



Message communication using Phase Shifting Method (PSM)

Syed Khutubuddin Ahmed Khadri
Dept of MCA,
REVA Institute of Technology & Management,
Bangalore, India

Debabrata Samanta
Dept of MCA,
Acharya Institute of Technology
Bangalore, India
debabrata.samanta369@gmail.com

Mousumi Paul
Dept of CSE,
National Institute of Technology
West Bengal, India

Abstract: Text messaging has grown rapidly in the recent years. And messaging has become the part of day to day life. Messages serve the purpose of communication in an easy and cheaper manner. But the biggest challenge is to safe guard the communication. As no person wants his/her message to be read by any unknown person. It is therefore a need of the hour to provide security against eavesdropping and electronic surveillance while exchanging confidential and/or personal information. Many techniques have been evolved to send secure messages. This paper highlights the problem and servers a unique way of message communication using the phase shifting concept (PSM). This paper uses phase shifting concept as it is unique way of encoding the message so as to make the sender a relief of message information getting leaked.

Keywords: PSM, Message Communication, Security.

I. INTRODUCTION

Text messaging has grown rapidly in the recent years. And messaging has become the part of day to day life. Messages serve the purpose of communication in an easy and cheaper manner. Text messaging allows you to communicate with others in situations where a face-to-face or phone conversation is no possible or appropriate. In some cases sending a text message, gives a physical proof of that text until you delete it. But one big challenge is security of the message [1][5]. As the contents of common messages are known to the network operator's systems and personnel, or if the user is in the public then there is more chance of information getting leaked there by confidentiality of information has increased at phenomenal rate [3].

It is therefore a need of the hour to provide security against eavesdropping and electronic surveillance while exchanging confidential and/or personal information [2].

For this reason sender should encode the data and then he can send the data to the receiver. The encoded form cannot be understood by third party [4][6]. When receiver gets it, he/she convert it in to original message i.e he/she decodes it.

Here we also develop a C program to encode a data and we also develop a code to decode the data.

II. PROBLEM DEFINITION

Text messaging has grown rapidly in the recent years. And messaging has become the part of day to day life and security of the message is also a big problem, security against eavesdropping and electronic surveillance while exchanging confidential and/or personal information. To avoid this problem phase shifting concept is being used which uses a unique way of encoding the message so as to

make the sender a relief of message information getting leaked [7][8].

Here we also develop a C program to which takes input in an encoded format and decodes the message. Phase shifting concept basically uses the System Keyboard key concept. Which follows the standard QWERTY format. The problem is divided in three sets where there is a three level security approach involved in it.

III. PROPOSED METHODOLOGY

A. First Level:

At the first level the keys used are in the first line of keyboard and the method used for secure encoding is mentioned as below.

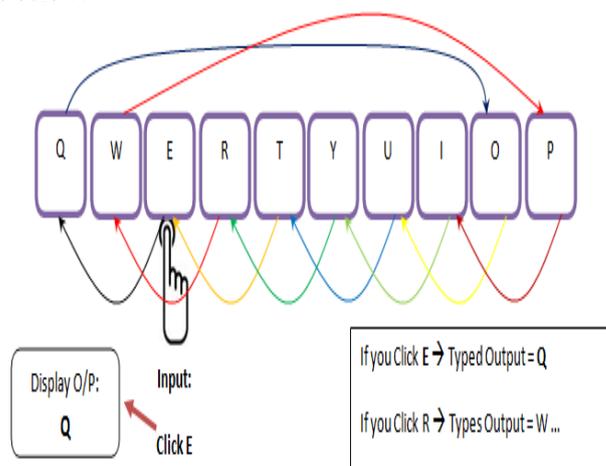


Figure: 1

In the above diagram if the input text is (qwerty) then the output message types is (ertyui).

Means if user Types $E \rightarrow Q$, $R \rightarrow W$, $T \rightarrow E$, $Y \rightarrow R$ and So on...

B. Second Level:

In contrast to first level the Second level uses entirely different procedure, the keys used are from the first line of key board and the method used for secure encoding is mentioned as below.

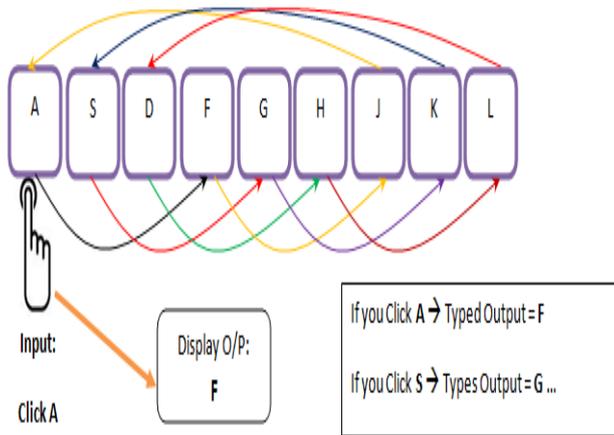


Figure: 2

In the above diagram if the input text is (asdfg) then the output message types is (fghjk).

