Design and Development of Software Coding for M-Advertisement Using Mobile Handset NOKIA-2700C and PC

D. G. Vyas

Physics Department,

Hemchandracharya North Gujarat University,

Patan, Gujarat, India

Abstract: The number of mobile phones is more than number of toilets in INDIA and in the world. It means the number of mobile phone users are drastically increased in last one and half decade. The mobile phone has become essential instrument in our life. Each person who is using mobile is well aware about SMS. Here a special software is design using VB6.0 to interface computer and NOKIA-2700C to send multiple SMS. This SMS can be used for various applications like m-advertisement, communicating important information to certain group, mobile notice board etc. The TRAI (Telecommunication Regulatory Authority of India) has issued special guidelines for unwanted calls and messages. Because of such guidelines the bulk SMSes from website becomes impossible or complicated. The websites generally can't send bulk SMSes to those clients whose number is stored in Do Not Disturb(DND) registry. This software can send SMS to even those mobiles which number is in DND registry. The few mobiles can create a group of contacts and send messages to all in the group. The present paper shows that how the SMS can send by AT-Commands.

Key Words: M-advertisement, AT-commands, Visual Basic, Mobile, SIM, SMS.

I.   INTRODUCTION

The study of United Nations gave a sobering statistic: according to their study, more people on earth have access to cell phones than toilets.[1] When United nations experts were published a 9-point prescription for achieving the world's Millennium Development Goal (MDG) for sanitation by 2015, they gave similar report for INDIA. Their statement was "Far more people in India have access to a cell phone than to a toilet and improved sanitation",[2] It shows that a large number of people are using mobile. It is become necessary to develop new projects and experiments to understand its fundamental.

The m-advertisement is becoming more and more popular. Even in our mobile we are receiving many advertising phone calls and messages. This new style of advertisement plays very important role in business development. The mobile or GSM modules are used in various applications. The few applications are as given.[3]

SMS advertising creates a lot of opportunities for the marketers in promoting their products effectively.SMS is a tool by which the marketers approach towards the customers and persuade them to purchase. SMS advertising is also used to explore the customers' needs and purchasing behavior. Proper use of cell phone technology helps marketers to communicate and understand customer needs and wants based on the features and benefits of brands. To develop close relationship with the customers, not only increases the company's knowledge, but also dynamic information regarding the customers' perceptions, buying behavior, purchasing and consumption patterns. Short Message Service (SMS) advertising takes the case of customization a step ahead of the traditional ways of marketing. Through SMS companies can make approaches to the customers irrespective of time and space boundaries. By employing all the characteristics of one-to-one marketing and augmenting them with features, will ultimately result in better understanding of the prospect customers and evolving strategies that will help in building the brand equity in the most proper way.[3,4]

Due to its wireless nature, it is more adaptable and cost-effective. The GSM Technology is used for various applications. The research paper for the controlling of home appliances remotely when the user is away from the house was published by Adamu Murtala Zungeru and at al .[3,5] The another application of GSM is GSM based e-notice board which can be widely used for multitude of applications including educational sector, traffic control, banks, public advertisements, stoke exchanges etc. Was developed by Pawan Kumar and at al. Moreover we can also learn as well as modify some of the common applications of GSM MODEM as per the requirements and needs of the user. [3,6,7] The anther application of GSM is GSM Modem Based Data Acquisition System develop by Vandana Pandya and Deepali Shukla.[3,8]   The another application discussed by Arjun Kumar Mistry and et al as Secured ATM transaction using GSM.[3,9] The GSM based border security system is designed by J.Gayatri and H.Shilpa.[3,10] One important application of GSM is developed for measurement of air temperature and relative humidity monitoring system by K.Vairamani and N.Mathivanan.[3,11] Similarly Humidity monitoring and control system is designed using GSM by Dr.B.Ramamurthy and et al.[3,12] The present paper is educational project. It uses hardware and software to send multiple SMSes using personal computer and mobile (NOKIA 2700C).

Hardware:
1. Personal Computer
2. NOKIA-2700C mobile phone with SIM card
3. The USB cable to connect mobile(Nokia 2700C) with Computer.

Software:
1. Window-7 or any other operating system
2. Visual Basic 6.0
3. NOKIA PC suite

GSM

The digital mobile telephony system, which is globally accessed by more than 212 countries and territories. Global system for mobile communication is completely optimized for full duplex voice telephony. Initially developed for the replacement of first generation (1G) technology, now GSM is available with lots of salient features with the constant up gradation of third generation (3G) technology. And now with the alliance of microcontroller, GSM MODEM could be further tailor-made for some of very innovative applications including GSM based DC motor controller, GSM based home security system, GSM based robot control, GSM based voting machine control, GSM based stepper motor controller etc. [3,6]

SIM:

The SIM or Subscriber Identity Module is a clip-on small card consisting of user's information as well as phone book. As per convenient, user can alter the operator with retaining the same handset. Nowadays dual SIM handset is also available in the local market which brings the advantage of two different operators at the same time. [3,6]

