Practical 9

Aim: Interfacing Raspberry Pi with RFID

1. Enable I2C on Raspberry Pi

- Run in terminal:

  sudo raspi-config

- Go to:
  Interfacing Options → I2C → Enable it.

2. Install Required Packages

Run the following commands:

```
sudo apt-get install libusb-dev libpcsclite-dev i2c-tools
```

3. Download and Extract libnfc Library

```
cd ~
wget http://dl.bintray.com/nfc-tools/sources/libnfc-1.7.1.tar.bz2
tar -xf libnfc-1.7.1.tar.bz2
```

4. Compile and Install libnfc

```
cd libnfc-1.7.1
./configure --prefix=/usr --sysconfdir=/etc
make
sudo make install
```

5. Configure NFC Settings

Create and edit configuration file:

```
sudo mkdir /etc/nfc
sudo nano /etc/nfc/libnfc.conf
```

Paste the following content:

```
allow_autoscan = true
allow_intrusive_scan = false
```

log_level = 1

device.name = "_PN532_I2c"

device.connstring = "pn532_i2c:/dev/i2c-1"

Save and exit (Ctrl + O, Enter, then Ctrl + X).

6. Hardware Wiring

Set PN532 RFID module to **I2C mode** using switch:

- SEL0 = HIGH, SEL1 = LOW

Connect as:

PN532	**Raspberry Pi**
5V	Pin 4 (5V)
GND	Pin 6 (GND)
SDA	Pin 3 (GPIO 2)
SCL	Pin 5 (GPIO 3)

7. Check Connection

- Detect I2C device:

  i2cdetect -y 1

- List NFC devices:

  nfc-list

- Scan RFID tag:

  nfc-poll

Python Code for Reading RFID:

Save this code as rfid_reader.py:

```
import subprocess
import time


def nfc_raw():
   lines = subprocess.check_output("/usr/bin/nfc-poll", stderr=open('/dev/null','w'))
```

```
    return lines

def read_nfc():
    lines = nfc_raw()
    return lines

try:
    while True:
        myLines = read_nfc()
        buffer = []
        for line in myLines.splitlines():
            line_content = line.split()
            if(not line_content[0] == 'UID'):
                pass
            else:
                buffer.append(line_content)
        str = buffer[0]
        id_str = str[2]+str[3]+str[4]+str[5]
        print(id_str)

except KeyboardInterrupt:
    pass
```

Run the code:

```
python rfid_reader.py
```