PREPROGRAMMED AT89S8253 GPS2SMS V1.2

SPECIFICATION:

DC operation : 5V DC
Two Serial communications : 1.GSM modem/phone :9600 baud
2.GPS module :4800 baud
Crystal freq: 11.059 Mhz
3 inputs : 1.switch1 (P2.1)
2.button (P2.2)
3.switch2 (P2.3)

3 outputs: 1. LED1 (P0.0)
2.LED2(P0.1)
3.LED3(P0.2)

REQUIREMENTS:

GSM phone has to recognize AT commands such as :
AT+CMGF=1
AT+CMGS
GPS module has a NMEA 0183 standard which send out $GPRMC format:
For example:
$GPRMC,015123.998,A,3300.3180,N,09632.3892,W,0.19,57.48,271007,,*2C

Circuit Schematic (with RS-232 communication)

gps2smsdip.pdf
Depending on the devices, Some GPS modules or GSM modems don't require RS-232 Level so we might take MAX232 level converter IC out of circuit.

Buttons and Indicators:

Switch 1:Store phone numbers in the eeprom from PC.
Button1 : Sending GPS data via SMS(Text Messaging) to a phone number stored in the EEPROM
Switch 2:Store phone numbers in the EEPROM from another GSM phone

LED1 : Sending SMS(Text Messaging) request
: Phone number is stored in the EEPROM
LED2 : searching valid GPS data
LED3 : GPS modem/phone connection established

How to read indicators:

GPS data has been sent :LED1 turned on for few seconds and will back off.
The phone number is stored
in the EEPROM :LED1 will blink briefly.
Failed to send :LED1 keep light on all the time.
GPS data ready :LED2 will blink briefly.
Invalid GPS data :LED2 keep blinking until found valid data.
No GPS device found : LED2 keeps blinking until found GPS device.
Bad connection between
GPS device and GPS2SMS
Circuit : LED2 keeps blinking until connection established.

No GSM phone/modem found : LED3 lights off
Loss GSM phone/modem-GPS2SMS circuit
Connection : LED3 lights will turn off
GSM phone/modem connection
Established : LED3 will turn on

Operation:
Let says we have finished building and testing GPS2SMS board successfully and installed in mom's car.Plug GSM phone/modem device into K1 connector and GPS device into K2 connector.If everything working properly the LED3 should turn on after few seconds ,meanwhile LED1 and LED2 should be off at this time.

How to track the car :
There is two ways to track the car,
1.Dialing to phone/modem number in mom's car from your phone either regular or GSM phone as a remote control.Your phone number must be stored in the EEPROM of GPS2SMS board.By doing this the only recognized number will receive SMS(Text Messaging).
2.Mom presses the Button1 and will send SMS(Text Messaging) to recognized phone number.This feature will be realy helful in case of car broke down somewhere in middle nowhere.

Everytime either the GPS2SMS board activated by remote phone or by pressing the button itself, LED1 will turn on and off until SMS(Text Messaging)contains GPS data has sent.The following status will shows everything working properly and data has sent:

