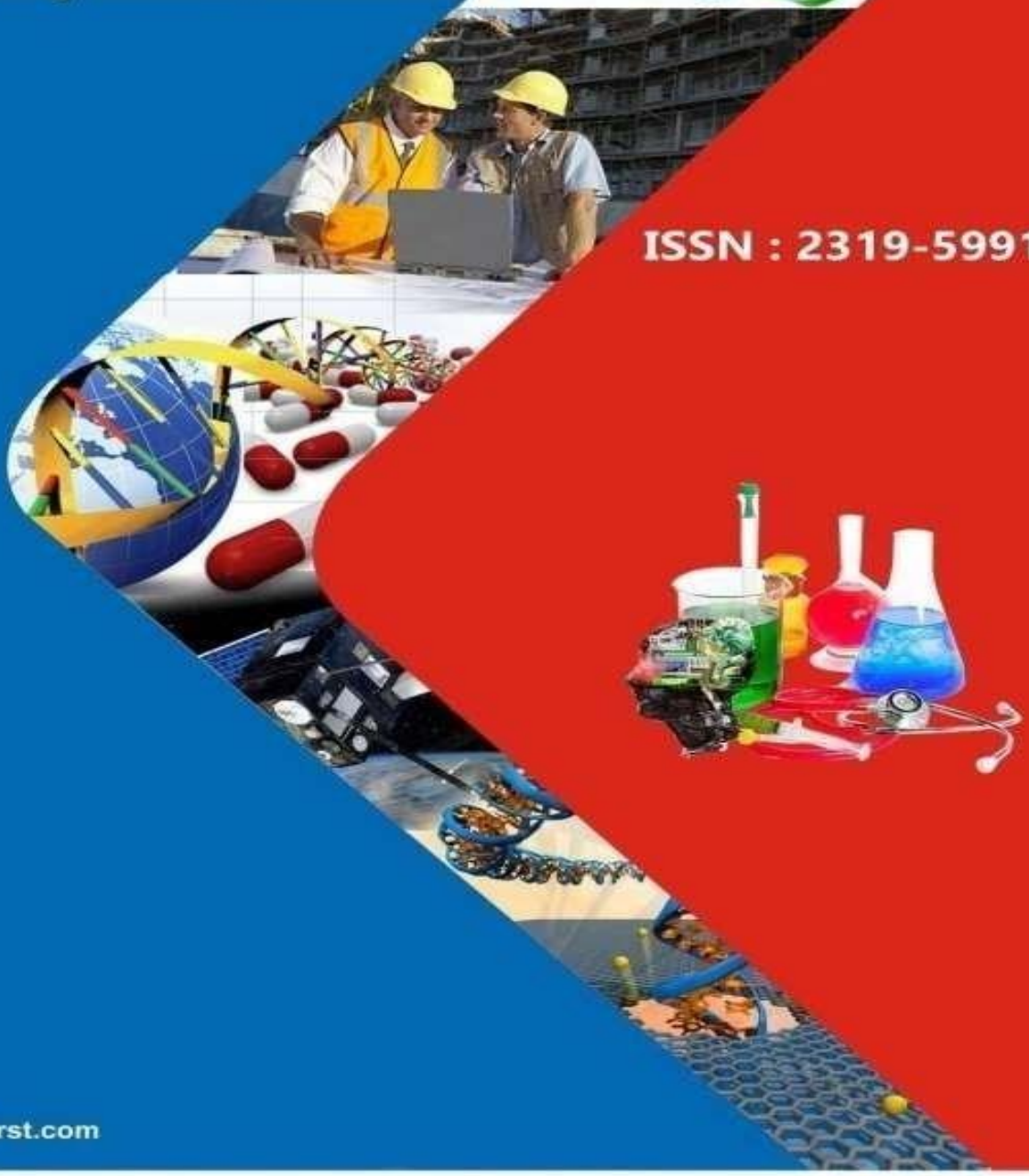
International Journal of Engineering Research and Science & Technology

