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A Disguised Framework For Plagiarism Detection: A Jaccard Coefficient Approach To Detect Telugu Text Documents

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ABSTRACT

Literary theft is the demonstration of communicating someone else's perspective, words and work as his own without recognizing the first source. It made numerous issues, particularly for instructive establishments and scientists. There are numerous openly accessible written falsification symptomatic apparatuses that are utilized to defeat these issues, yet those devices for the most part work in explicit dialects, for example, Arabic, English and Urdu. So far there is no such instrument to discover composing telugu writings. So we distinguished this issue and introduced its answer. We have utilized some preprocessing procedures and applied Jaccard Coefficient calculation to recognize level of copyright infringement.

Keywords:- Plagiarism detection

I. INTRODUCTION

Plagiarism arises when a novel suggestion or activity utilizes materials or sources in a transformative way first impression, information or view[1]. Plagiarism can be separated into two major categories like source code plagiarism, written texts[2-5]. Text is segregated into two categories named as cross-lingual and monolingual[3]. Text category comprises many forms of writing namely sentences or Word-ordering, joining sentences[4], copy and paste sentences, modifying the formation of sentences and rephrases[5-9]. IPD technique functions with only single distrustful document and does not need any reference text for comparing with outer source. In contrast, EPD technique needs comparative texts[10], such as suspicious and unscripted original document[11-15]. During this work designed a PD system that make use of Machine Learning (ML) plus Natural Language Processing (NLP) techniques for eliminating unwanted data and to find degree of resemblance among Telugu text papers[16-20].

II. LITERATURE SURVEY

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Writing study is the most significant advance in

programming improvement process. Before building up the device it is important to decide the time factor, economy and friends quality recommended that "By **Programming** utilizing Agnostic Languages Methodology for Plagiarism Detection in Coding Courses" these days understudies'[21-23]. To discover the copyright infringement scores they will utilize choice trees which will be determined dependent on the speed of lines every moment and characters every moment[24-26]. Notwithstanding broad and expressive opportunities we examine three unique levels that are viewed as fundamental, transitional and complex[27]. The Novel Framework for Plagiarism Detection: Methods for Finding Research in Urdu Language. By **NLP** (Natural Language utilizing preparing) procedures, for example, Tokenization, Trademark Removal, Termination Removal they have recognized dubious content and pieces and afterward split into lumps, after which they utilize a similar measurement for finding similar focuses[28-30]. Here they utilized three unique measurements, for example, the Levenshtien Distance Method (LDM), the Jaccard Overlap (JOM) strategy, the Jaccard Containment Coefficient (JCM) technique, the Dice Method (DM) for coordinating focuses and split whether a record was made[31]. The Discovery of Plagiarism Disguised in

Arabic Text Documents" two techniques are utilized to decide the seizure of writings in Arabic writings. The primary methodology depends on word handling, word arrangement, and word weight with the point of estimating the comparability connections between content structures[32-35]. The subsequent strategy depends on the Reading Machine (ML), in which the framework is produced using the date sentence[36]. A Search of Verilog Code Plagiarism Detection Way" here utilizing the SS framework and the proposed language structure model (AST)[37-39]. technique initially approves a legitimate and exact Verilog code, at that point channels the presumed code erroneously by the MOSS program, at that point channels the purportedly degenerate code as indicated by AST code get to; the entirety of the two crude documents the conclusive outcome[40]. Counterfeiting Detection System for Armenian Language" a framework for examining similitudes in Armenian writing. Normal Language Processing incorporates conventional and syntactic changes, word translating, deduction, marking[41]. During this program letters in order is, at primarily tried whether it is written in Armenian or not. Testing is finished with ASCII codes[42]. We use Google interpreter to decipher reports[43]. Literary theft Detection in Big Using Modified Map-Reduction Algorithm" phrases SCAM (Standard Copy Analysis Mechanism) is a standard proportion of pass tally by contrasting a lot of standard names between a test report and an enlisted archive[44]. Utilizing the SCAM equation, a similar proportion is thought about between the test record and the informational collection[45]. The Discovery of Plagiarism in Urdu Manuscripts". Here we use pre-handling methods, for example, Tokenization, Signal Removal, Word Suspension, Ngrams and Chunking, Stemming[46]. we have utilized