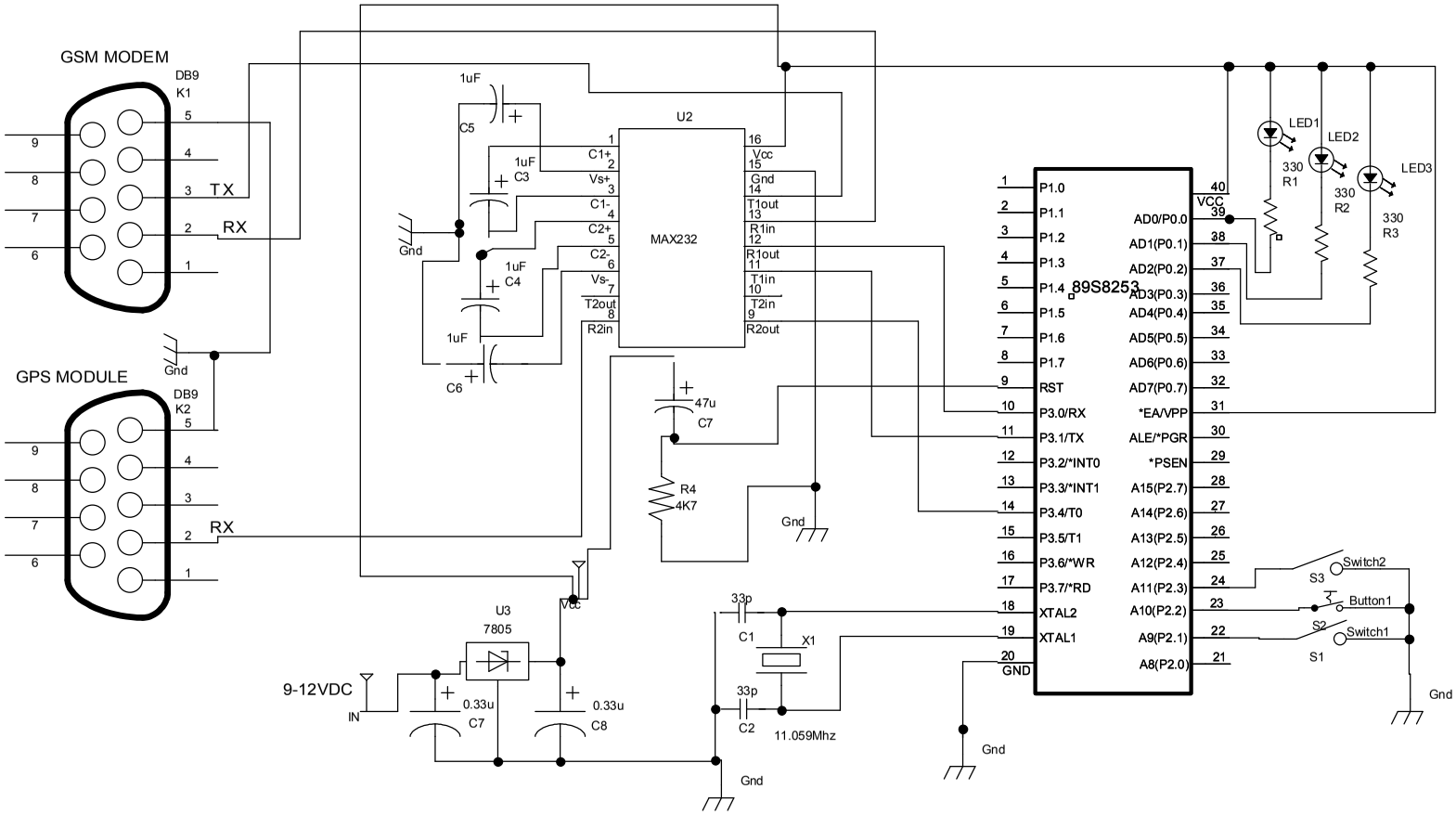
LED3: lights on.
Led2: blink shortly to acquire NMEA data from GPS module
LED1: turn on and will back off after SMS(text messaging) sent.

How to store phone number:

There is two ways to store phone numbers,
1.Using PC (Store two phone numbers)
We need RS-232 NULL modem cable to establish connection to computer and plug in it to serial port .Terminal emulation such as Hyperterminal on Windows 98,2000,XP will do the job.The set up is 9600 baud,8,N,1. To get into "STORE" mode, turn Switch1 to OFF (high input) position then RESET the GPS2SMS board.There will be displays on the screen asking the phone numbers needed to store in the EEPROM.

Do NOT forget after storing the number it needs to turn Switch1 back to ON (low level) for "NORMAL" mode.
We need to use this operation if we have two phone numbers to be stored in the EEPROM, One phone number is for remote control and the other number for receiving SMS(text messaging) data if the receiver is not the same as the remote control.There are some online websites will receive such GPS data from cellphones and displays them at online Goggle map.We can put their number on the EEPROM.
We can use any phone numbers (GSM/cellular or regular) for remote control.

