Multilingual SMS
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INTRODUCTION

In 1985, Ernie made the first telephone call on the mobile phone in Britain. In less than two decades, however, the mobile phone has turned into a necessary device for people, and now one out of every six individuals throughout the world has a mobile phone.

With the expanding use of mobile phones and the development of mobile telecommunications, telecommunication companies as well as companies manufacturing mobile phones decided to add additional features to their telephone sets in order to attract more customers. One of the services that were provided on the mobile phone was the SMS.

The SMS (short message service) is the transfer and exchange of short text messages between mobile phones. The SMS is defined based on GSM digital mobile phones. According to the GSM03.40 standard (GSM, 2000), the length of the exchanged message is 160 characters at most which are saved in 140 bytes depending on how information is saved according to the standards. These messages may be a combination of digits and letters or saved in non-text binary form. Using the same binary messages, one can also send pictures as well. The pictures, however, are two color and have a low quality (Shirali, 2006).

SMS messages are exchanged indirectly and through a component known as the SMSC. SMS messages have the following advantages:

• Communication is possible when the network is busy.
• We can exchange SMS messages while making telephone calls.
• We can send offline SMS messages.
• Various services are provided such as e-commerce.

One can also receive reports on the status of the SMS message or define a validity period for the SMS message (Nokia, 2001).

The header of this format containing four fixed bytes is as follows:

<table>
<thead>
<tr>
<th>Byte</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0000 0000 (→ 0)</td>
</tr>
<tr>
<td>2</td>
<td>0100 1000 (→ 72)</td>
</tr>
<tr>
<td>3</td>
<td>0001 1100 (→ 28)</td>
</tr>
<tr>
<td>4</td>
<td>0000 0001 (→ 1)</td>
</tr>
</tbody>
</table>

As you can see in the above header, the second and third bytes indicate the height and width of the picture.

The structure of the body of the picture contains the pixels in 0 and 1. The amount of each pixel is saved in one bit. In each bit, 0 indicates the black and 1 the white color. Thus, every 8 pixels are saved in one byte. The order of saving of the pixels is from the left to the right and from the top to the bottom of the picture. Considering the size of the picture, the entire size of an SMS picture message is 256 bytes (see Figure 1).

SENDING SMS IN LOCAL LANGUAGE

Using SMS is not limited to the subscribers inside a country, and all mobile phone owners in other countries can also receive SMS.

In the early days, mobile phones supported limited languages such as English, but gradually other languages were also added to the potentialities of mobile phones. Today, mobile phone producers offer support of local language of the country where the phone set is to be supplied. For example, the mobile phones supplied to the Iranian market support Persian and Arabic languages as well. Thus, it is possible to send SMS in local languages. Anybody can send SMS in his own language and not need to use English (Stuiver, 2006).

SMS PICTURE MESSAGE

The size of the SMS picture message is 72×28 pixels and it is two color. The saving format of the SMS picture is OTA. The structure of this format is as follows (Nokia, 2001).

Figure 1. Size of an SMS picture message

Image Size: ((72×28 bit) ÷ 8) byte + 4 byte = 256 byte