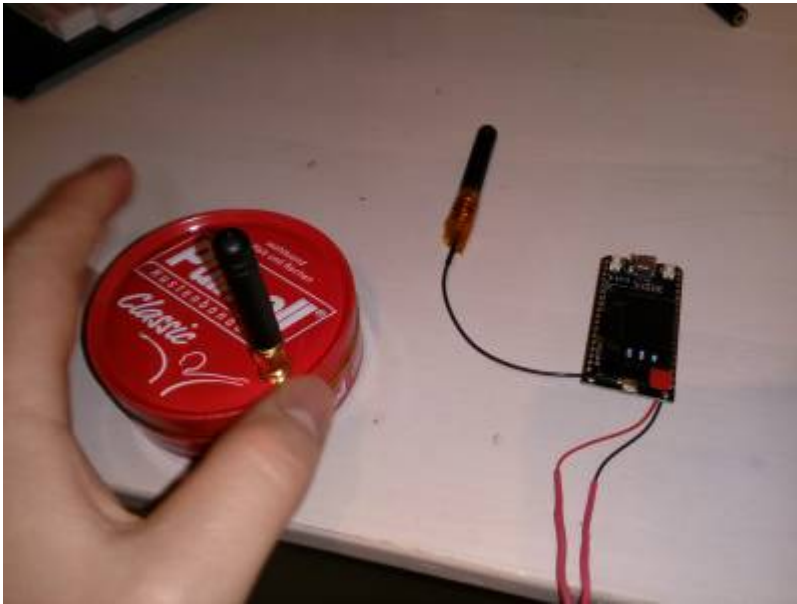


LoRa - Long range network



Übersicht

Mitlerweile gibt es China LoRa module wie Sand am Meer. [ESP32 LoRa Module](#) Das Modul hat ein kleines Oled Display, LoRa und ein ESP32 onBoard. Hier ein kleiner netter Beispiel sketch für Senden und Empfangen.

Ich hafte nicht für den Code, den ich weiß zugegeben nicht ob der Sketch den EU Richtlinien entspricht. Nutzen auf eigene Gefahr! In der LoRa Lib muss auf alle Fälle die Leistung heruntergestellt werden.

Sender

[sender.cpp](#)

```
// This example just provide basic LoRa function test;  
// Not the LoRa's farthest distance or strongest interference immunity.  
// For more informations, please vist www.heltec.cn or mail to  
// support@heltec.cn  
  
#include <SPI.h>  
#include <LoRa.h>  
#include <Arduino.h>  
#include "SSD1306.h "  
// WIFI_LoRa_32 ports  
  
// GPIO5 -- SX1278's SCK  
// GPIO19 -- SX1278's MISO
```

```
// GPIO27 -- SX1278's MOSI
// GPIO18 -- SX1278's CS
// GPIO14 -- SX1278's RESET
// GPIO26 -- SX1278's IRQ(Interrupt Request)

#define SS      18
#define RST     14
#define DI0     26
#define BAND    833E6 //915E6 -- 这里的模式选择中，检查一下是否可在中国实用915
这个频段

int counter = 0;
int counter2 = 0;
SSD1306 display(0x3c, 4, 15);

void setup() {
    pinMode(25,OUTPUT); //Send success, LED will bright 1 second

    Serial.begin(115200);
    while (!Serial); //If just the the basic function, must connect to a
computer

    SPI.begin(5,19,27,18);
    LoRa.setPins(SS,RST,DI0);
    // Serial.println("LoRa Sender");

    if (!LoRa.begin(BAND)) {
        Serial.println("Starting LoRa failed!");
        while (1);
    }
    Serial.println("LoRa Initial OK!");

    pinMode(16,OUTPUT);
    digitalWrite(16, LOW); // set GPIO16 low to reset OLED
    delay(50);
    digitalWrite(16, HIGH); // while OLED is running, must set GPIO16 in
high

    display.init();
    display.setContrast(255);
}
void fillRect(void) {
    uint8_t color = 1;
    for (int16_t i=0; i<DISPLAY_HEIGHT/2; i+=3) {
        display.setColor((color % 2 == 0) ? BLACK : WHITE); // alternate
colors
        display.fillRect(i, i, DISPLAY_WIDTH - i*2, DISPLAY_HEIGHT - i*2);
        display.display();
        delay(10);
        color++;
    }
}
```

```
// Reset back to WHITE
display.setColor(WHITE);
}

unsigned long previousMillis = 0;

void loop() {
  int packetSize = LoRa.parsePacket();
  if (packetSize) {
    // received a packet
    Serial.print("Received packet ");
    display.clear();
    display.setColor(WHITE); // alternate colors
    display.drawString(0, 0, String(counter,DEC));
    display.drawString(0, 20, String(++counter2,DEC));
    display.drawString(0, 40, String(LoRa.packetRssi(),DEC));
    display.display();
    // read packet
    while (LoRa.available()) {
      Serial.print((char)LoRa.read());
    }

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

  unsigned long currentMillis = millis();

  if (currentMillis - previousMillis >= 2000) {
    previousMillis = currentMillis;
    // send packet
    Serial.print("Sending packet: ");
    Serial.println(counter);
    LoRa.beginPacket();
    LoRa.print("hello ");
    LoRa.print(counter);
    LoRa.endPacket();
    display.clear();
    display.setColor(WHITE); // alternate colors
    display.drawString(0, 0, String(counter++,DEC));
    display.drawString(0, 20, String(counter2,DEC));
    display.drawString(0, 40, String(LoRa.packetRssi(),DEC));
    display.display();
  }
}
```

