NOVEL STEGANOGRAPHY OVER HTML CODE PROCESS

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ABSTRACT

Different security strategies have been developed to protect the transfer of information between users. This has become especially important after the tremendous growth of internet use. Encryption techniques convert readable data into a ciphered form. Other techniques hide the message in another file, and some powerful techniques combine hiding and encryption concepts

INTRODUCTION

The proposed algorithm applies some statistical concepts to create a frequency array to determine the occurrence frequency of each character. The encryption step depends on two simple logical operations to change the data form to increase the complexity of the hiding process. The last step is to embed the encrypted data as comments inside the HTML page. This new algorithm comes with many advantages, such as generality, applicability to different spoken languages, and can be extended to other Web programming pages such as XML, ASP.
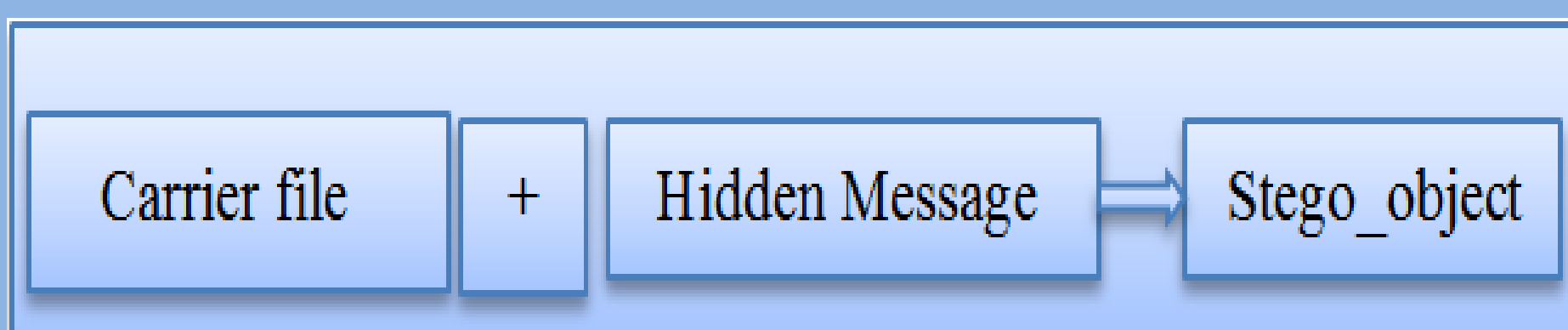

Figure 1 Embedding Algorithm .

PROPOSED ALGORITHM

In this paper, we employ cryptography and steganography techniques to pass secure information. Since web pages are used as the carrier for data, and since the pages are published over the Internet, authenticated users can access the hidden data. The proposed algorithm consists of three main steps as shown in Figure 2. where the first and third step represent inverse operations
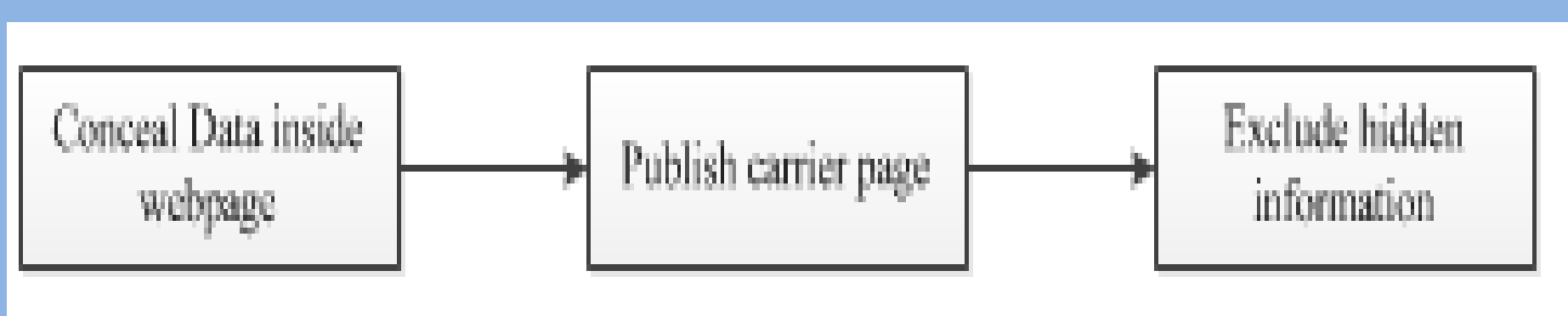

Figure 2 . Steganography Process.