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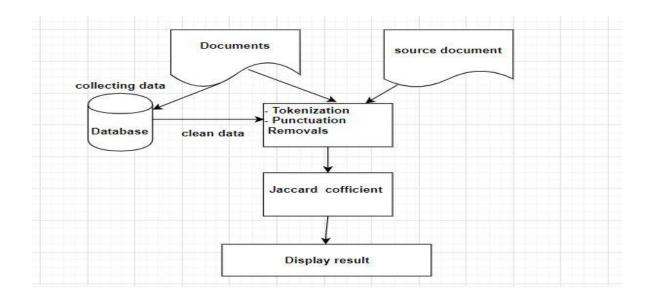
cosine strategies, Generalized Jaccard, DLDM and WMA. Test results demonstrate that the proposed DLDM strategy is progressively productive in other paired characterization strategies[47]. Vital Discovery Strategy and the Plagiarism Prevention Program in Educational Engineering" will utilize two strategies for the recognition and anticipation of literary theft. The primary strategy depends on the portion of a novel task for every understudy, while the subsequent technique depends on the individual introduction of coursework discoveries. Comparable scores were determined utilizing Turnitin Software[48].

III. IMPLEMENTATION

Usage is the segment of the venture when a supposed plan is changed out into a working structure. In this regard it may be viewed as the most fundamental stage in achieving a profitable new structure and in giving the client[49], assurance that the new structure will employ and convincing. Execution step consist of watchful arranging, assessment of the current structure and it's necessities on usage, planning of approaches to accomplish changeover and evaluation of substitution techniques[50].

3.1 SYSTEM ARCHITECTURE

Framework engineering or frameworks engineering is the theoretical plan that characterizes the structure and additionally conduct of a framework[51]. A design portrayal is a conventional depiction of a framework, sorted out such that supports thinking about the auxiliary properties of the framework[52]. It characterizes the framework segments or building squares and gives an arrangement from which items can be secured, and frameworks created, that will cooperate to actualize the general framework[53].



Preprocessing:

Perform preprocessing on the corpus and the source report; the preprocessing strategies utilized are tokenization, accentuation evacuation[54].

Jaccard Coefficient:

$$J(W1, W2) = \frac{|W1 \cap W2|}{|W1 \cup W2|}$$

Let W1 be the corpus and W2 be the source archive that we are going to give as contribution by applying this calculation written falsification rate can be shown. **Show Result:**

At long last in the wake of applying the calculation the python code must be connected with the html code to show the outcome on the site with the assistance of jar bundle.

3.2 MODULES:

- 1. Gathering Corpus
- 2. Applying the Jaccard Coefficient Algorithm
- 3. Making Website page
- 4. Show Result

3.2.1 MODULE DESCRIPTION:

1. Gathering Corpus:

Right off the bat we need to gather various archives from different assets and afterward store in

neighborhood stockpiling [55] and afterward download a few records what it is given as information and store in another document.

2. Applying Jaccard Coefficient Algorithm

Preprocess the gathered corpus and information report and apply the calculation. $J(W1,W2) = \frac{|W1 \cap W2|}{|W1 \cap W2|}$

The above recipe figures the level of written falsification between the source and the dubious archives [56]. Let W1 be the corpus that we have gathered and W2 be the source record that we will transfer verifiably by the client[57]. In the wake of giving the source record as information the source archive and the corpus are preprocessed and are given as contribution to the calculation then this discover the level of literary theft[58].