2.Using GSM phone (Store only one phone number)
Turn Switch2 into ON (low input) position.Dial the GPS2SMS board from a GSM phone we need to store in the board.After hearing rings twice we can hang up the phone.We will see LED1 will blink briefly to show that we have stored the number successfully.Do NOT forget to turn Switch2 back OFF (high input) for "NORMAL" operation.After doing this step, the phone will acts both as a remote control and a GPS data receiver.



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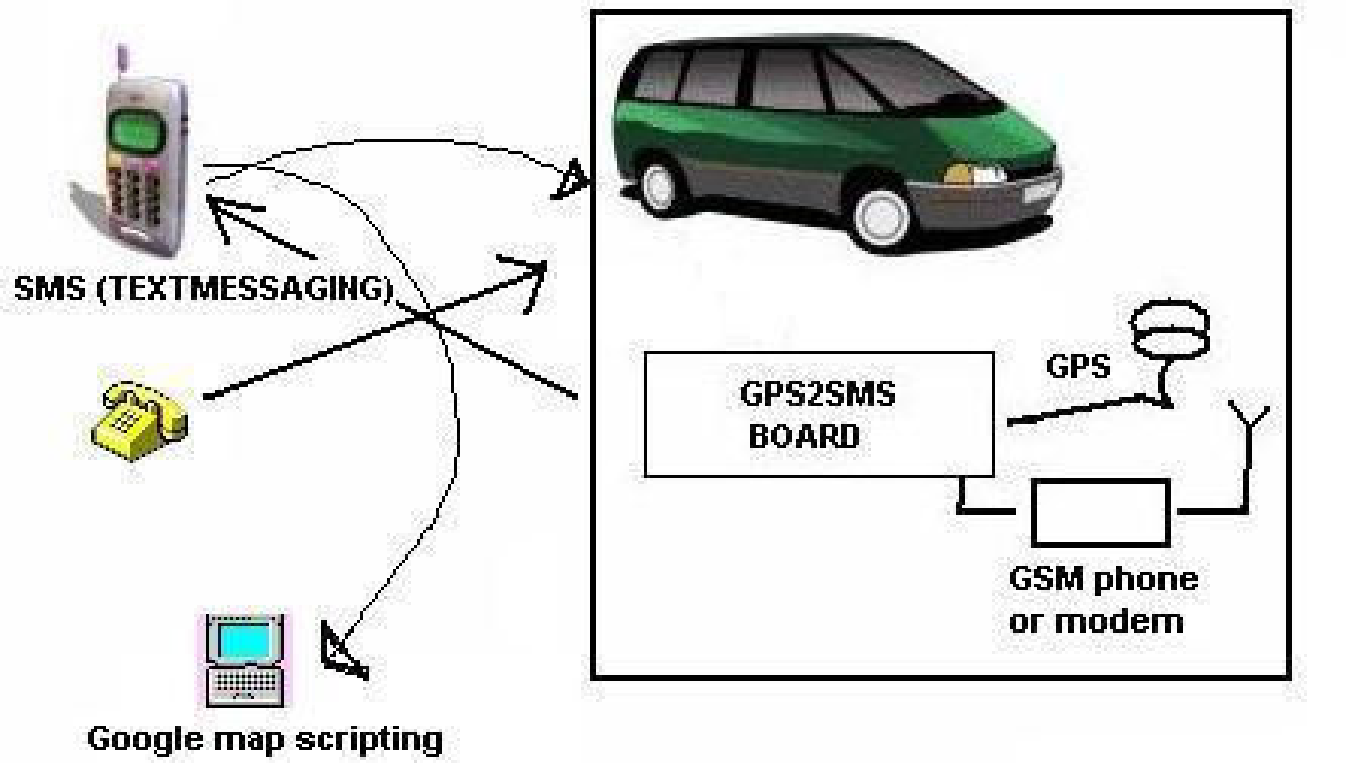
Revision 1.2	Date	Sheets 1 of 1


SMS (TEXTMESSAGING)
GPS2SMS
BOARD
GPS
GSM phone
or modem
Google map scripting