

Build Robot Create Science

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BRiCS Training Program 2010

By



Together with

Simplifix Automation & Sol. Pvt. Ltd.

(Incubated at IIT K)

GSM COMMUNICATION

GSM COMMUNICATION

GSM (Global System for Mobile Communications: originally from *Groupe Spécial Mobile*) is the most popular standard for mobile telephony systems in the world. GSM differs from its predecessor technologies in that both signaling and speech channels are digital, and thus GSM is considered a *second generation* (2G) mobile phone system. This also facilitates the wide-spread implementation of data communication applications into the system.

GSM also pioneered low-cost implementation of the short message service (SMS), also called text messaging, which has since been supported on other mobile phone standards as well. The standard includes a worldwide emergency telephone number feature.

CALL RELATED COMMANDS

Dial command:

Description:

The ATD command sets a voice, data or fax call.

ATD<nb>; where <nb> is the destination phone number.

For Example: to set up a voice call to **+91XXXXXXXXXX**, the AT command is:

“ATD+91XXXXXXXXXX;”

Hang-Up command:

Description:

The ATH command disconnects the remote user. In the case of multiple calls, all calls are released (active, on-hold and waiting calls).

Command syntax: ATH

Answer a call:

Description:

When the product receives a call, it sets the **RingInd** signal and sends the ASCII **“RING”** or **“+CRING: <type>”** string to the application (+CRING if the cellular result code +CRC is enabled). Then it waits for the application to accept the call with the ATA command.

Command syntax: ATA



MESSAGE RELATED COMMANDS

Sending SMS using AT commands:

Let's look at the AT commands involved.

AT+CMGF=1 To format SMS as a TEXT message

AT+CSCA="+xxxxxx" Set your SMS center's number. Check with your provider.

To send a SMS, the AT command to use is AT+CMGS..

AT+CMGS="+yyyyyyyyyy" <Enter>

> Your SMS text message here <Ctrl-Z>

The "+yyyyyyyyyy" is your recipient's mobile number.

<Ctrl-Z> can't work in X-CTU, instead click on show hex and type **1a** in hex editor at the end of the SMS.

Receiving SMS using AT commands:

When a new SMS is received by the GSM modem,

+CMTI: "SM",3 Notification sent to the computer. Location 3 in SIM memory

AT+CMGR=3 <Enter> AT command to read the received SMS from modem

+CMGR: "REC READ","+91xxxxxxxxxx",,"04/08/28,22:26:29+40"

HAI

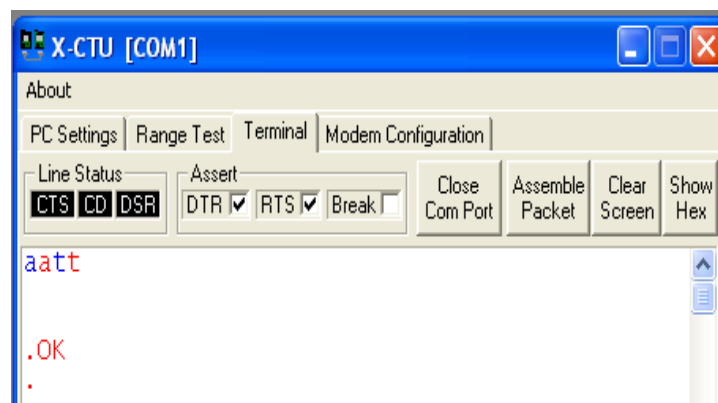
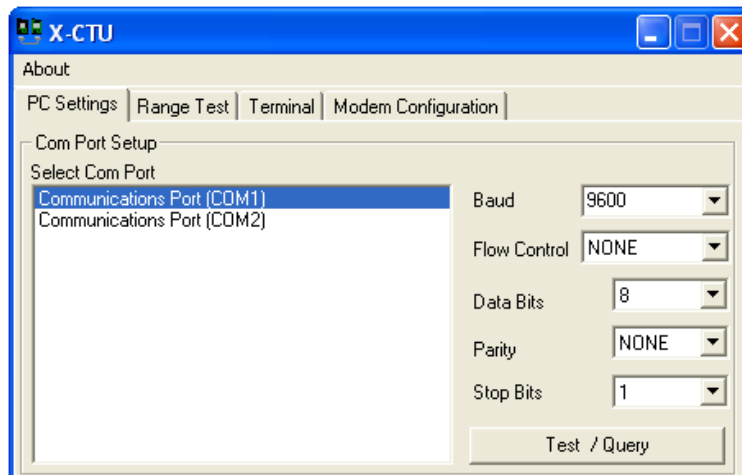
Hai is the new SMS received by the GSM modem