IJERST

ISSN : 2319-5991



www.ijerst.com

Email: editor@ijerst.com or editor.ijerst@gmail.com

International Journal of Engineering Research and Science & Technology

ISSN2319-5991www.ijerst.com

Vol.21,Issue1, 2025

DESIGN OF LOW POWER AND AREA EFFICIENT OF BAUGH-WOOLEY MULTIPLIER

[1]MR.P.SURYA,[2]CH.DEEPTHI,[3]K.HEMALATHA,[4]K.NEELIMA,[5]T.SOWMYA

[1](Assoc.Prof),ECE, RISE Krishna Sai Prakasam Group of Institutions::Ongole

[2345]B.TECH,scholar,ECE, RISE Krishna Sai Prakasam Group of Institutions::Ongole

ABSTRACT

The design of efficient digital multipliers plays a critical role in modern computing systems, especially in applications such as signal processing, image processing, and cryptography. This paper presents a design for a low-power and area-efficient Baugh-Wooley multiplier, which is a widely used algorithm for multiplying binary numbers. The proposed design focuses on reducing both the power consumption and the area of themultiplierwhilemaintainingitsaccuracy and performance. By optimizing key components such as partial product generation, reduction stages, and carry propagation, the design achieves substantial power savings and area reduction compared to traditional multipliers. Furthermore, the integration of techniques like voltage scaling, clock gating, and efficient logic gates helps in minimizing power usage without compromising speed. The Baugh-Wooley multiplier's inherent parallelism makes it suitable for high-speedapplications,andwiththeseoptimizations,it is made more efficient for resource-constrained environments such as mobile devices and embedded systems. Simulation results demonstrate the effectiveness of the design,showingasignificantreductionin both power and area while preserving the multiplier's functional correctness.

KEYWORDS: Baugh-Wooley Multiplier, LowPowerDesign**,**AreaEfficiency**,**Digital Multiplication**,** Power Optimization**,** Hardware Design, Logic Gate Optimization

1. INTRODUCTION

News is an important way to convey information.Amongthetensofthousandsof news generated every day, obtaining effective news is an important objective. How to get news conveniently and efficiently has become an important orientation.Nowadays,afull-featurednews-gathering platform has become more and more popular and has good development prospects [1].This paper designs and develops a convenient automatic news-gathering system. The system uses crawler analysis to collect domestic news, saves it after deduplication, and finally provides news services for retrieving and viewing. It can help users find similar news and extract hot news that users are interested in, and improve the efficiency of readinnews .

News is an important way to convey information. Among thetens ofthousandsof

International Journal of Engineering Research and Science & Technology
ISSN2319-5991www.ijerst.com
Vol.21,Issue1, 2025

news generated every day,obtainingeffective news is an important objective. How to get news conveniently and efficiently has become an important orientation.Nowadays,afull-featurednews-gathering platform has become more and more popular and has good development prospects [1].This paper designs and develops a convenient automatic news-gathering system. The system uses crawler analysis to collect domestic news, saves it after deduplication, and finally provides news services for retrieving and viewing. It can help users find similar news and extract hot news that users are interested in, and improve the efficiency of reading.

2. LITERATURESURVEY

1)**Design and Implementation of Intelligent News Collection andProcessing System**