II.   AT COMMANDS

AT commands are also known as Hayes AT commands. There are different views to understand the meanings of "AT". Some call it "Attention Telephone", whereas others interpret it as "Attention Terminal" commands. AT commands allow giving instructions to mobile devices. The commands are sent to the phone's modem, which can be a GSM modem or PC modem. AT commands can be used for operations that are usually done from the keypad, for instance calling a number, sending, reading, or deleting an SMS, setting the SMSC number, looking for a GPRS access point, reading and deleting phonebook data, reading the battery status, reading the signal strength, and so on. When you want to make a PC-based application to interface a mobile phone using USB cable, these commands are needed to communicate with mobile phones.[3,13]

How to start:
1. First of all install Nokia PC Suit and Visual basic 6.0 in personal computer.
2. Interface mobile Nokia 2700 C with personal computer using USB cable and Nokia PC Suite to make conformation about its working.
3. Open this project in VB 6.0 or create new project using VB6.0 and software coding is given in this article.
4. Open its form 1(form.frm) or create similar form. It looks as given in Figure-1
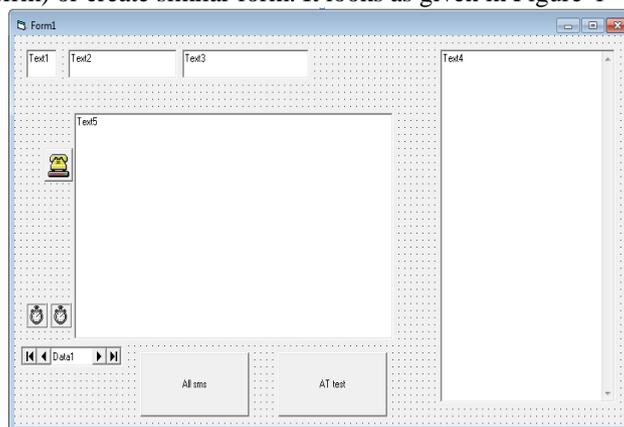

Fig:-1: Image of the form

5. Click on MSComm and put appropriate port number (CommPort) in its property window. The port number is generally any one number between 1 to 10. If you can not find perfect port number than execute the program for various port numbers from 1 to 10. The property window of MSComm1 is shown in Fig.-2. If port number is incorrect then the program will not run or it will show some error.
6. If program executes without any error than click on AT test command button.
7. If text box 4 displays "at OK" means software is working perfectly with mobile Nokia 2700C. Suppose "at OK" is not displayed then repeat step 5 and 6 with next port number.
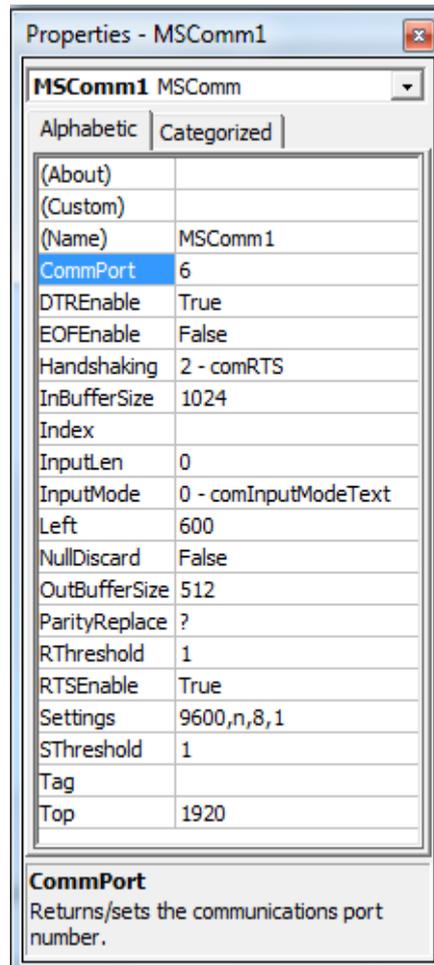
Fig.-2:Property window of MSComm1

8. The database can be created or modified by visual data manager.(It explains in detail in next section this article)
9. Write message in textbox 5, and click on command button "All sms".
10. The textbox 4 will display the status of sms with necessary information and the name and mobile number will also stored into text file aa.txt.

To create a new database or modify, follow these steps:
1. Select **Visual Data Manager** from Visual Basic's **Add-In** menu.
2. Select **New** from the Data Manager **File** menu. Choose database type (Microsoft Access, Version 7.0), then select a directory and enter a name for your database file. Click **OK/SAVE.**
3. The Database window will open. Right click the window and select **New Table.** In the **Name** box, enter the name of your table. Then define the table's fields, one at a time, by clicking **Add Field,** then entering a field name, selecting a data type, and specifying the size of the field, if required. Once the field is defined, click the **OK** button to add it to the field box. Once all fields are defined, click the **Build the Table** button to save your table.
4. With this example, we begin the development of a simple phone directory. In the directory, we will keep track of names and mobile numbers. We'll be able to edit, add and delete names and numbers from the directory.
5. We're now ready to enter some data in our database. From the Database Tables window, right click the MOBILE NUMBER table and select Open. The following window will appear:
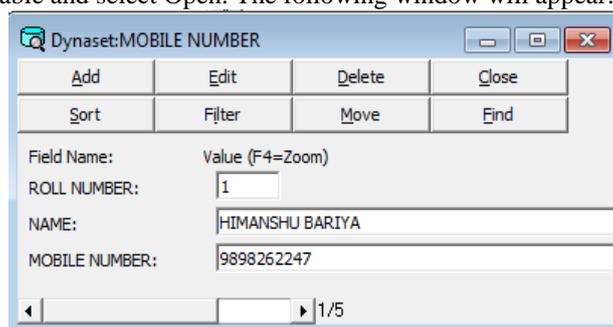
Fig.-3 : MOBILE NUMBER database to add/modify data

