**Usage of SIM808 GPRS GSM GPS Shield**

1. **Introduction**

    This GPRS GSM GPS Shield based on the SIM808 GSM GPRS GPS all-in-one cellular phone module. You can add location-tracking, voice, text, SMS and data to your project. This shield fits right over your Arduino or Maduino, it is easy to use.

    This shield fits right over your Arduino or compatible. At the heart is a powerful GSM cellular module (we use the latest SIM808) with integrated GPS.
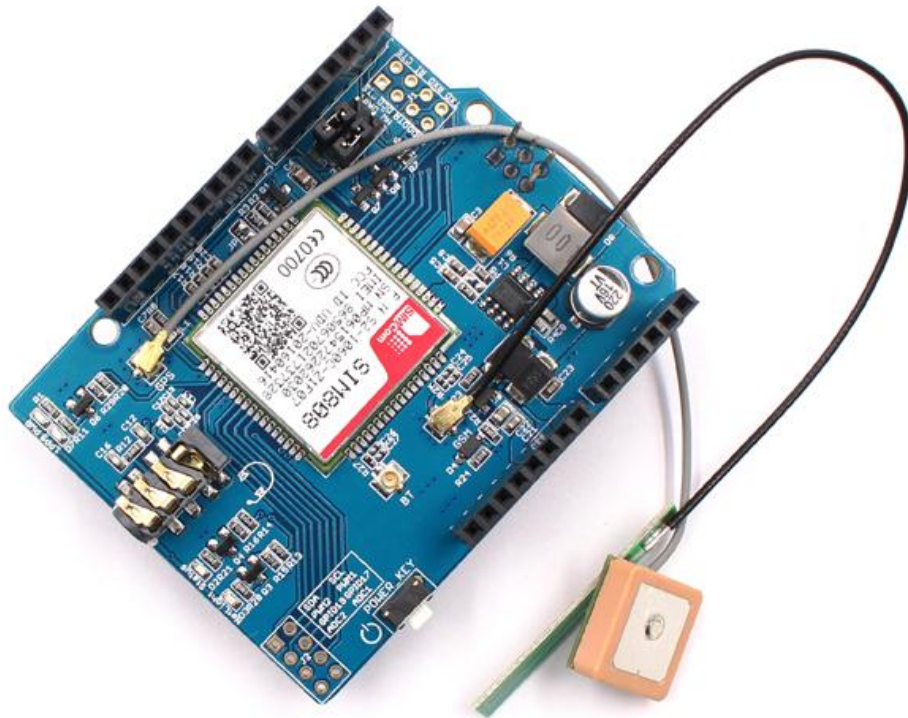
2. **Features:**

- Quad-band 850/900/1800/1900MHz - connect onto any global GSM network with any 2G SIM (in the USA, T-Mobile is suggested)
- Fully-integrated GPS
- Make and receive voice calls using a headset or an external 32Ω speaker + electret microphone
- Send and receive SMS message
- AT command interface with "auto baud" detection
- Send and receive GPRS data (TCP/IP, HTTP, etc.)
- GPS L1 C/A code
- 22 tracking /66 acquisition channels
- Tracking: -165 dBm
- Cold starts : -148 dBm
- Time-To-First-Fix：Cold starts-32s (typ.)，Hot starts-1s (typ.)，Warm starts-5s (typ.)
- Accuracy: approx 2.5 meters