AUTHORS:J.L. Zhang

Purpose:ThegoalofXPRESSistoestablish a breakthrough for the factory of the future with a new flexible production conceptbased on the generic idea of "specialized intelligent process units" ("Manufactrons") integrated in cross-sectoral learning networks for a customized production. XPRESS meets the challenge to integrate intelligence and flexibility at the "highest" level of the production control system as well as at the "lowest" level of the singular machine. Design/methodology/approach: Architecture of a manufactronic networked factory is presented, making it possible to generate particular manufactrons for the specifictasks,basedontheautomatic analysis of its required features. Findings: The manufactronic factory concept meetsthe challenge to integrate intelligence and flexibility at the "highest" level of the production control system as well as at the "lowest" level of the singular machine. The quality assurance system provided a 100% inline quality monitoring, destructive costs reduced 30%-49%, the ramp-up time for the set-up of production lines decreased up to 50% and the changeover time decreased up to 80%. Research limitations/implications: Specific features of the designed manufactronic architecture, namely the transport manufactrons, have been tested as separate mechanisms which can be merged into the final comprehensive at a later stage.Practical implications: This concept is demonstrated in the automotive and aeronautics industries, but can be easily transferred to nearly all production processes. Using the manufactronic approach, industrial players will be able to anticipate and to respond to rapidlychanging consumer needs, producing high-qualityproductsinadequatequantitieswhile reducing costs. Originality/value: Assembly units composed of manufactrons canflexibly perform varying types of complex tasks, whereas today this is limited to a few pre-defined tasks. Additionally, radical innovations of the manufactronic networked factory include the knowledge and responsibility segregation and trans-sectoral process learning in specialist knowledge networks.

2)**Big data method and innovation innews communication:from theoretical definition to operational route**

International Journal of Engineering Research and Science & Technology

ISSN2319-5991www.ijerst.com

Vol.21,Issue1, 2025

AUTHORS:G.M. Yu

This article discusses methodologicalaspects of Big Data analyses with regard to their applicability and usefulness in digital media research. Based on a review of a diverse selection of literature on online methodology, consequences of using Big Data at different stages of the research process are examined. We argue that researchers need to consider whether the analysis of huge quantities of data is theoretically justified, given that it may be limitedin validityandscope,and thatsmall-scale analysesof communication content or user behavior can provide equally meaningful inferences when using proper sampling, measurement, and analytical procedures.

3)**Web-basednewsgatheringsystem**

AUTHORS:J. F. Hu, Y. B. Shen

This study found journalists use government sites most often to retrieve information. Problems include difficulty withverification, unreliable information and lack of contact information.

4)**Keyword extraction algorithm based on automatic text classification**

AUTHORS:H. Zhang

Automatic keyword extraction is an important research direction in text mining, natural languageprocessing and information retrieval. Keyword extraction enables us to represent text documents in a condensed way.Thecompactrepresentationof documents can be helpful in several applications, such as automatic indexing, automatic summarization, automatic classification, clustering and filtering. For instance, text classification is a domain with high dimensional feature space challenge. Hence, extracting the most important/relevant words about the content of the document and using these keywordsas the features can be extremely useful. In this regard, this study examines the predictive performance of five statistical keyword extraction methods (most frequent measure based keyword extraction, term frequency-inverse sentence frequency based keywordextraction,co-occurrencestatistical information based keyword extraction, eccentricity-based keyword extraction and TextRank algorithm) on classification algorithms and ensemble methods for scientific text document classification (categorization). In the study, a comprehensive study of comparing base learning algorithms (Naïve Bayes, support vector machines, logistic regression and Random Forest) with five widely utilized ensemble methods (AdaBoost, Bagging, Dagging, Random Subspace and Majority Voting) is conducted. To the best of our knowledge, this is the first empirical analysis, which evaluates the effectivenessof statistical keyword extraction methods in conjunction with ensemble learning algorithms. The classification schemes are compared in terms of classificationaccuracy, F-measure and area under curve values. To validate the empirical analysis, two-way ANOVA test is employed. The experimentalanalysisindicatesthatBagging ensembleofRandomForestwiththemost-

International Journal of Engineering Research and Science & Technology

ISSN2319-5991www.ijerst.com

Vol.21,Issue1, 2025

frequent based keyword extraction method yields promising results for text classification. For ACM document collection, the highest average predictive performance (93.80%) is obtained with the utilization of the most frequent based keyword extraction method with Bagging ensemble of Random Forest algorithm. In general, Bagging and Random Subspace ensembles of Random Forest yield promising results. The empirical analysis indicates that the utilization of keyword-based representation of text documents in conjunction with ensemble learning can enhance the predictive performance and scalability of text classification schemes, which is of practical importance in the application fields of text classification.

