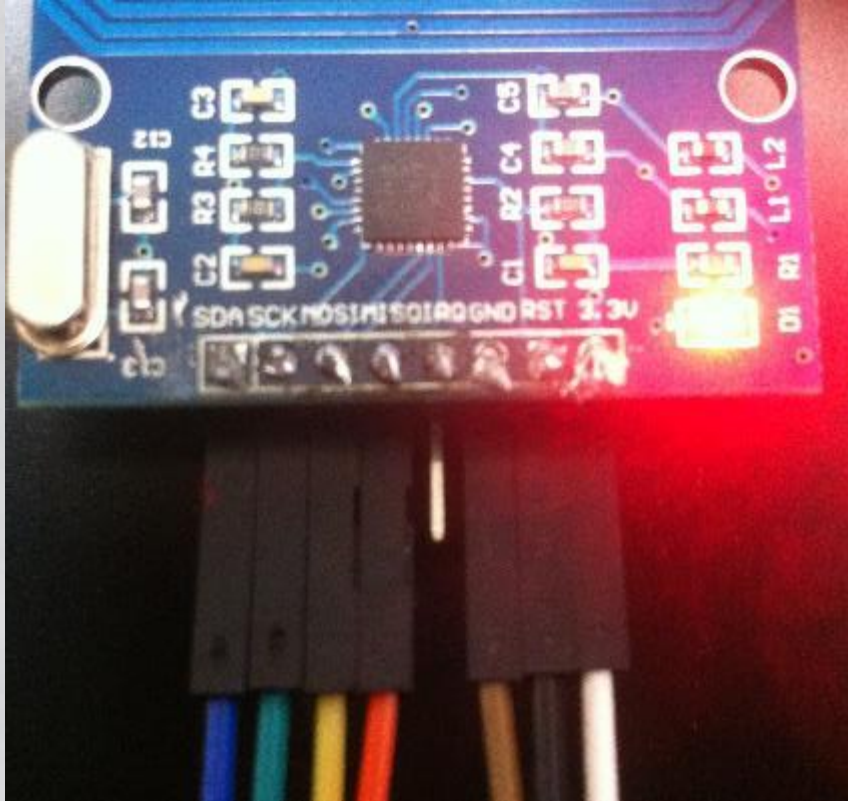
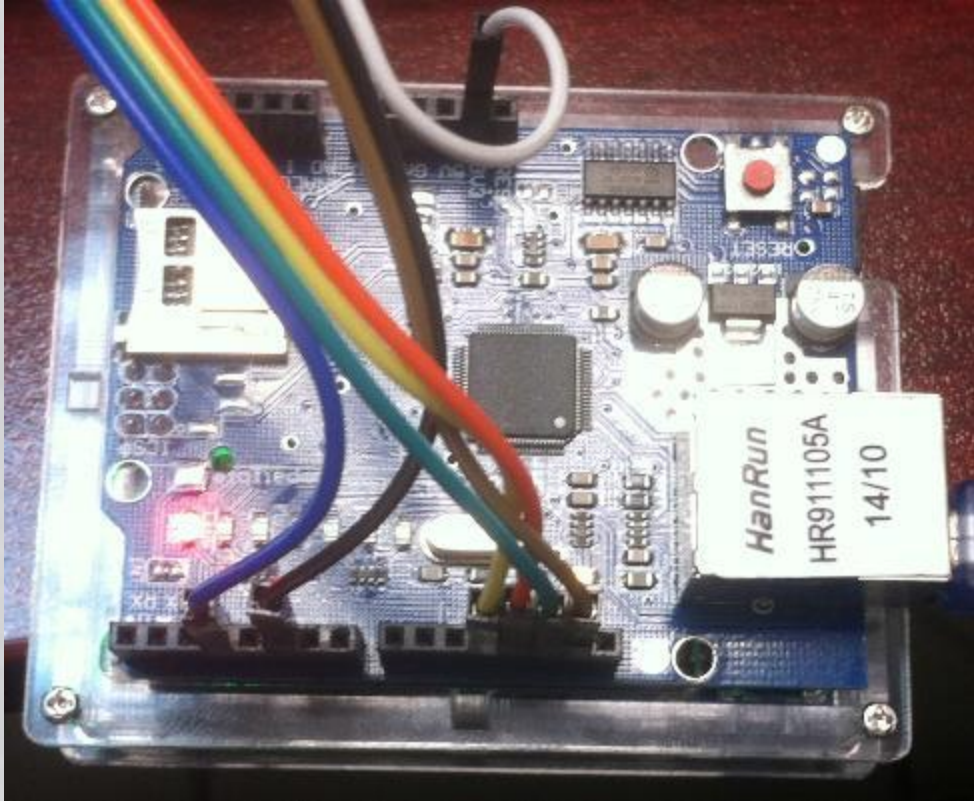
```
void loop() {
    // Look for new cards
    if ( ! mfrc522.PICC_IsNewCardPresent() ) {
        return;
    }

    // Select one of the cards
    if ( ! mfrc522.PICC_ReadCardSerial() ) {
        return;
    }

    // Dump debug info about the card; PICC_HaltA() is
automatically called
    mfrc522.PICC_DumpToSerial(&(mfrc522.uid));
}

void ShowReaderDetails() {
    // Get the MFRC522 software version
    byte v = mfrc522.PCD_ReadRegister(mfrc522.VersionReg);
    Serial.print(F("MFRC522 Software Version: 0x"));
    Serial.print(v, HEX);
    if (v == 0x91)
        Serial.print(F(" = v1.0"));
    else if (v == 0x92)
        Serial.print(F(" = v2.0"));
    else
        Serial.print(F(" (unknown)"));
    Serial.println("");
    // When 0x00 or 0xFF is returned, communication probably
failed
    if ((v == 0x00) || (v == 0xFF)) {
        Serial.println(F("WARNING: Communication
failure, is the MFRC522 properly connected?"));
    }
}
```

Conexiones



Prueba #1

```
COM5 (Arduino Uno)

Scan a MIFARE Classic PICC to demonstrate Value Block mode.
Using key (for A and B): FF FF FF FF FF FF
BEMWARE: Data will be written to the PICC, in sector #1
Card UID: 13 BF F5 00
PICC type: MIFARE 1KB
Authenticating using key A...
Current data in sector:
  1   7  00 00 00 00 00 00 FF 07 80 69 FF FF FF FF FF FF [ 0 0 1 ]
      6  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 [ 0 0 0 ]
      5  20 20 20 20 20 20 20 20 20 20 20 2B 00 [ 0 0 0 ]
      4  72 61 75 6C 20 20 20 20 20 20 20 20 20 20 [ 0 0 0 ]

Reading sector trailer...
Writing new sector trailer...
Authenticating again using key B...
Reading block 5
Formatting as Value Block...
Reading block 6
Formatting as Value Block...
Adding 1 to value of block 5
New value of value block 5 = 1
Subtracting 10 from value of block 6
New value of value block 6 = -10
  1   7  00 00 00 00 00 00 19 67 8E 00 00 00 00 00 00 [ 0 1 1 ]
      6  F6 FF FF FF 09 00 00 00 F6 FF FF FF 06 F9 06 F9 [ 1 1 0 ] Value=0xFFFFFFFF6 Adr=0x6
      5  01 00 00 00 FE FF FF FF 01 00 00 00 05 FA 05 FA [ 1 1 0 ] Value=0x1 Adr=0x5
      4  MIFARE_Read() failed: A MIFARE PICC responded with NAK.
```

Autoscroll No line ending 9600 baud