The Conceal operation consists of the 6 steps:

➢ **Statistical Operation :-**
This step creates an array of 26 elements to count the characters' frequency. The frequency array can be extended or shrunk depending on the language used in the web page.

➢ **Character representation:-**
After the frequency array has been generated, the lowest two characters in frequency can be represented by one bit. If the two characters have the same frequency number, the character order specifies which one is zero. For example, if letters X and Z appear 10 and 6 times, then Z can be represented by 0 and X by 1.

➢ **Embedding process:-**
In this step, the secret bits embedded after the character representation is 8 bits. In other words, if the first character representation is 0 and hidden information is 0111011, the code will be 00111011.

➢ **Encryption process :-**
This step consists of three simple binary operations. The binary representation is first complemented then exclusive OR (XOR) is performed with the key. Output of XOR gate shift left by one bit and again enter to XOR as input. On the other hand, the key creation depends on the page index where each page has rear index. This operation is repeated twice as shown in Figure 3.
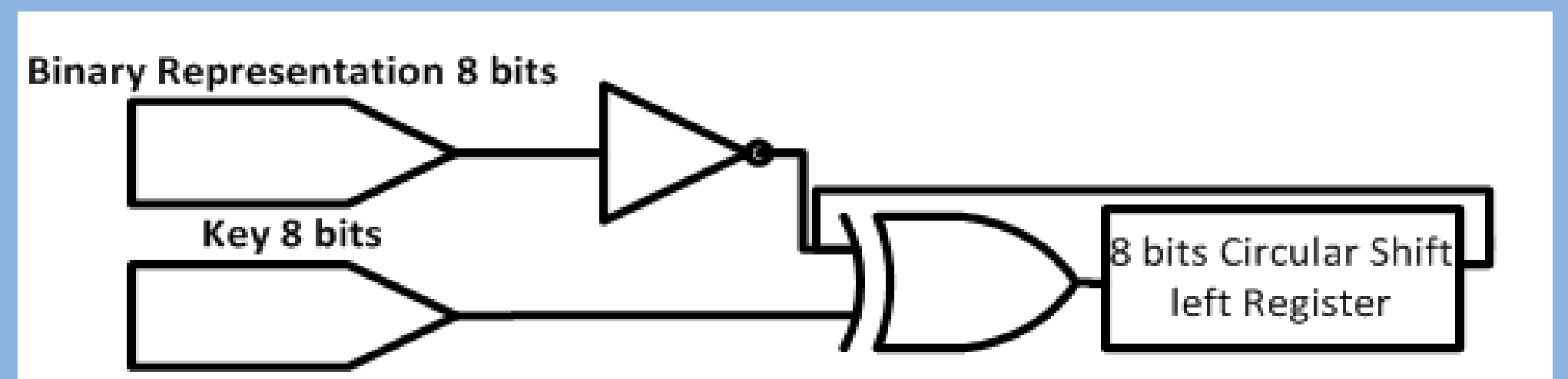
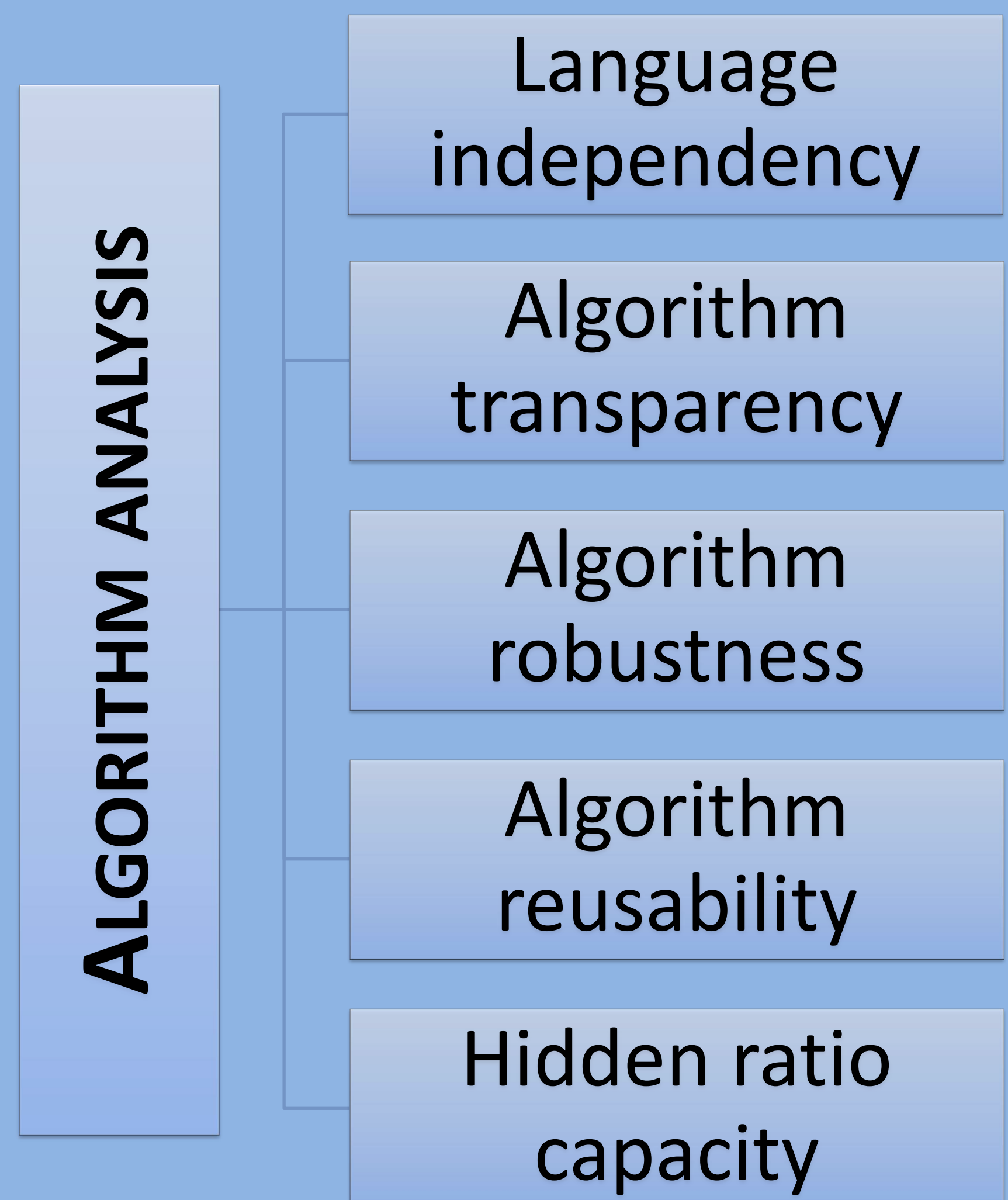## PROPOSED ALGORITHM

Figure 3. Encryption gates.

➢ **Decoding Process (convert binary code to ASCII code).**
The next step after embedding is decoding to convert the binary code to text form. In the running example, 11011001are decoded to (Ù).

➢ **Insertion Operation :-**
The last step in our algorithm is the insertion operation where the output of step 5 is inserted into the web page web page code as a comment. The comments do not appear in the page output view

ALGORITHM ANALYSIS

CONCLUSION

In this paper, we presented a promising algorithm that can be applied to different languages over HTML pages. The proposed algorithm offers high hidden capacity compared to other algorithms. In addition, the algorithm offers robustness, as the hidden data was inserted inside the page as comments, and the Internet browser does not show it. Moreover, the algorithm enhances transparency by using an encryption mechanism

REFERENCES

Ammar Odeh, Khaled Elleithy, Miad Faezipour Eman Abdelfattah, "Novel Steganography over HTML Code," New Trends in Networking, Computing, Informatics, Systems Sciences, and Engineering, Springer 2014.