3. Making Website page

Connection the python code to html by utilizing carafe bundle and furthermore to make the page progressively appealing CSS (Cascading Style Sheet) must be utilized. The site page must be made by utilizing the html labels and we have to apply css styles to that to look the page increasingly alluring[59]. The website page comprising of two catches one is pick record where we have to transfer input telugu archive to which we have to check the literary theft adjacent to that button it has guidance like select a document in the wake of transferring the record it shows the name of the record and another

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catch is check copyright infringement on clicking that button the outcome will be shown. This page contains a picture that is check copyright infringement to look the page appealing.[60]

4. Show Result

At last showcase the outcome on the website page by connecting the python code i.e the preprocessing step and applying the calculation to the html code at that point run the python code in this order where it shows the url duplicate that reorder it on the chrome where it shows the site page there you can discover the outcome in the wake of transferring the record and playing out the activity on tapping the catch. The outcome acquired is the quantity of normal words and the level of copyright infringement and the document from which substance is replicated[61].

3.2.2 ADVANTAGE

Bit of leeway of this apparatus is , it very well may have the option to distinguish literary theft for telugu content archives which isn't in presence.

3.3 ALGORITHM

Jaccard Coefficient Algorithm

 $J(X, Y) = |X \cap Y| / |X \cup Y|$

In Steps, that's:

- 1. Count the quantity of individuals which are shared between the two sets.
- 2. Count the all out number of individuals in the two sets (shared and un-shared).
- 3. Divide the quantity of shared individuals (1) by the all out number of individuals (2).
- 4. Multiply the number you found in (3) by 100.

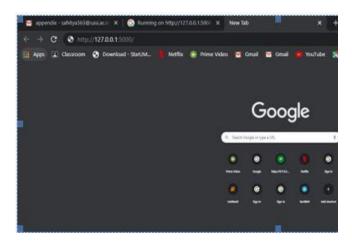
IV. RESULTS

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Run python document on the order brief then it shows the url on the order



Duplicate glue this url in the browser and press Enter key



A website page will be shown with a picture and two catches one is pick document and other is check copyright infringement



In the wake of picking the document the record name will be shown



At long last, in the wake of clicking check counterfeiting button basic words and the complete copyright infringement rate will be shown[62].



V. CONCLUSION

In this paper we have built up a written falsification device to identify the level of copyright infringement for telugu content reports by utilizing Jaccard Coefficient Algorithm. In this exploration we have applied preprocessing procedures like tokenization and accentuation removal. In future In future this venture can be broadened further by applying various calculations like cosine closeness, Pearson similitude, Latent semantic Index and make examinations among them and furthermore to additionally improve the precision some more preprocessing steps can be included like stop word evacuation, stemming.

REFERENCES

- [1]. Ling Wu, Qishan Zhang, Chi-Hua Chen, Kun Guo, Deqin Wang, "Deep Learning Techniques for Community Detection in Social Networks," IEEE Access, vol. 8, pp. 96016-96026, May 2020.
- [2]. D.V.L.N.Sastry, B.Anil Kumar, P. Kameswara Rao, G.S.S.S.S.V.Krishna Mohan "Tuning Of Fractional Order PID Controller For Interacting Systems By Different Methods", imanager's Journal on Instrumentation & amp; Control Engineering Vol.2 No.2 May July 2014.
- [3]. Chi-Hua Chen, "A Cell Probe-based Method for Vehicle Speed Estimation," *IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences*, vol. E103-A, no. 1, pp. 265-267, January 2020.
- [4]. G.S.S.S.S.V.Krishna Mohan and Komanapalli Venkata Lakshmi Narayana, "Auto Tuning