- Dimensions: 68mm*53mm*23mm
3. Interface Function
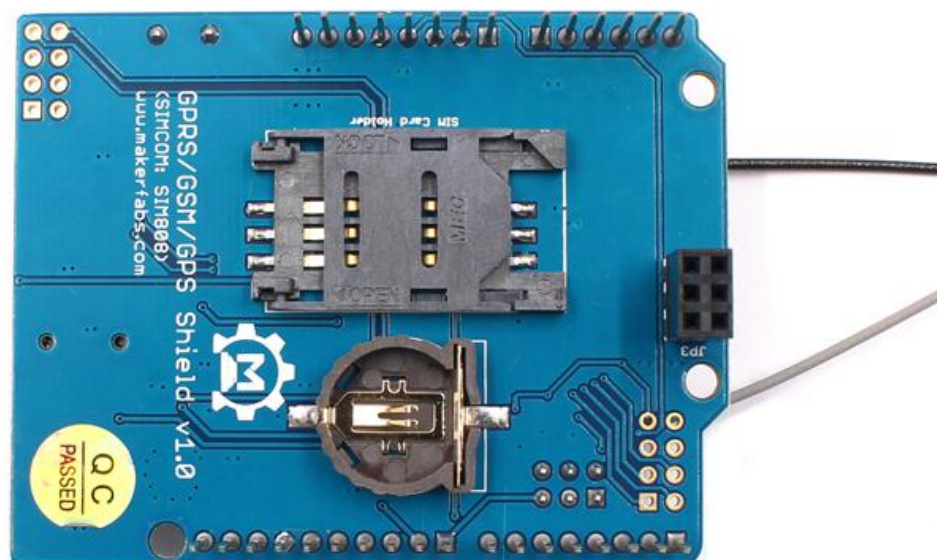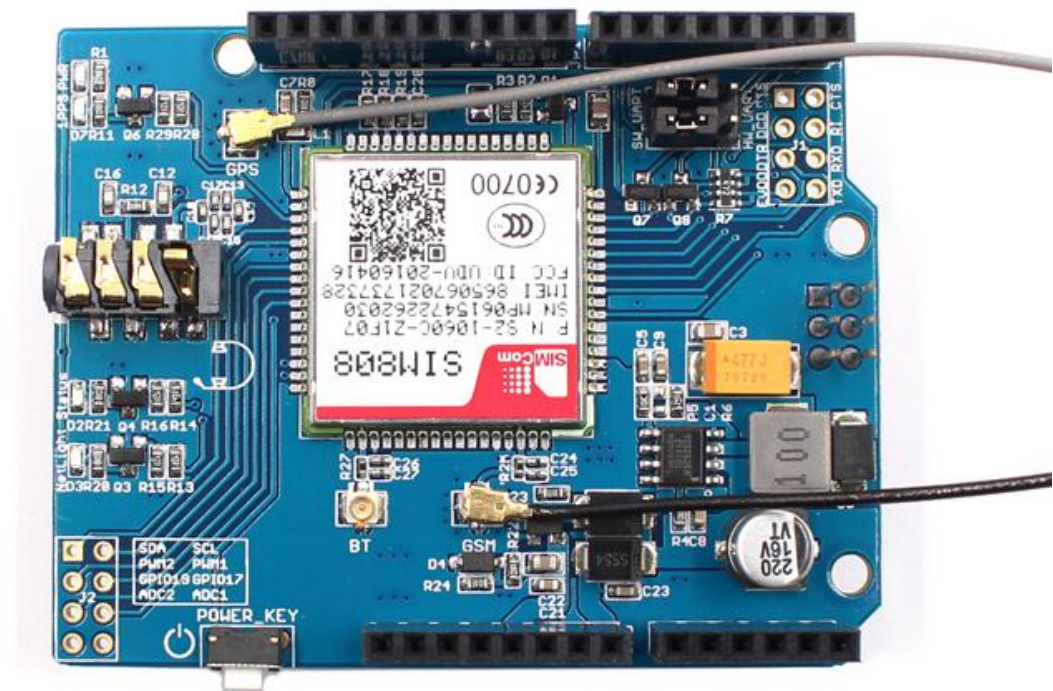
Connectors:

Headset jack-This is a 'standard' TRRS 3.5mm phone headset jack with stereo earphone and mono microphone. Any 'iPhone' or 'Android' compatible (but not iPhone original) should work.

uFL GSM connector-This is the GSM Antenna connector, an antenna is required to use the SIM808 shield!

uFL GPS connector-This is the GPS Antenna connector, an antenna is required if you want to get GPS readings!

uFL BT connector- This is the Bluetooth Antenna connector, in this version, there no have the Bluetooth function.

SIM Connector

A 2G Mini SIM card is required to use the module. You can buy it in any cell phone shop. It must be a 2G GSM card.

VRTC Battery holder

Power supply for RTC.

LEDs

- **PWR** –Power light
- **1PPS** –This is the 'pulse per second' output of the GPS
- **Status** – Power on status. Lit when the Cell module is booted and running
- **NetLight** – Network status. You can use this for checking the current state without sending an AT command

   64ms on, 800ms off - the module is running but hasn't made connection to the cellular network yet

   64ms on, 3 seconds off - the module has made contact with the cellular network and can send/receive voice and SMS

   64ms on, 300ms off - the GPRS data connection you requested is active

   By watching the blinks you can get a visual feedback on whats going on.

POWER_KEY

Power on or power off the SIM808.

4. Pins usage on Arduino

D0 - Used if you select hardware serial port to communicate with SIM808

D1 - Used if you select hardware serial port to communicate with SIM808

D7 - Used if you select software serial port to communicate with SIM808

D8 - Used if you select software serial port to communicate with SIM808

D9 - Used for software control the Power ON or Power OFF of the SIM808

5. Usage

On its own, this shield can't do anything. It requires a microcontroller like an Arduino to drive it! You will also need some required accessories to make SIM808 shield work.

