keyestudio

ITEAD PN532 NFC MODULE

Module: KT0087

Introduction

ITEAD PN532 NFC module, as its name indicates, is based on chip PN532 and applies in 13.56MHz NFC. This module is equipped with onboard antenna, so there is no antenna coils in its outer part. It is compatible with SPI, IIC, UART port during communications. Since the NFC supports Arduino and the Raspberry Pi we supply has the NFC function, the operation is easier.

Features:

The longest effective communication distance is 5cm. Support the interface switching of SPI, IIC AND UART. Apply in 13.56M non-touchable communication. Compatible with the standard of ISO14443 TYPE A & B.

Specification:

Chip: NXP PN5
Working volt: 3.3V
Supply volt: 3.3～5.5V
Max current: 150 mAh
Working current (standby mode): 100 mAh
Working current (writing mode): 120 mAh
Working current (reading mode): 120 mAh
Pointer: PWR
Interface: standard SPI

Connecting NCF:

NCF_5V->UNO_5V
NCF_GND->UNO_GND
NCF_NSS->UNO_D10
NCF_MO->UNO_D10
NCF_MI->UNO_D10
NCF_SCK->UNO_D10

There are 2 slide switches on this board for interface selection:

	SET0	SET1
UART	L	L
SPI	L	H
IIC	H	L

Reference program :

```
//This example reads a MIFARE memory block. It is tested with a new MIFARE 1K cards. Uses default keys.
//Contributed by Seeed Technology Inc (www.seeedstudio.com)
#include <PN532.h>        //Get the Libraries of PN532:    https://drive.google.com/open?id=1PHDePQzTCWEht9Js6X1aJkbW_N8gAjQm
#include <SPI.h>          //Get the Libraries ofSPI:       https://drive.google.com/open?id=171BsjAyEi8_X69Nc37KXtd8SyyK41nz5
#define PN532_CS 10             //Chip select pin can be connected to D10 or D9 which is hareware optional
                                //if you the version of NFC Shield from SeeedStudio is v2.0.
PN532 nfc(PN532_CS);
#define  NFC_DEMO_DEBUG 1

void setup(void) {
#ifdef NFC_DEMO_DEBUG
  Serial.begin(9600);
  Serial.println("Hello!");
#endif
  nfc.begin();
   }
  uint32_t versiondata = nfc.getFirmwareVersion();
  if (! versiondata) {
#ifdef NFC_DEMO_DEBUG
    Serial.print("Didn't find PN53x board");
#endif
    while (1); // halt
  }
#ifdef NFC_DEMO_DEBUG
  // Got ok data, print it out!
  Serial.print("Found chip PN5");
  Serial.println((versiondata>>24) & 0xFF, HEX);
  Serial.print("Firmware ver. ");
  Serial.print((versiondata>>16) & 0xFF, DEC);
  Serial.print('.');
  Serial.println((versiondata>>8) & 0xFF, DEC);
  Serial.print("Supports ");
  Serial.println(versiondata & 0xFF, HEX);
#endif
  // configure board to read RFID tags and cards
```

```
  nfc.SAMConfig();
}

void loop(void) {
  uint32_t id;
  // look for MiFare type cards
  id = nfc.readPassiveTargetID(PN532_MIFARE_ISO14443A);

  if (id != 0)
  {
#ifdef NFC_DEMO_DEBUG
    Serial.print("Read card #");
    Serial.println(id);
#endif
    uint8_t keys[]= { 0xFF,0xFF,0xFF,0xFF,0xFF,0xFF };
    if(nfc.authenticateBlock(1, id ,0x08,KEY_A,keys)) //authenticate block 0x08
    {
      //if authentication successful
      uint8_t block[16];
      //read memory block 0x08
      if(nfc.readMemoryBlock(1,0x08,block))
      {
#ifdef NFC_DEMO_DEBUG
        //if read operation is successful
        for(uint8_t i=0;i<16;i++)
        {
          //print memory block
          Serial.print(block[i],HEX);
          Serial.print(" ");
        }
        Serial.println();
#endif
      }
    }
  }
 delay(500);
}
```

Test Result:

I'n the experiment, we use SPI communication, and SCK, MI, MO and NSS on the shield is connected with jumper cap. Dial SET0 to L, SET1 to H. After wiring and uploading the code to the board, open the serial monitor, respectively using S50 Fudan card and key chain to test it, you will get the information as the figure shown blow: