



COLOR CODES IN MESSAGE TRANSFER

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ABSTRACT

Communication in public domain is a need always. Methods are proposed and developed for these kind of communications. Color codes are used in Hyper Text Markup Language (html) to represent a wide range of colors. This makes it easier to differentiate the same shade colors with minute differences. It is available in public domain, but of less use in data communications. In this paper a method of text Encryption using color codes is proposed.

Keywords: Encryption, Decryption, Color.

I. INTRODUCTION

As society is modernized communication methods vary and would keep varying. Depending on this problems is safe Encryption keep on varying and so new methods are developed depending on the demand. Methods are developed today so that data can be Encrypted in public domain, still message is transmitted safe. In [1] color codes are used in creation of new periodic table , which is hence used in chemical equation representation. In [2] colors are used in edge representation, which enables molecular formula representation. Color codes and colors can be explored deep and used better as a tool for various purpose. This paper aims in developing a simple method of data Encryption using color code which is not in wide use for data Encryption.

II. MATERIALS AND METHOD

Color codes are sequence of characters and/or numbers and/or symbols. Its standard form starts with "#" which is continued by some sequence. Excluding "#", the color code contains six characters and/or numbers and/or symbols. There are various colors whose color names starts with different alphabets.

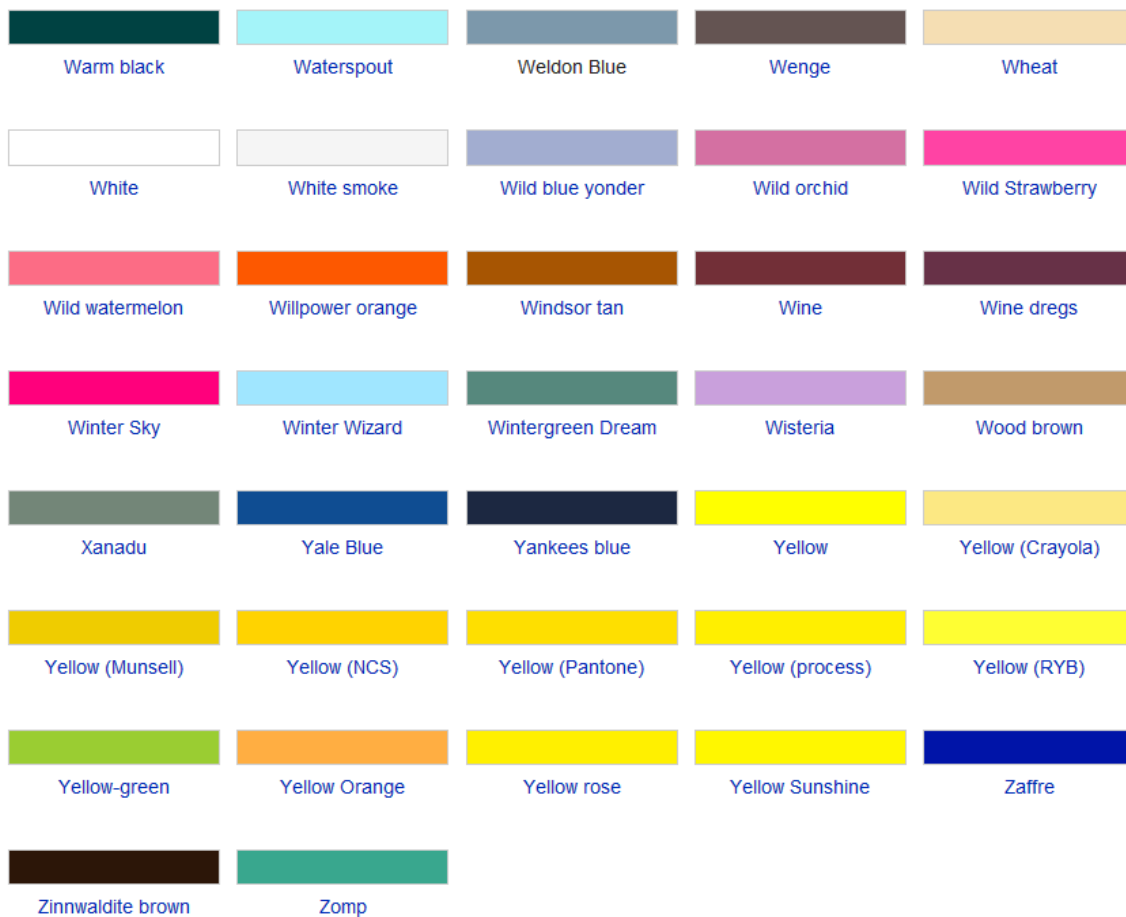
Different colors possible that starts with letter A and their color codes are seen in snapshot – 1 [3].



