I. Program for sending and receiving SMS

Software, that AVR-GSM board is shipped with, offers simple functionality for receiving SMS and sending SMS in answer. If you decide to dial GSM number of the board you should hear ringing buzzer, which will stop when you close.(no functionality for answering call is provided here). SMS can send SMS in answer only if SMS sent to it contains one of the following commands:

- **GETSTATUS** - when board receives SMS with this command, it sends in answer SMS containing states of some board pins(inputs and outputs).
- **SETRELAY1** - when board receives SMS with this command, it set RELAY1 output to "1" (high state). It sends in answer SMS containing states of board pins(inputs and outputs).
- **SETRELAY2** - when board receives SMS with this command, it set RELAY2 output to "1" (high state). It sends in answer SMS containing states of board pins(inputs and outputs).

Example contents of SMS answer:
IN1=1, IN2=0, RELAY1=1, RELAY2=0, PINA2=0, PINA1=0, PINA0=0, PINB7=0, PINB6=0, PINB5=0, PINB4=0, PINB3=0, PINB2=0, PINB1=0, PINB0=0, BTN=1.

SMS sending/receiving functionality is strongly dependant of serial communication between ATMega32 MCU and SIM300D module. Consequently board software functions are very sensitive to any messages send from SIM300D module. For example , when SIM300D module goes to specific states(POWER DOWN, Call Ready etc), it sends indicating messages via serial line, which can affect communication with ATMega32 and cause wrong behavior of software.

Advices to customer :

- User should be familiar with basic AT commands(make call, send SMS, read SMS etc)
- SIM card, you put should be with disabled PIN code use. So before use, put SIM card in normal GSM and disable PIN code use.
- You should be very careful for battery voltage, which should be over 3.8 V, never lower. Battery is charged when voltage is over 4.1 V.

Specific features:

- Board reads received SMS contents and takes GSM number of sender. So, SMS answer is sent to this number.
- You can increase number of commands, which AVR-GSM could execute as you define your custom string and add function which will be executed if it has been found in SMS message.

- UART baud rate, which ensures best performance for performance is 115200 bps. Other specific features, which software rely on are:
    - Disable echo (command used is **ATE0)**
    - Set SMS text format (command used is **AT+CMGF=1**)
- After board power-up software expects for “Call Ready” string, so if GSM module don’t send “Call Ready” further execution is not allowed.

II. Program for making calls

Second provided software gives opportunity for making calls to GSM board. You must only to dial number of GSM board, and when you hear buzzer ringing you can push button to answer the call. It has feature to change between channels if you push the button again after you have open call once. Each time you push button, either AT command for answer call, or command for change between main and auxiliary audio channel is sent. So pushing button must be regarded carefully.
It has also feature to send command through HyperTerminal program if you plug USB cable to the board.

End Note:

Software that board is shipped with, includes program for sending SMS described above. Both two provided programs can be combined for more wide and precise functionality, which opportunity is offered to the user.