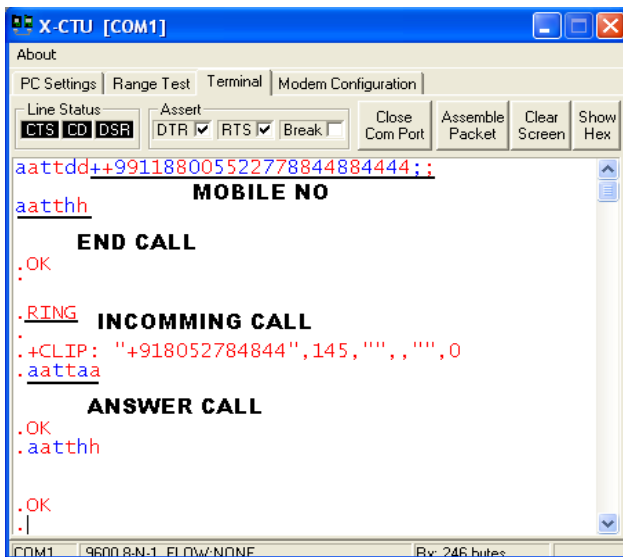
AT command to clear the memory location in the GSM modem..

AT+CMGD=3 <Enter> To clear the SMS receive memory location in the GSM modem.

If the computer tries to read an empty/cleared memory location, a +CMS ERROR: 321 will be sent to the computer.



TESTING THE MODEM:

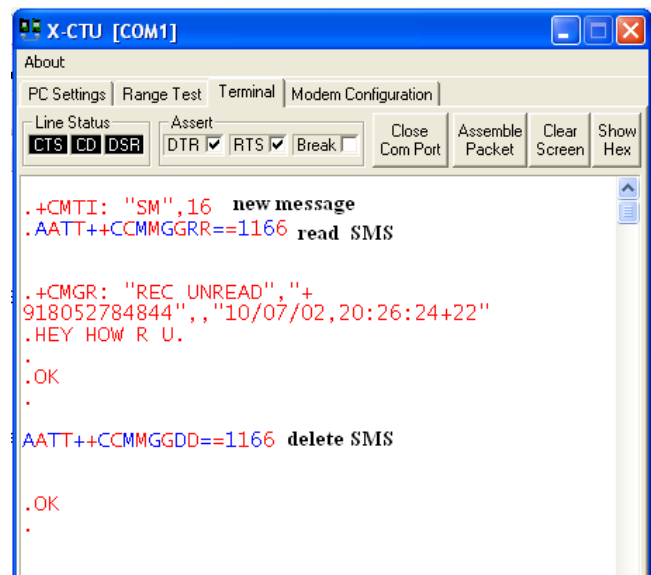


```

X-CTU [COM1]
About
PC Settings | Range Test | Terminal | Modem Configuration
Line Status: CTS CD DSR
Assert: DTR [x] RTS [x] Break [ ]
Close Com Port Assemble Packet Clear Screen Show Hex

aattdd+991188005522778844884444;;
aathh
MOBILE NO
END CALL
.OK
.RING INCOMING CALL
.+CLIP: "+918052784844",145,"",",",0
.aattaa
ANSWER CALL
.OK
.aathh
.OK
.
```