① SIM Card! A 2G Mini SIM card is required to do anything on the cellular network. US AT&T no longer sells 2G SIMs and will shut off their 2G network, so for American customers we recommend any T-Mobile or reseller (TING, SIMPLE mobile, etc) that

uses the T-Mobile network.

Hardware installation

① Attaching Antennas（GSM and GPS antenna）
② Insert a mini SIM card(GPS does work without a SIM)
③ Connect the headset to the headset jack.(when you make a call you may need to use it)
④ Plug to Arduino or Maduino, connect the USB to the PC.
⑤ Power on the SIM808 shield by the POWER_KEY (sometime you can control it by the software control (Arduino D9 PIN))

Hardware connection:
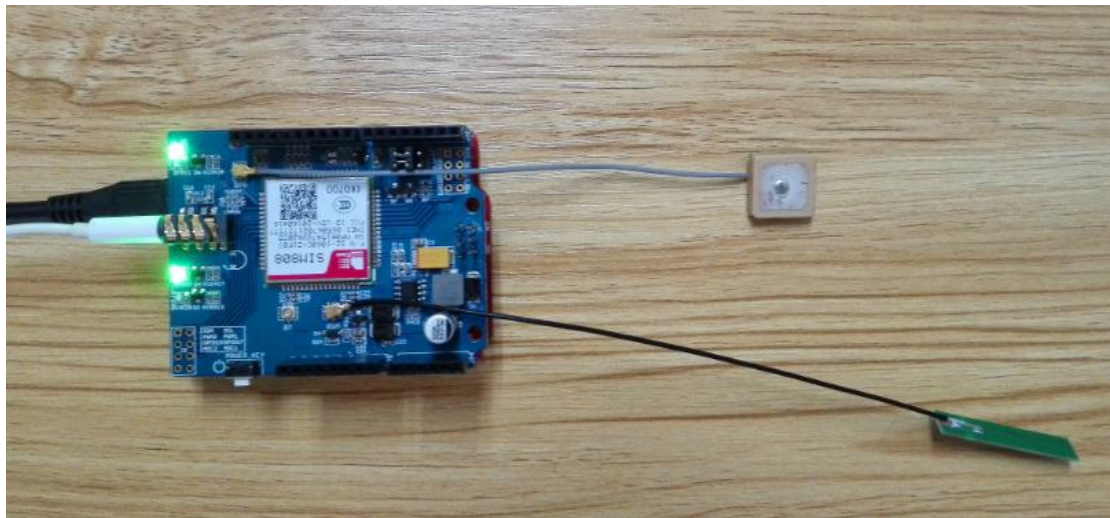
Example 1: Make a call and get the location information.

This demo code just show you how to use the SIM808 shield, it just the basic function, send AT command to make a call and get GPS information.

① Change the phone number who you want to call.

ATDXXXXXXXXXX;   //phone nunber

```
void call(void)
   {
        sendData( "AT+CSQ", 1000, DEBUG);
        sendData("ATD10086;", 1000, DEBUG);
        delay(15000);
        sendData( "ATH", 1000, DEBUG);
   }
```

② Upload the Demo code(Download the code form our website)

http://www.makerfabs.com/fabs/index.php?route=product/product&path=90&product_id=135

③ Open the monitor of the Arduino IDE

You can see the debug information and GPS information.

```
COM6

[                                                                    ] [ Send ]

+CGNSINF: 1,1,20161109024414.000,22.582332,113.855902,30.700,0.98,299.2,1,,2.4,2.6,1.0,,6,4,,,45,,

OK
AT+CGNSINF
+CGNSINF: 1,1,20161109024416.000,22.582322,113.855895,39.200,1.50,142.5,1,,2.4,2.6,1.0,,6,4,,,45,,

OK
AT+CGNSINF
+CGNSINF: 1,1,20161109024418.000,22.582335,113.855887,48.700,1.70,291.6,1,,2.4,2.6,1.0,,6,4,,,45,,

OK
AT+CGNSINF
+CGNSINF: 1,1,20161109024420.000,22.582320,113.855872,23.300,2.52,300.4,1,,2.4,2.6,1.0,,6,4,,,45,,

OK
AT+CGNSINF
+CGNSINF: 1,1,20161109024422.000,22.582335,113.855902,50.000,0.70,271.7,1,,2.4,2.6,1.0,,6,4,,,45,,

OK
AT+CGNSINF
+CGNSINF: 1,1,20161109024424.000,22.582308,113.855920,30.900,0.06,58.3,1,,2.4,2.6,1.0,,6,4,,,45,,

OK
AT+CGNSINF
+CGNSINF: 1,1,20161109024427.000,22.582317,113.855908,43.000,0.22,227.0,1,,2.4,2.6,1.0,,6,4,,,45,,

OK

[✓] Autoscroll                                    Both NL & CR  ▼   9600 baud  ▼
```