Means if user Types $A \rightarrow F$, $S \rightarrow G$, $D \rightarrow H$, $F \rightarrow J$ and So on...(any character in this line pressed it takes the 3rd character from its right)

C. Third Level :

In contrast to first & Second level the third level uses mirroring procedure as shown in below figure, the keys used are from the Third line of key board and the method used for secure encoding is mentioned as below.

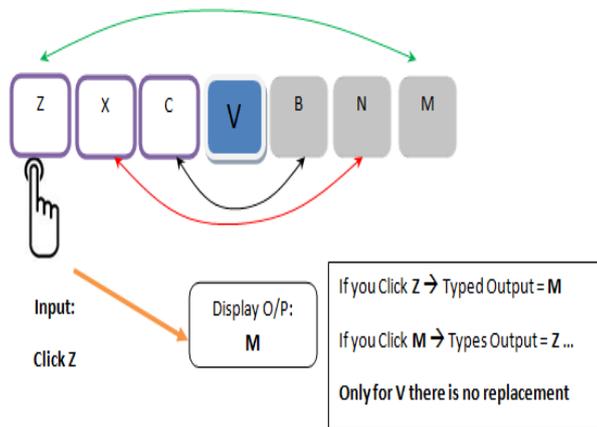
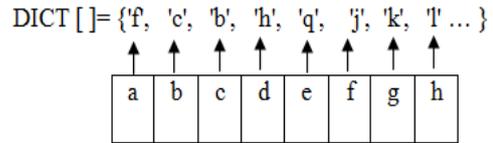


Figure: 3

IV. PROCESS OF WORK

As the Phase shifting follows three different encoding techniques with respect to key board characters. And as the key board is a QWERTY key board means the English characters are not in the sequential manner. If ASCII values of 'a' to 'z' is take it is 97 to 122. But in the key board the characters are not in sequential manner. Hence the logic used here is to use an array called DICT (stand for dictionary)

which contains all the encoded character associated with its counterpart.



If the user enters an input as “ p jz px cjsxjhqyt” then the output shoed is “ i am in bangalore”. How does this happen. The logic used is by taking the ASCII value of every input character.

Ex: temp = input[i] - 97 → if the input is 'a' then
temp = 'a' - 97 → temp = 97 - 97 = 0

Now next step is storing the value in output array i.e.
output[i] = dict[temp] → output[i] = dict[0]
i.e. output[i] = f

V. FLOW OF WORK

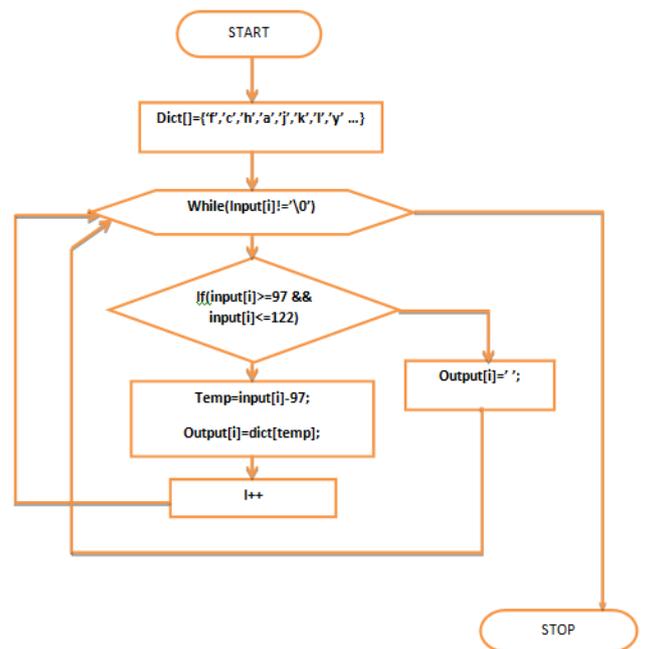


Figure: 4

VI. RESULT AND DISCUSSION

The input entered is in an encoded format which is not understandable to any other person other than the receiver and the generated message is a readable message. The input entered in a wrong format as this code takes the input as only small case characters starting with 'a' to 'z'. If any input other than this character is used then the error message is generated. In the figure all three input types had been showed with respect to three format of encoding that is done based on the key board key levels.

i.e. qwerty → opqwer
asdfg → fghjk
& zxcv → mnbv

OUTPUT-1

```
Enter the input
p jz px c jxs jhqyt
i am in bangalore
```

OUTPUT-2

```
Enter the input
123ABC
Wrong Input
Enter the input properly
```

OUTPUT-3

```
Enter the input
qwerty asdfg zxcv
opqwer fghjk mnbv
```

VII. CONCLUSIONS

In this paper, we proposed a novel approach for secure way of message communication using phase shifting technique which uses the QWERTY key board character arrangement as its input which is not in the sequential arrangement of alphabets as in English language, this technique itself gives a unique way of encoding as a new procedure of inputting of message to be followed which is more secure. And as the phase shifting method uses three different types of security procedures which give a higher level security to the message being hacked.

VIII. REFERENCES

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