- Smith-Predictive Control of Delayed Processes Based on Model Reference Adaptive Controller", Jour of Adv Research in Dynamical & Control Systems, Vol. 12, 04-Special Issue, p.p.1224-1230, 2020.
- [5]. Shankar, K., Lakshmanaprabu, S. K., Gupta, D., Khanna, A., & de Albuquerque, V. H. C. (2020). Adaptive optimal multi key based encryption for digital image security. Concurrency and Computation: Practice and Experience, 32(4), e5122.
- [6]. GSSSSV.Krishna Mohan and Yarravarapu Srinivasa Rao, "An efficient design of finite impulse response — Fractional-order differentiator using shuffled frog leaping algorithm heuristic", International Journal of Wavelets, Multiresolution and Information Processing, World Scientific Publishing Company, Vol. 17, No. 2 March 2019.
- [7]. Chi-Hua Chen, Fangying Song, Feng-Jang Hwang, Ling Wu, "A Probability Density Function Generator Based on Neural Networks," *Physica A: Statistical Mechanics and its Applications*, vol. 541, Article ID 123344. March 2020.
- [8]. G.S.S.S.V. Krishna Mohan & Yarravarapu Srinivasa Rao: "Optimal Order of the Differentiator Selection in Noise Removal of ECG Signals", International Journal of Recent Technology and Engineering (IJRTE), Volume-7, Issue-6, 260-267, March 2019
- [9]. Mingyang Pan, Yisai Liu, Jiayi Cao, Yu Li, Chao Li, Chi-Hua Chen, "Visual Recognition Based on Deep Learning for Navigation Mark Classification," *IEEE Access*, vol. 8, pp. 32767-32775, February 2020.
- [10]. GSSSSV.Krishna Mohan and Yarravarapu Srinivasa Rao, "An efficient design of fractional order differentiator using hybrid Shuffled frog leaping algorithm for handling noisy electrocardiograms", International Journal of Computers and Applications,Feb 2019.
- [11]. Shankar, K., Lakshmanaprabu, S. K., Khanna, A., Tanwar, S., Rodrigues, J. J., & Roy, N. R. (2019). Alzheimer detection using Group Grey Wolf Optimization based features with convolutional classifier. Computers & Electrical Engineering, 77, 230-243.
- [12]. GSSSSV.Krishna Mohan and K.Venkata Lakshmi Narayana, "Design Of A Fractional Order PID For A Three Tank System", International Journal of Applied Engineering

- Research, Volume 10, Number 2 (2015) pp. 3133-3148, Research India Publications, April 2015.
- [13]. Chin-Ling Chen, Tsai-Tung Yang, Yong-Yuan Deng, Chi-Hua Chen, "A Secure IoT Medical Information Sharing and Emergency Notification System Based on Non-repudiation Mechanism," *Transactions on Emerging Telecommunications Technologies*, Accepted Manuscript.
- [14]. A,Venkata Naga Vamsi, G.S.S.S.S.V.Krishna Mohan, S.S.S.Srikanth, "Simplified Thermocouple Interface For Hot Only Or Cold Only Measurement With Linearization Circuit", (IJERA) International Journal of Engineering Research and Applications, Vol. 2, Issue5, September- October 2012, pp.1663-1667.
- [15]. Hsu-Yang Kung, Chi-Hua Chen, Mei-Hsien Lin, Tai-Yang Wu, "Design of Seamless Handoff Control Based on Vehicular Streaming Communications," *Journal of Internet Technology*, vol. 20, no. 7, pp. 2083-2097, December 2019.
- [16]. D.V.L.N.Sastry, G.S.S.S.V.Krishna Mohan, M.S.R.Naidu, N.Mohana Rao, "An Implementation of different non-linear PID controllers on a single tank level control using Matlab", (IJCA) International Journal of Computer Applications (0975 – 8887) Volume 54–No.1, September 2012.
- [17]. Shankar, K., Zhang, Y., Liu, Y., Wu, L., & Chen, C. H. (2020). Hyperparameter Tuning Deep Learning for Diabetic Retinopathy Fundus Image Classification. IEEE Access.
- [18]. R. Meera, P.Anandan "A Review On Automatic Detection of Brain Tumor Using Computer Aided Diagnosis System Through MRI" The Energy Green, Intelligent in Computing & Communication Technologies in Journal of Energy Web and Information Technologies, Vol5, Issue20, 2018.
- [19]. Shankar, K., & Elhoseny, M. (2019). Trust Based Cluster Head Election of Secure Message Transmission in MANET Using Multi Secure Protocol with TDES. Journal of Universal Computer Science, 25(10), 1221-1239.
- [20]. G. Keethana , P.Anandan "A Survey on Security Issues and Challenges in Mobile Adhoc Network" The Energy Green, Intelligent in Computing & Communication Technologies in Journal of Energy Web and Information Technologies, Vol5, Issue 20, 2018.

