

Automatic SMS Scheduling via SIM Card

Dhirendra Pratap Singh

Syscom Corporation Limited

Abstract- There are instances when we want to wish someone on his or her birthday at exact 12:00 am in midnight but due to certain reasons, we forget to do so. Scheduling an Automatic SMS [Short Message Service] can prove handy in such cases.

In this fast moving life, it is the use of such Technology which can ease up our efforts of manually remembering important notifications, whether it's our friend's birthday or an official message to be delivered to one of our colleagues.

This paper details the facility of scheduling the user SMS, for a particular time and date, without having the feature prebuilt on our mobile equipments.

Index Terms- SMS, ME, SIM, STK, PLI, EF, GSM, 3GPP

I. INTRODUCTION

The ME [Mobile Equipment] have the facility to schedule a user originated SMS, to be send at particular date and time.

Usually this service is provided in high end MEs with use of either some internal applications or using third party software applications. This paper contains the method for providing the service via SIM [Subscriber Identity Module] based Application.

The application will reside on SIM and will perform all the relevant tasks related to the functionality of Automatic SMS Scheduling.

Roles:

- 1) User- The user of application will get a menu in STK [SIM Toolkit Menu refer [2] like "Create new SMS".
When user selects this menu, he/she will be asked to enter the text of SMS, receiver's number, date and time of scheduled SMS.
User will also enter the frequency of SMS i.e. Once, Daily, Weekly, Monthly or Yearly.
- 2) Application- The application will run in background while the ME remains switched ON.

II. DESCRIPTION

The solution is achieved by the use of an application, which performs tasks in background after taking initial inputs from the user. The user of the application is only required to provide the necessary details for scheduling such as desired recipient to whom the message needs to be sent and exact time and date on which the message is to be triggered.

The solution is provided using the following set of mechanisms:

- 1) **Status Command:** It is send by ME to SIM card at specified intervals.
- 2) **Poll Interval Command:** It is send by SIM to ME, to set the duration of intervals between receiving Status commands.
- 3) **PLI or Provide Local Information Command:** It is send by SIM to ME, to request the ME for ME specific information i.e. Date, Time & Time Zone.

The application will be using the above commands and their responses with the additional calculations, to find the approximate time of target SMS triggering.

III. PROCEDURE

The method for calculating the time and date is defined below:

- 1) SIM card will send 2 commands to ME, whenever the ME is switched ON. These are:
 - a. Poll Interval Command: It will be send with default value, as defined in [2] i.e. 30 seconds.
 - b. PLI command with qualifier value 03 for requesting Date, Time and Time Zone values from ME.
- 2) On the basis of response from above commands, the Application will calculate 2 things:
 - a. The remaining time of reaching 12:00 AM of next day.
 - b. Checking and extracting the information of Scheduled SMS that has to be sent before next day's Midnight (12 AM).
- 3) After the above steps, Application will perform some calculations, for extracting the number of Status commands, which are to be received from ME, for:
 - a. Reaching midnight time
 - b. Reaching the scheduled time of any scheduled SMS
- 4) After reaching the scheduled SMS time by receiving required number of Status commands from ME, application will prepare and send the Scheduled SMS to required recipient automatically and also will also set the next occurrence of the Scheduled SMS, as per the frequency selected by User at the time of scheduling the SMS.
- 5) After reaching the midnight time by receiving required number of Status commands from ME, as explained above, the application will send the PLI command with qualifier value 03, extracting the values for calculations, as defined in STEP 2.
- 6) The application will use a proprietary EF [Elementary File], which will store the SMS data and other required information for scheduling the SMS.

IV. CONCLUSION

The mentioned Application will have following benefits:

- 1) Messages that are scheduled are not ME dependent. User can switch phones with all its Scheduled SMS through SIM card which means user just have to switch the SIM card to new or other handset.
- 2) The application will be working in background and will not affect the other functionalities of normal GSM [Global System for Mobile Communications] operations.
- 3) The application is fully compliant with 3GPP [3rd Generation Partnership Project] norms.
- 4) The application requires normal working procedure which means it does not requires enhanced proactive commands and envelops which vary from ME to ME.

V. LIMITATIONS

As the application will reside and work at SIM card's end, so there are certain limitations which are:

- 1) Exact time value cannot be received from ME, as it will require the duration of time interval as permitted by [1]. So there can be delay of + or - 30 seconds in sending SMS.
- 2) As the application works on receiving the Status commands and their duration, any other application, modifying the time interval of Status command, will have affect on the Application.
- 3) It is on the discretion of ME to receive, reject or negotiate the requested time duration in Poll Interval command.
- 4) If the mobile is found switched off during any time on which Scheduled SMS was to be triggered, the message will not be delivered later on when the mobile is switched ON.

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REFERENCES

- [1] 3GPP TS 11.11 version 8.14.0 Release 1999
- [2] 3GPP TS 11.14 version 8.18.0 Release 1999

AUTHOR

Author Name: Dhirendra Pratap Singh

Qualifications: Master of Computer Applications (MCA)

Experience: 2 years experience in SIM and SMART cards technology

E-mail: amansingh2503@gmail.com