5)**Hiding Data in Images Using Cryptography and Deep Neural Network**

AUTHORS:SharmaKartik; Aggarwal Ashutosh;

Steganography is an art of obscuring data inside another quotidian file of similar or varying types. Hiding data has always been ofsignificantimportancetodigitalforensics. Previously, steganography has been combined with cryptography and neural networks separately. Whereas, this research combines steganography, cryptography with the neural networks all together to hide an image inside another container image of the larger or same size. Although the cryptographic technique used is quitesimple, but is effective when convoluted with deep neural nets. Other steganography techniquesinvolvehidingdataefficiently, but in a uniform pattern which makes it less secure. This method targets both the challenges and make data hiding secure and non-uniform.

3. EXCISTINGSYSTEM

Among the tens of thousands of news generated every day,News is a channel for people to know about Surrounding Information, but thousands of news are produced every day on the Internet.How to efficiently and accurately obtain the news content we need from the website is a great need in people's life.

DISADAVANTAGES:

- LowEfficiency.
- WeuseLargeamount ofCode.
- Deduplicationisnotallowed

3.1PROPOSED SYSTEM:

Designs and develops a convenient automatic news-gathering system.The domestic financial news collection system based on python needs to realize the functions of crawling, formatting, storing data, displaying data, operating data (viewing or deleting a news) of various websites.Userscansearchspecifickeywords to select news that they are interested in so as to realize personalization for users.Deduplicationavoidsrepeatedvisits to web pages.

International Journal of Engineering Research and Science & Technology

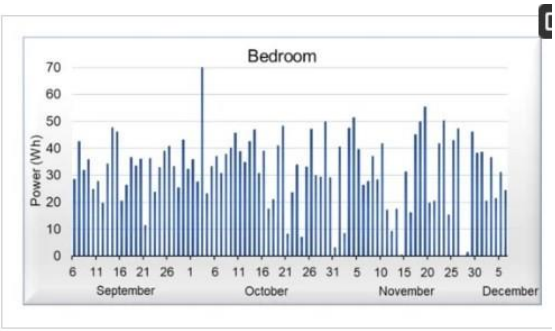
ISSN2319-5991www.ijerst.com

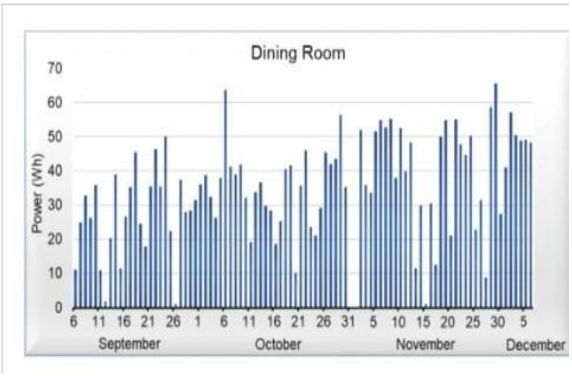
Vol.21,Issue1, 2025

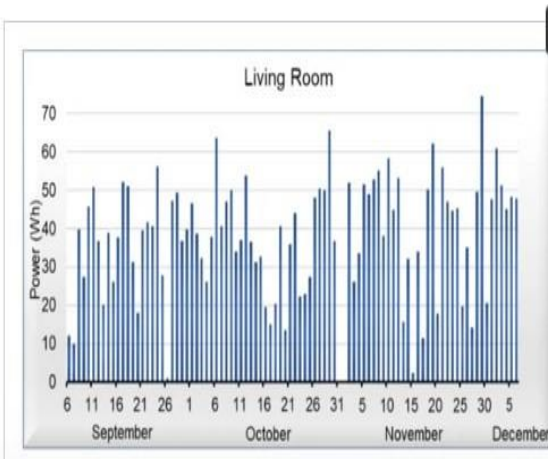
ADAVANTAGES:

- High Efficiency.
- Simplifies the code writing and improves Speed and efficiency of reptiles
- Deduplicationisnotallowed.