ISSN: 2347-8578

- [21]. Manickam, P., Shankar, K., Perumal, E., Ilayaraja, M., & Kumar, K. S. (2019). Secure data transmission through reliable vehicles in VANET using optimal lightweight cryptography. In Cybersecurity and secure information systems (pp. 193-204). Springer, Cham.
- [22]. K.Dhanasekaran , P.Anandan, A.Manju "A Computational Approach of Highly Secure Hash Algorithm For Color Image Steganography Using Edge Detection And Honey Encryption Algorithm" International Journal of Engineering & Technology, 7 PP. 239-242, 2018.
- [23]. Shankar, K. (2017). Prediction of most risk factors in hepatitis disease using apriori algorithm. Research Journal of Pharmaceutical Biological and Chemical Sciences, 8(5), 477-484.
- [24]. K.Vijayalakshmi,P.Anandan "A Multi Objective Tabu Particle Swarm Optimization for Effective Cluster Head Selection in WSN" Cluster Computing, Vol. 22,Issue5,12275–12282,2019.
- [25]. Chi-Hua Chen, "An Arrival Time Prediction Method for Bus System," *IEEE Internet of Things Journal*, vol. 5, no. 5, pp. 4231-4232, October 2018.
- [26]. B.Senthilraja, P.Anandan, A.Manju "The Survey to Implement Recent Reversible Watermarking Techniques In Medical Images And Other Applications" Journal of Advanced Research in Dynamical & Control Systems, Vol.10-Special Issue 03, May 2018.
- [27]. Elhoseny, M., Shankar, K., &Uthayakumar, J. (2019). Intelligent diagnostic prediction and classification system for chronic kidney disease. Scientific reports, 9(1), 1-14.
- [28]. P.Vinayagam, P.Anandan "A Review on Pixel Performance in CMOS Image Sensors" Journal of Advanced Research in Dynamical & Control Systems, 05-Special Issue, July 2017.
- [29]. Elhoseny, M., Bian, G. B., Lakshmanaprabu, S. K., Shankar, K., Singh, A. K., & Wu, W. (2019). Effective features to classify ovarian cancer data in internet of medical things. Computer Networks, 159, 147-156.
- [30]. P.Anandan, N.Mohankumar, V.Saranya "Characterization of Flicker noise in Dual Material Gate Silicon Nanowire Transistors" Journal of Nanoelectronics and Optoelectronics, 12, 72–75 (2017) (Impact Factor 0.369)

- [31]. Elhoseny, M., & Shankar, K. (2020). Energy efficient optimal routing for communication in VANETs via clustering model. In Emerging Technologies for Connected Internet of Vehicles and Intelligent Transportation System Networks (pp. 1-14). Springer, Cham.
- [32]. N.Mohankumar, A.Mohanbabu, S.Baskaran, P.Anandan, N.Anbuselvan and P.Bharathivikkiraman "Modeling of Sheet Carrier Density, DC and Transconductance of Novel InxAl1-XN/GaN-Based HEMT Structures" Advanced Materials Research Vol. 1105 (2015) pp 99-104.
- [33]. J.Sangeetha, T.Jayasankar, "A Novel Whispered Speaker Identification System Based on Extreme Learning Machine", International Journal of Speech Technology, Springer, (2018), 21 (1), pp.157–165.
- [34]. Dhanapal, R & Visalakshi, P 2016, Real Time Health Care Monitoring System for Driver Community Using Adhoc Sensor Network", Journal of Medical Imaging and Health Informatics, ISSN 2156-7018, vol. 6, no. 3, pp. 811-815.
- [35]. N. Krishnaraj, Mohamed Elhoseny, E. Laxmi Lydia, K. Shankar, Omar ALDabbas, "An Efficient RADIX TRIE based Semantic-Visual Indexing Model for Large-Scale Image Retrieval in Cloud Environment, Software: Practice and Experience, Wiley, 2020
- [36]. Dr.N.Krishnaraj, Kiranmai Bellam, "Improved Distributed Frameworks to Incorporate Big Data through Deep Learning", Journal of Advanced Research in Dynamical & Control Systems, Vol. 12, 03-Special Issue, 2020.pp:332-338
- [37]. Mohanty, S. N., Lydia, E. L., Elhoseny, M., Al Otaibi, M. M. G., & Shankar, K. (2020). Deep learning with LSTM based distributed data mining model for energy efficient wireless sensor networks. Physical Communication, 101097.
- [38]. "Distributed Security Model for Remote Healthcare (DSM-RH) Services in Internet of Things Environment" Cyril Mathew, R. Dhanapal, P. Visalakshi, K. G. Parthiban, S. Karthik, Journal of Medical Imaging and Health Informatics, Volume 10, Number 1, January 2020, pp. 185-193(9).
- [39]. N.Krishnaraj, Mohamed Elhoseny, M.Thenmozhi,Mahmoud M.Selim, K.Shankar, "Deep Learning Model for real-time image compression in Internet of Underwater Things(IoUT)", Journal of Real-time Image Processing, 2019

