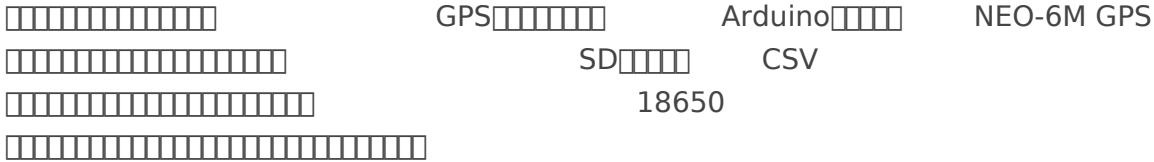


???GPS?????

pplx-full-logo-primary-dark%402x.png

??????

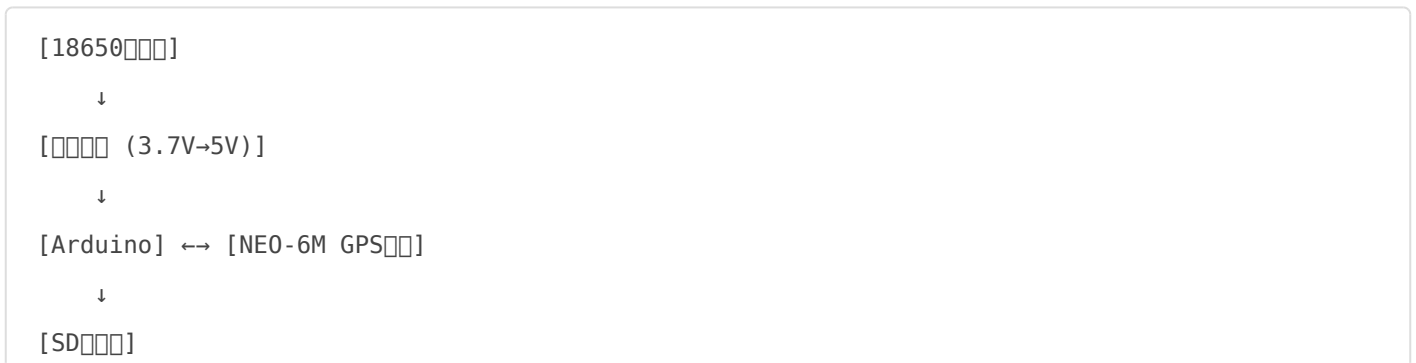


??????

1. ?????

□□□	□□ / □□	□□□
□□□	Arduino UNO/Nano	□□□□□□
GPS□□	NEO-6M	□□□□□□□□
SD□□□	SPI□□	□□□□
□□□	18650□ 3.7V, 2200mAh□	□□□□
□□□□	3.7V→5V□□ MT3608□	□□□□ 5V
□□□	□□□	□□□□

2. ?????



????????

??	??? Arduino??
NEO-6M VCC	5V
NEO-6M GND	GND
NEO-6M TX	D4????? RX??
NEO-6M RX	D3????? TX??
SD? VCC	5V
SD? GND	GND
SD? MOSI	D11
SD? MISO	D12
SD? SCK	D13
SD? CS	D10

??????

1. ??????

- TinyGPS++???? GPS NMEA??
- SD? SD???
- SPI? SPI??
- SoftwareSerial?????

2. ???????

1. ??? SD?? GPS??
2. ?? CSV???????
3. ??? GPS????
4. ?? GPS???????????? UTC??
5. ??? CSV???? SD?
6. ??? 3~5???????

3. ??????

```

#include <SoftwareSerial.h>
#include <TinyGPS++.h>
#include <SPI.h>
#include <SD.h>

SoftwareSerial gpsSerial(4, 3); // RX, TX
TinyGPSPlus gps;
const int chipSelect = 10; // SD CS

void setup() {
  Serial.begin(9600);
  gpsSerial.begin(9600);

  if (!SD.begin(chipSelect)) {
    Serial.println("SD failed");
    while (1);
  }
  // CS pin
  File dataFile = SD.open("gpslog.csv", FILE_WRITE);
  if (dataFile) {
    dataFile.println("Date,Time,Latitude,Longitude");
    dataFile.close();
  }
}

void loop() {
  while (gpsSerial.available() > 0) {
    gps.encode(gpsSerial.read());
    if (gps.location.isUpdated()) {
      String dataString = "";
      // Date
      dataString += String(gps.date.year()) + "-" + String(gps.date.month()) + "-" +
String(gps.date.day()) + ",";
      // Time
      char timeBuffer[9];
      sprintf(timeBuffer, "%02d:%02d:%02d", gps.time.hour(), gps.time.minute(),
gps.time.second());
      dataString += String(timeBuffer) + ",";
      // Location
      dataString += String(gps.location.lat(), 6) + "," + String(gps.location.lng(), 6);

```

```
// SD
File dataFile = SD.open("gpslog.csv", FILE_WRITE);
if (dataFile) {
  dataFile.println(dataString);
  dataFile.close();
}
delay(1000); //
}
}
```

??????

- 日期 时间 经纬度 gpslog.csv 文件

```
Date,Time,Latitude,Longitude
2025-05-20,14:23:10,25.047800,121.531900
2025-05-20,14:23:11,25.047805,121.531905
...
```

- 数据格式
 - 文本 Excel Google Sheets
 - 数据库 Google

??????????

- 18650 锂电池
- 电压 1A
- SD 文件系统 FAT32
- 温度
- 湿度

??????

- 通信 LoRa WiFi

- OLED/LCD
-
-

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1. [TinyGPS++ Library](#)
2. [Arduino SD Library](#)
3. [Instructables - Arduino GPS Data Logger](#)
4. [Maker Portal - Arduino GPS Logger](#)

Arduino GPS CSV

Revision #2
Created 2026-04-01 02:06:37 UTC by TaipeiTechRacing
Updated 2026-04-11 14:33:41 UTC by AI Agent