**NRF TRANSCEIVER**

COMPONENTS :

CONNECTIONS :

The code you've provided is for communication using the NRF24L01 wireless transceiver modules. These modules use SPI communication and require several connections to set up communication between two devices. Let's break down the connections:

cpp

Copy code

#include <SPI.h>

#include <RF24.h>

#include <nRF24L01.h>

RF24 nrf(9, 8); // CE, CSN

const byte address[6] = {0xAB, 0xCD, 0xAB, 0xCD, 0x01, 0x00};

* RF24 nrf(9, 8);: This line initializes the RF24 object named nrf. The parameters 9 and 8 are the pin numbers connected to the CE (Chip Enable) and CSN (Chip Select Not) pins on the NRF24L01 module.
* const byte address[6] = {0xAB, 0xCD, 0xAB, 0xCD, 0x01, 0x00};: This sets up the address that will be used for communication. Both the transmitting and receiving modules need to have the same address for successful communication.

Now, let's talk about the physical connections:

* NRF24L01 Module to Arduino:
  + VCC -> 3.3V: Connect the VCC pin on the NRF24L01 module to the 3.3V output on the Arduino. Make sure not to connect it to 5V, as the NRF24L01 operates on 3.3V.
  + GND -> GND: Connect the GND pin on the NRF24L01 module to the ground on the Arduino.
  + CE -> Pin 9: Connect the CE pin on the NRF24L01 module to digital pin 9 on the Arduino.
  + CSN -> Pin 8: Connect the CSN pin on the NRF24L01 module to digital pin 8 on the Arduino.
  + SCK -> Pin 13: Connect the SCK pin on the NRF24L01 module to the SCK pin (pin 13) on the Arduino.
  + MOSI -> Pin 11: Connect the MOSI pin on the NRF24L01 module to the MOSI pin (pin 11) on the Arduino.
  + MISO -> Pin 12: Connect the MISO pin on the NRF24L01 module to the MISO pin (pin 12) on the Arduino.

**Nrf transmitter code :**

**#include <SPI.h>**

**#include <RF24.h>**

**RF24 radio(9, 8); // CE, CSN**

**const byte address[6] = {0xAB, 0xCD, 0xAB, 0xCD, 0x01, 0x00};**

**int i;**

**void setup() {**

**Serial.begin(9600);**

**radio.begin();**

**radio.openWritingPipe(address);**

**radio.setPALevel(RF24\_PA\_MAX);**

**radio.stopListening();**

**}**

**void loop() {**

**for (int i = 1; i <= 1000; ++i) {**

**// Send the data and check for success**

**if (radio.write(&i, sizeof(i))) {**

**Serial.println("Transmission successful: " + String(i));**

**} else {**

**Serial.println("Transmission failed: " + String(i));**

**}**

**delay(1000);**

**}**

**}**

**Receiver code :**

**#include <SPI.h>**

**#include <RF24.h>**

**#include <nRF24L01.h>**

**RF24 nrf(9, 8); // CE, CSN**

**const byte address[6] = {0xAB, 0xCD, 0xAB, 0xCD, 0x01, 0x00};**

**void setup() {**

**Serial.begin(9600);**

**nrf.begin();**

**nrf.openReadingPipe(1, address);**

**nrf.setPALevel(RF24\_PA\_MAX);**

**nrf.startListening();**

**}**

**void loop() {**

**if (nrf.available()) {**

**int i;**

**nrf.read(&i, sizeof(i));**

**Serial.println("Received: " + String(i));**

**} else {**

**Serial.println("No signal received");**

**}**

**delay(1000); // Optional delay to control serial output rate**

**}**