Name	Hex (RGB)	Name	Hex (RGB)	Name	Hex (RGB)	Name	Hex (RGB)
Absolute Zero	#0048BA	Amaranth Red	#D3212D	Aquamarine	#7FFFD4	Azureish White	#DBE9F4
Acid Green	#B0BF1A	Amazon	#3B7A57	Arctic Lime	#D0FF14		
Aero	#7CB9E8	Amber	#FFBF00	Army Green	#4B5320		
Aero Blue	#C9FFE5	Amber (SAE/ECE)	#FF7E00	Arsenic	#3B444B		
African Violet	#B284BE	American Rose	#FF033E	Artichoke	#8F9779		
Air Force Blue (RAF)	#5D8AA8	Amethyst	#9966CC	Arylide Yellow	#E9D66B		
Air Force Blue (USAF)	#00308F	Android Green	#A4C639	Ash Grey	#B2BEB5		
Air Superiority Blue	#72A0C1	Anti-Flash White	#F2F3F4	Asparagus	#87A96B		
Alabama Crimson	#AF002A	Antique Brass	#CD9575	Atomic Tangerine	#FF9966		
Alice Blue	#F0F8FF	Antique Bronze	#665D1E	Auburn	#A52A2A		
Alien Armpit	#84DE02	Antique Fuchsia	#915C83	Aureolin	#FDEE00		
Alizarin Crimson	#E32636	Antique Ruby	#841B2D	AuroMetalSaurus	#6E7F80		
Alloy Orange	#C46210	Antique White	#FAEBD7	Avocado	#568203		
Almond	#EFD9C9	Ao (English)	#008000	Aztec Gold	#C39953		
Amaranth	#E52B50	Apple Green	#8DB600	Azure	#007FFF		
Amaranth Deep Purple	#AB274F	Apricot	#FBC02D	Azure (Web Color)	#F0FFFF		
Amaranth Pink	#F19CBB	Aqua	#00FFFF	Azure Mist	#F0FFFF		

Snapshot - 1

The different color names that start with W, X, Y, Z is seen in Snapshot – 1 [4].



Snapshot - 2

Similarly there is a list of colors and color codes available for all the alphabets.



III. PROPOSED ENCRYPTION SCHEME

3.1 Construction of Color Code Table

We can choose any number of characters required for the encryption.

1. We randomly choose one of the colors for each of the characters.
2. We assign the corresponding color codes to the characters.

A sample table constructed for the usual alphabets for normal communication is seen in Table – 1.

3.2 Encryption Algorithm

Step 1 Create a Color Code Table as explained.

Step 2 Let S: HELLO be the message to be encrypted.

Step 3 Convert each character in the message into its corresponding color code to generate a string of characters S1.

For our example the resulting color code is

#3FFF00 #555D50 #B57EDC #B57EDC #FF7F00

Step 4 Send S1 to the receiver.

Color Code Table

Alphabet	Color Name	Color Code
A	Aqua	#00FFFF
B	Black	#000000
C	Cherry	#DE3163
D	Daffodil	#FFFF31
E	Ebony	#555D50
F	Flirt	#A2006D
G	Gold	#D4AF37
H	Harlequin	#3FFF00
I	Indigo	#4B0082
J	Jade	#00A86B
K	Kobicha	#6B4423
L	Lavendar	#B57EDC
M	Mahogany	#C04000
N	Navy	#000080
O	Orange	#FF7F00
P	Peach	#FFE5B4



Q	Quartz	#51484F
R	Raspberry	#E30B5D
S	Saffron	#F4C430
T	Teal	#008080
U	Umber	#635147
V	Veronica	#A020F0
W	Wine	#722F37
X	Xanadu	#738678
Y	Yellow	#FFFF00
Z	Zomp	#39A78E

Table – 1

Decryption is done by reversing the procedure.

For example if the received message is

#DE3163#FF7F00#FF7F00#FFFF31#FFFF31#00FFFF#FFFF00

Split this into segments of length 7 to generate

#DE3163 #FF7F00 #FF7F00 #FFFF31 #FFFF31 #00FFFF #FFFF00

From Table – 1 the message is decrypted as **GOODDAY**.

IV. CONCLUSION

There are 53 color codes that starts with A and 113 that starts with 113. So if we assign colors starting with the corresponding color codes to the alphabets, then for the word ADD, there are $53 \times 113 \times 113 =$ ways of choosing the color code. This means that there are 676757 ways of encrypting a small word ADD. Hence breaking the code for any hacker becomes very difficult even if it is known that color codes are used for encryption. Hence the proposed method is safe for data encryption.

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