Hardware Code

Transmitter Code (MCU is ESP32, Arduino IDE)

```
/*********
  Modified from the examples of the Arduino LoRa library
  More resources: https://randomnerdtutorials.com
*********/

#include <SPI.h>
#include <LoRa.h>

//define the pins used by the transceiver module
#define ss 5
#define rst 14
#define dio0 2

int counter = 0;

void setup() {
  //initialize Serial Monitor
  Serial.begin(115200);
  while (!Serial);
  Serial.println("LoRa Sender");

  //setup LoRa transceiver module
  LoRa.setPins(ss, rst, dio0);

  //replace the LoRa.begin(---E-) argument with your location's
frequency
  //433E6 for Asia
  //866E6 for Europe
  //915E6 for North America
      // because the transceiver hardware is RFM96-433S2,
      // the operating frequency for the module is 433MHz
  while (!LoRa.begin(433E6)) {
    Serial.println(".");
    delay(500);
  }
   // Change sync word (0xF3) to match the receiver
```

```
  // The sync word assures you don't get LoRa messages from
other LoRa transceivers
  // ranges from 0-0xFF
  LoRa.setSyncWord(0xF3);
  Serial.println("LoRa Initializing OK!");
}

void loop() {
  Serial.print("Sending packet: ");
  Serial.println(counter);

  //Send LoRa packet to receiver
  LoRa.beginPacket();
  LoRa.print("hello ");
  LoRa.print(counter);
  LoRa.endPacket();

  counter++;

  delay(10000);
}
```

Receiver Code (MCU is Arduino Uno, Arduino IDE)

```
/*********
  Modified from the examples of the Arduino LoRa library
  More resources: https://randomnerdtutorials.com
*********/

#include <SPI.h>
#include <LoRa.h>

//define the pins used by the transceiver module
#define ss 5
#define rst 14
#define dio0 2

void setup() {
  //initialize Serial Monitor
  Serial.begin(115200);
```

```
  while (!Serial);
  Serial.println("LoRa Receiver");

  //replace the LoRa.begin(---E-) argument with your location's
frequency
  //433E6 for Asia
  //866E6 for Europe
  //915E6 for North America
      // because the transceiver hardware is RFM96-433S2,
      // the operating frequency for the module is 433MHz
  while (!LoRa.begin(433E6)) {
    Serial.println(".");
    delay(500);
  }
   // Change sync word (0xF3) to match the receiver
  // The sync word assures you don't get LoRa messages from
other LoRa transceivers
  // ranges from 0-0xFF
  LoRa.setSyncWord(0xF3);
  Serial.println("LoRa Initializing OK!");
}

void loop() {
  // try to parse packet
  int packetSize = LoRa.parsePacket();
  if (packetSize) {
    // received a packet
    Serial.print("Received packet '");

    // read packet
    while (LoRa.available()) {
      String LoRaData = LoRa.readString();
      Serial.print(LoRaData);
    }

    // print RSSI of packet
    Serial.print("' with RSSI ");
    Serial.println(LoRa.packetRssi());
  }
}
```

Reference

1. https://randomnerdtutorials.com/esp32-lora-rfm95-transceiver-arduino-ide/