ISSN: 2347-8578

- [40]. N.Krishnaraj, M.G.Kavitha, T.Jayasankar, K.Vi noth Kumar, "A Glove based approach to recognize Indian Sign Languages", International Journal of Recent Technology and Engineering (IJRTE) Volume-7, Issue-6, March 2019, pp.1419-1425.
- [41]. Dr.N.Krishnaraj ,Dr P Kiran Kumar, Mr K Subash Bhagahavn , "Conceptual Semantic Model for Web Document Clustering Using Term Frequency", EAI Endorsed Transactions on Energy Web and Information Technologies, Volume 5, Issue 20,2018,pp.1-4.
- [42]. N. Krishnaraj, P. Ezhilarasu, X Z Gao ,"Hybrid Soft Computing Approach for Prediction of Cancer in Colon Using Microarray Gene Data", Current Signal Transduction Therapy Vol.11 (2),pp71-75,June 2016.
- [43]. Uthayakumar, J., Elhoseny, M., & Shankar, K. (2020). Highly Reliable and Low-Complexity Image Compression Scheme Using Neighborhood Correlation Sequence Algorithm in WSN. IEEE Transactions on Reliability.
- [44]. N. Krishnaraj, P. Ezhilarasu, S.Karthik, Manoj Prabhakar.J, ,"Enhancing Security in Mobile Devices through Multimodal biometrics", Middle-East Journal of Scientific Research 23 (8), pp. 1598-1603, Jun 2016
- [45]. "Hybrid Dragonfly Optimization-Based Artificial Neural Network for the Recognition of Epilepsy" R. Dhanapal K. G. Parthiban, S. Vijayachitra, International Journal of Computational Intelligence Systems, Volume 12, Issue 2, 2019, Pages 1261 1269.
- [46]. Lydia, E. L., Raj, J. S., PandiSelvam, R., Elhoseny, M., & Shankar, K. (2019). Application of discrete transforms with selective coefficients for blind image watermarking. Transactions on Emerging Telecommunications Technologies, e3771.
- [47]. R Dhanapal, T Akila, SS Hussain, D Mavaluru "A Cost-Aware Method for Tasks Allocation on the Internet of Things by Grouping the Submitted Tasks" Journal of Internet Technology, Volume 20 (2019) No.7,Pages 2055-2062.
- [48]. Krishnaraj,N.,Ezhilarasu,p., Dharun, V.S.,"
 Smart Phone Application For Automatic
 Public Transportation Though Providing
 Intelligent Bus Status Information To The
 Users" International Journal of Applied
 Engineering Research (IJAER), Vol 59,
 pp.163-167, Jun -2015,