6. At this point, add several (at least five - make them up or whatever) records to your database. The steps for each record are: (1) click Add to add a record, (2) fill in the two fields (the Name and Mobile Number), and (3) click Update to save the contents.

7. You can also delete records and Find records, if desired. You can move through the records using the scroll bar at the bottom of the screen. When done entering records, click Close to save your work. Select Exit from the Data Manager File menu. Your database has been created.

8. The Data Manager is a versatile utility for creating and viewing databases. However, its interface is not that pretty and its use is somewhat cumbersome. We would not want to use it as a database management system (DBMS).

Software Code:

```
Private Declare Sub Sleep Lib "kernel32" (ByVal dwMilliseconds As Long)
Dim start As Boolean
Dim stop1 As Integer
Dim cur_fold As String
Dim cur_date As Date
Dim cur_time As Date
Dim fileno As Integer
Dim string1 As String
Dim string2 As String

Public Function all()
start = True
Do
If start = True And Text1.Text <> "" Then ' last data has no number but ""
Text4.Text = Text4.Text + Text2.Text
MSComm1.Output = "at+cmgs=" + Chr(34) + Text3.Text + Chr(34) + Chr(13)
Print #fileno, Text1.Text + "  " + Text2.Text + " " + Text3.Text
 Sleep 500
 Dim i As Integer
 i = Len(Text5.Text)
 If i < 120 Then
   i = 3000
Else
   If i < 240 And i > 119 Then
     i = 6000
   Else
     If i < 370 And i > 239 Then
     i = 9000
     Else
     Text4.Text = "too long"
     Text5.Text = Text5.Text + CStr(i)
     Exit Do
     End If
   End If
End If

 MSComm1.Output = Text5.Text + Chr(26)
 Sleep i * 2
 'MSComm1.Output = "at" + Chr(13)
 'Sleep 200
 wait (i)
   next1
Else
   Exit Do
End If
Loop
End Function
Public Function next1()
If Data1.Recordset.EOF = False Then
Data1.Recordset.MoveNext
Else
start = False
```

```
End If
End Function
Private Sub Command1_Click()
cur_fold = App.Path
cur_date = DateValue(Now)
cur_time = TimeValue(Now)
string2 = cur_fold + "\aa.txt"
Text4.Text = string2
fileno = FreeFile
Open string2 For Append As fileno
Print #fileno, "SMS DETAILS Software Developed by Dr.Darshan G.Vyas"
MSComm1.Output = "at+cmgf=1" + Chr(13)
 Sleep 500
 Data1.Recordset.MoveFirst
 all
 Print #fileno, Text5.Text
Close fileno
End Sub
Private Sub Command2_Click()
MSComm1.Output = "at" + Chr(13)
'to create text file in current directory
'cur_fold = App.Path
'cur_date = DateValue(Now)
'cur_time = TimeValue(Now)
'Text4.Text = cur_fold + "\" + CStr(cur_date) + " " + CStr(cur_time) + ".txt"
End Sub
Public Function wait(msec As Integer)
Timer2.Interval = msec
stop1 = msec
Timer2.Enabled = True
Do
If stop1 = -1 Then
Exit Do
Else
DoEvents
End If
Loop
End Function
Private Sub Command3_Click()
Data1.Recordset.MoveFirst
wait (1000)
Data1.Recordset.MoveNext
End Sub
Private Sub Command4_Click()
Print #fileno, Text4.Text
End Sub
Private Sub Form_Load()
Text4.Text = ""
With MSComm1
    .PortOpen = True 'must be the last
End With
'MSComm1.Output = "0" + Chr(13)
End Sub
Private Sub Timer1_Timer()
string1 = CStr(MSComm1.Input)
Text4.Text = Text4.Text + Chr$(13) + string1
Text4.SelStart = Len(Text4.Text)
End Sub
Private Sub Timer2_Timer()
Timer2.Enabled = False
stop1 = -1
End Sub
```

III. CONCLUSION

The paper helps to understand AT-Commands and its working with mobile. This paper can help to do M-advertisement for certain group. This paper can also consider as one educational project for students. This paper deals with visual basic as well. The paper is also exploring the USB communication using VB6. This project can also find an actual industrial application in the field of M-advertisement using SMS.

ACKNOWLEDGEMENT

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