Empfänger

receiver.cpp

```
// This example just provide basic LoRa function test;
// Not the LoRa's farthest distance or strongest interference immunity.
// For more informations, please vist www.heltec.cn or mail to
support@heltec.cn

#include <SPI.h>
#include <LoRa.h>
#include <Arduino.h>
#include "SSD1306.h "
// WIFI_LoRa_32 ports

// GPIO5  -- SX1278's SCK
// GPIO19 -- SX1278's MISO
// GPIO27 -- SX1278's MOSI
// GPIO18 -- SX1278's CS
// GPIO14 -- SX1278's RESET
// GPIO26 -- SX1278's IRQ(Interrupt Request)

#define SS      18
#define RST     14
#define DI0     26
#define BAND    833E6 //915E6 -- 这里的模式选择中，检查一下是否可在中国实用915
这个频段

int counter = 0;

SSD1306 display(0x3c, 4, 15);

void setup() {
    pinMode(25,OUTPUT); //Send success, LED will bright 1 second

    Serial.begin(115200);
    while (!Serial); //If just the the basic function, must connect to a
computer

    SPI.begin(5,19,27,18);
    LoRa.setPins(SS,RST,DI0);
    // Serial.println("LoRa Sender");

    if (!LoRa.begin(BAND)) {
        Serial.println("Starting LoRa failed!");
        while (1);
    }
    Serial.println("LoRa Initial OK!");
}
```

```
pinMode(16, OUTPUT);
digitalWrite(16, LOW);    // set GPIO16 low to reset OLED
delay(50);
digitalWrite(16, HIGH); // while OLED is running, must set GPIO16 in
high

display.init();
display.setContrast(255);

// register the receive callback
//LoRa.onReceive(onReceive);

// put the radio into receive mode
//LoRa.receive();
}
void fillRect(void) {
    uint8_t color = 1;
    for (int16_t i=0; i<DISPLAY_HEIGHT/2; i+=3) {
        display.setColor((color % 2 == 0) ? BLACK : WHITE); // alternate
colors
        display.fillRect(i, i, DISPLAY_WIDTH - i*2, DISPLAY_HEIGHT - i*2);
        display.display();
        delay(10);
        color++;
    }
    // Reset back to WHITE
    display.setColor(WHITE);
}
void loop() {
    int packetSize = LoRa.parsePacket();
    if (packetSize) {
        // received a packet
        Serial.print("Received packet ");
        display.clear();
        display.setColor(WHITE); // alternate colors
        display.drawString(0, 0, String(counter++, DEC));
        display.drawString(0, 20, String(LoRa.packetRssi(), DEC));
        display.display();
        // read packet
        while (LoRa.available()) {
            Serial.print((char)LoRa.read());
        }
        Serial.println("Send back");
        LoRa.beginPacket();
        LoRa.print("ACK ");
        LoRa.print(counter);
        LoRa.endPacket();

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

```
}  
}
```

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