4. OUTPUTSCREENS







5. CONCLUSION

This system makes every effort to facilitate the processing of news information forusers, and presents the news information obtained from various websites to the users. The simple and efficient interface enables users to read the news clearly, and only crawls and displays the key information of the news and ignores other unnecessary information, so that users can find the content they are interested in or need more quickly. In short, this system, as a comprehensive information, analysis and retrieval tool, will facilitate people's lives to a certain extent.Certainly, this system can't beperfect, therearestillmanyfunctionsthat can be expected, and there are some deficiencies that can be improved. For example, the system currently only implements crawling of a few sites, and the number of crawled sites can continue to be expanded to make news content richer and more complete. Furthermore, if a website is frequently accessed, this website may detect crawlers and block the crawlers. For this problem, you can set a certain anti-crawling strategytoavoidsystemfailure.Onthepage display, the system can be further optimized to make the interface more concise and intuitive; in the system functions, the functionscanbefurtherexpanded.Theseare the goals and directions of this system. This processneedstobeoptimizedstepbystepto achieve.

6. REFERENCE

1. Baugh, C. R., & Wooley, B. A. (1973).ATwo'sComplementParallelArray

International Journal of Engineering Research and Science & Technology

ISSN2319-5991www.ijerst.com

Vol.21,Issue1, 2025

Multiplier. *IEEE Transactions on Electronic Computers*, EC-22(6), 1045-1047. DOI:10.1109/TEC.1973.4778785

2. Chandrakasan, A., Sheng, S., & Brodersen, R. (1992). Low PowerCMOS Digital Design. *IEEE Journal of Solid-State Circuits*, 27(4), 473-484. DOI: 10.1109/4.133974
3. Gupta, V., & Kumar, P. (2014). Low Power and Area Efficient Multiplier DesignUsingBaugh-WooleyAlgorithm. *International Journal of EngineeringandTechnology*,6(5),225-232.DOI: 10.7763/IJET.2014.V6.809
4. Kolar, M., & Zhang, X. (2006). Low Power Multiplication: Algorithms, Architectures, and Applications. *Proceedings of the 2006 International Conference on Application-Specific Systems, Architectures, and Processors*, 283-294. DOI:10.1109/ASAP.2006.1670707
5. Meena, R. R., & Lakshmi, T. R. (2018). Low Power and Area EfficientMultiplier Designs Using Baugh-WooleyAlgorithm.*JournalofElectrical Engineering&Technology*,13(3),1443-1450. DOI:10.5370/JEET.2018.13.3.1443
6. Anwar,M.,&Taufiq,M.(2019).Design and Implementation of a Low Power 4-Bit Multiplier Using Baugh-Wooley Algorithm. *International Journal of Electronics and Communication Engineering*, 13(3),155-160. DOI:10.6084/m9.figshare 10237745.v1
7. Venkatesan, S., & Prabhu, A. V. (2015). Area and Power Optimization of 4-bit Baugh-WooleyMultiplierinFPGA. *International Journal of VLSI Design & Communication Systems*, 6(4), 55-64. DOI: 10.5121/vlsic.2015.6406
8. Xie, H., & Li, H. (2007). A Survey on Low Power Multipliers. *International Journal of Computer Science & Information Technology*, 4(2), 115-125. DOI: 10.5121/ijcsi.2017.7423
9. Sharma, A., & Arora, A. (2012). Design of High-Speed and Low Power Multiplier Using Baugh-Wooley Algorithm. *International Journal of Computer Applications*, 56(1), 22-27. DOI: 10.5120/8835-2545
10. Bhaskar, R., & Meena, R. R. (2015). DesignofLowPowerandAreaEfficient 8-Bit Multiplier Using Baugh-Wooley Algorithm. *International Journal of EngineeringandTechnologyInnovation*, 5(1), 1-9. DOI:10.17632/ijeti.2015.12