

## GPRS communication with Arduino and SIM300 DZ

Written by Mada Jimmy

Friday, 05 July 2013 03:54 - Last Updated Sunday, 04 May 2014 07:39

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Today I would like to share my experience about Arduino which communicates with GSM/GPRS module, SIM300 DZ from SIMCOM. Before I start, let me explain the goal of this project. I want to bring some values or conditions from sensor to the internet, particularly social media like Twitter, Facebook or other website.

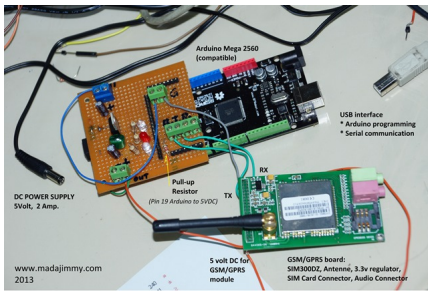
Sensors and some LEDs are connected to digital input/output in Arduino board. For GPRS communication, SIM300 module is connected to RX, TX, and Ground. Note that SIM300 works with 3.3 Volt DC and Arduino Mega 2560 works in voltage 5V. Thus, transmit (TX) pin from SIM300 cannot be sufficient to deliver the logic to receive (RX) pin at Mega 2560, so we have to raise the voltage. I use a pull-up resistor and it works successfully.

In addition, we must pay attention to the power supply. Because of some conditions, GSM/GPRS module needs a lot of energy to communicate to the Base Transceiver Station (BTS). In the first place, I used 5VDC from Arduino board to supply SIM300. I got a lot of error responses when I try to send SMS or bring the wireless up, for example CMS ERROR 517. This indicates that the SIM card is not ready. But, in my opinion, the voltage is drop during communication with the BTS. So, it is better to separate the power supply between Arduino and SIM300. Now, I use 5VDC 2A to supply GSM board. Note that GSM board has already 3.3V regulator and they work perfectly.

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Getting timestamp from NTP server

In order to get time information from time server, we have to send 48 Bytes packet data using UDP connection. After successfully sending AT+CIPSTART to modem (Connect OK), send the packet and wait for the response from the modem. The size of data is also 48 Bytes. Refer to Network Time Protocol to understand the meaning of each byte.

Here is the example of communication between Arduino and SIM300

```
AT+CIPSTART="UDP","0.pool.ntp.org","123"
```

```
OK
```

```
(wait.....)
```

```
CONNECT OK
```

```
AT+CIPSEND=48
```

```
>
```

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*(send 48 Bytes of data starting with 0x1B and continue with 0x00 in all the rest of data.)*

**1B 00 00 00 00 00 00 00 00 00 00 00**

**00 00 00 00 00 00 00 00 00 00 00 00**

**00 00 00 00 00 00 00 00 00 00 00 00**

**00 00 00 00 00 00 00 00 00 00 00 00**

*(wait for the response data)*

**1C 03 03 E9 00 00 21 7D 00 00 18 7B**

**76 62 40 C2 D5 86 33 70 53 8F F5 CE**

**00 00 00 00 00 00 00 85 D5 86 34 F8**

**4D 19 F8 9B D5 86 34 F8 4D 20 51 44**

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```
(adsbygoogle = window.adsbygoogle || []).push({});
```