- [49]. Sivaram, A. M., Lydia, E. L., Pustokhina, I. V., Pustokhin, D. A., Elhoseny, M., Joshi, G. P., & Shankar, K. (2020). An Optimal Least Square Support Vector Machine Based Earnings Prediction of Blockchain Financial Products. IEEE Access.
- [50]. "Real Time Health Care Monitoring System for Driver Community Using Adhoc Sensor Network" Dhanapal, R.; Visalakshi, P.Journal of Medical Imaging and Health Informatics, Volume 6, Number 3, June 2016, pp. 811-815(5)
- [51]. Elhoseny, M., Selim, M. M., & Shankar, K. (2020). Optimal Deep Learning based Convolution Neural Network for digital forensics Face Sketch Synthesis in internet of things (IoT). International Journal of Machine Learning and Cybernetics, 1-12.
- [52]. "A Sector Based Energy Efficient Adaptive Routing Protocol for Large Scale MANET" R Dhanapal, P Visalakshi - Research Journal of Applied Sciences, Engineering and Technology,volume 9(7): pages 478-484,2015.
- [53]. Chi-Hua Chen, Feng-Jang Hwang, Hsu-Yang Kung, "Travel Time Prediction System Based on Data Clustering for Waste Collection Vehicles," *IEICE Transactions on Information* and Systems, vol. E102-D, no. 7, pp.1374-1383, July 2019.
- [54]. Dhanapal, R & Visalakshi, P 2016, "Optimizing Trust Based Secure Routing for Unified Efficient Resource Sharing for Large Scale MANET-TSRRS", Asian Journal of Information Technology, ISSN :1682-3915, vol. 15, no. 19, pp. 3756-3762.
- [55]. Lakshmanaprabu, S. K., Shankar, K., Ilayaraja, M., Nasir, A. W., Vijayakumar, V., &Chilamkurti, N. (2019). Random forest for big data classification in the internet of things using optimal features. International journal of machine learning and cybernetics, 10(10), 2609-2618.

ISSN: 2347-8578

- [56]. Dhanapal, R & Visalakshi, P 2015, "Efficient Clustering Protocol on Ant-Bee agent for Large Scale Manet", International Journal of Applied Engineering Research, ISSN 0973-4562, vol. 10, no. 52, pp. 349-361.
- [57]. Mohanty, S. N., Ramya, K. C., Rani, S. S., Gupta, D., Shankar, K., Lakshmanaprabu, S. K., & Khanna, A. (2020). An efficient Lightweight integrated Blockchain (ELIB) model for IoT security and privacy. Future Generation Computer Systems, 102, 1027-1037.
- [58]. Kathiresan, S., Sait, A. R. W., Gupta, D., Lakshmanaprabu, S. K., Khanna, A., & Pandey, H. M. (2020). Automated detection and classification of fundus diabetic retinopathy images using synergic deep learning model. Pattern Recognition Letters.
- [59]. Sankhwar, S., Gupta, D., Ramya, K. C., Rani, S. S., Shankar, K., &Lakshmanaprabu, S. K. (2020). Improved grey wolf optimizationbased feature subset selection with fuzzy neural classifier for financial crisis prediction. Soft Computing, 24(1), 101-110.
- [60]. Pustokhina, I. V., Pustokhin, D. A., Gupta, D., Khanna, A., Shankar, K., & Nguyen, G. N. (2020). An Effective Training Scheme for Deep Neural Network in Edge Computing Enabled Internet of Medical Things (IoMT) Systems. IEEE Access, 8, 107112-107123.
- [61]. Raj, R. J. S., Shobana, S. J., Pustokhina, I. V., Pustokhin, D. A., Gupta, D., & Shankar, K. (2020). Optimal Feature Selection-Based Medical Image Classification Using Deep Learning Model in Internet of Medical Things. IEEE Access, 8, 58006-58017.
- [62]. Pustokhina, I. V., Pustokhin, D. A., Rodrigues, J. J., Gupta, D., Khanna, A., Shankar, K., & Joshi, G. P. (2020). Automatic Vehicle License Plate Recognition using Optimal K-Means with Convolutional Neural Network for Intelligent Transportation Systems. IEEE Access.