CALL RELATED COMMANDS



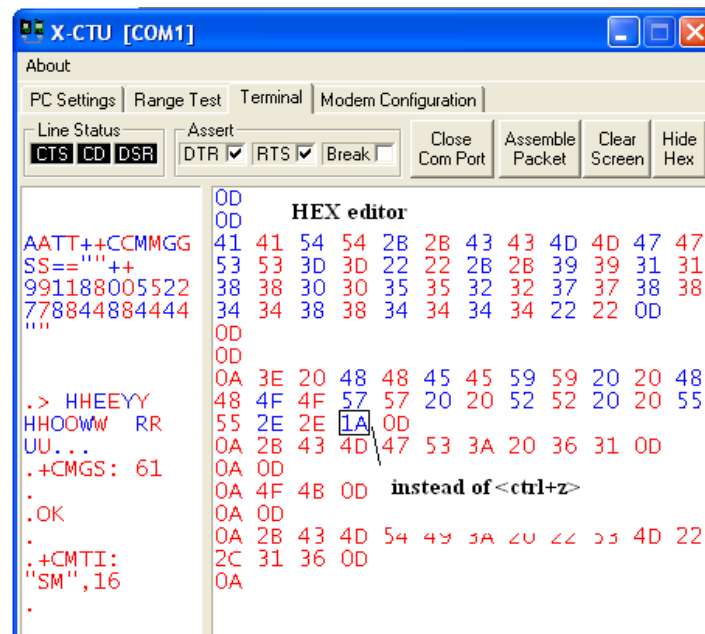
```

X-CTU [COM1]
About
PC Settings | Range Test | Terminal | Modem Configuration
Line Status: CTS CD DSR
Assert: DTR [x] RTS [x] Break [ ]
Close Com Port Assemble Packet Clear Screen Show Hex

.+CMTI: "SM",16 new message
.AATT++CCMMGGRR==1166 read SMS

.+CMGR: "REC,UNREAD", "+
918052784844",,"10/07/02,20:26:24+22"
.HEY HOW R U.
.OK
.
AATT++CCMMGGDD==1166 delete SMS
.OK
.
```

RECEIVING MESSAGE



```

X-CTU [COM1]
About
PC Settings | Range Test | Terminal | Modem Configuration
Line Status: CTS CD DSR
Assert: DTR [x] RTS [x] Break [ ]
Close Com Port Assemble Packet Clear Screen Hide Hex

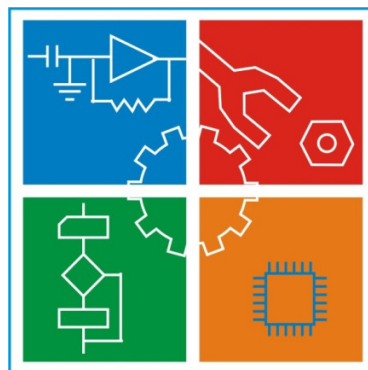
AATT++CCMMGG
SS=""++
991188005522
778844884444
""
.> HHEEYY
HHOOWW RR
UU...
.+CMGS: 61
.
.OK
.
.+CMTI:
"SM",16
.
OD
OD
HEX editor
41 41 54 54 2B 2B 43 43 4D 4D 47 47
53 53 3D 3D 22 22 2B 2B 39 39 31 31
38 38 30 30 35 35 32 32 37 37 38 38
34 34 38 38 34 34 34 34 22 22 0D
OD
OD
0A 3E 20 48 48 45 45 59 59 20 20 48
48 4F 4F 57 57 20 20 52 52 20 20 55
55 2E 2E 0D
0A 2B 43 4D 47 53 3A 20 36 31 0D
0A 0D
0A 4F 4B 0D instead of <ctrl+z>
0A 0D
0A 2B 43 4D 54 49 3A 20 22 33 4D 22
2C 31 36 0D
0A
```

SENDING MESSAGE



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