

A Systematic Review- True News Detection

Mayank Kulkarni¹, Sudesh Godase², Digvijay Khilare³, Prof. V. B. Utpat⁴

^{1,2,3}UG Students, Department of Electronics and Telecommunication Engineering

⁴Assistant Professor, Department of Electronics and Telecommunication Engineering

SKN Sinhgad College of Engineering, Pandharpur

mayankkulkarni80@gmail.com, sudeshgodase17@gmail.com,

khilaredigvijay@gmail.com, vaishnavi.utpat@sknscoe.ac.in

Abstract: *The proliferation of online misinformation threatens public trust and informed discourse. Current supervised fake news detection methods are constrained by their dependence on extensive, labeled, domain-specific datasets, limiting their adaptability to novel forms of misinformation. This project introduces a novel, scalable solution by harnessing the zero-shot classification power of advanced Large Language Models (LLMs). Using the LangChain framework to orchestrate the pipeline, the system dynamically queries the Google Gemini API to analyze news content. By framing the task as a natural language inference problem, the model applies its pre-existing knowledge and reasoning skills to classify text as "Real" or "Fake" without any task-specific training. This methodology removes the need for costly data collection and model retraining, ensuring superior generalization across diverse topics. Our implementation demonstrates that the synergy of LangChain and Gemini creates a robust, efficient, and explainable framework for combating fake news, enabling more agile misinformation detection tools for the future.*

Keywords: True News Detection, Zero-Shot Classification, Large Language Models (LLMs), LangChain, Gemini API, Natural Language Inference, Misinformation

I. INTRODUCTION

In the digital age, the rapid proliferation of misinformation and fake news poses a significant threat to public trust and informed societal discourse. Traditional approaches to automated news verification often rely on supervised machine learning models, which require large, labeled, and domain-specific datasets for training. This dependency makes them inflexible, costly to maintain, and unable to adapt quickly to new topics and evolving deception tactics. To overcome these limitations, this project, "True News Detection," introduces a novel approach by leveraging the power of Zero-Shot Classification. Our system utilizes the LangChain framework to architect a robust and efficient pipeline that dynamically interacts with powerful Large Language Models. By integrating the Google Gemini API, we harness its advanced reasoning capabilities to analyze news content without any prior task-specific training.

The model is prompted to treat the detection task as a problem of natural language inference, applying its broad world knowledge to critically evaluate text and classify it as "Real" or "Fake." This methodology eliminates the need for extensive data collection and model retraining, offering a highly scalable and adaptable solution. This introduction outlines the core challenge, our innovative technological solution, and the significant advantages of using a zero-shot framework built with LangChain and Gemini to safeguard information integrity.

To implement this vision effectively, we built our system using the LangChain framework. LangChain provides an essential structured pipeline for managing the complex interactions with the LLM, handling prompt templating, and managing the workflow seamlessly. At the core of our classification engine is the Google Gemini API, chosen for its robust reasoning capabilities and efficiency in processing complex textual prompts. By integrating these technologies, our system dynamically analyzes news content, delivering a classification of "Real" or "Fake" accompanied by reasoning, thereby offering not just a verdict but also explainable insights.



The primary advantage of this architecture is its remarkable scalability and adaptability. It can instantly be applied to a wide array of topics—from politics to public health to finance— without the need for retraining or data collection, significantly reducing operational overhead.

II. LITERATURE SURVEY

[1] Lazer et al. (2018). The science of fake news. *Science*.

Lazer et al. established "fake news" as a critical subject of scientific inquiry, framing it as a fundamental threat to democratic systems and public trust. Their work articulated the urgent need for computational solutions to counter the industrial-scale production and dissemination of misinformation, providing the foundational motivation for automated detection systems like the one developed in this project.

[2] Shu et al. (2017). Fake news detection on social media: A data mining perspective. *ACM SIGKDD Explorations Newsletter*.

This seminal survey categorized fake news detection methods into news content, social context, and hybrid models. It demonstrated the initial feasibility of using machine learning for this task but also highlighted the inherent data dependency of these approaches, a core limitation that our project's zero-shot methodology seeks to overcome.

[3] Vosoughi, Roy, & Aral (2018). The spread of true and false news online. *Science*. Vosoughi et al. provided empirical, large-scale evidence that false news spreads farther, faster, and more deeply than true news. This study quantified the immense challenge at hand, setting a high-stakes performance benchmark for any detection system and underscoring the necessity for solutions that are as rapid and scalable as the misinformation itself.

[4] Devlin et al. (2019). BERT: Pre-training of Deep Bidirectional Transformers for Language Understanding. *NAACL*. The introduction of BERT marked a revolution in NLP, enabling models to develop a deep, contextual understanding of language. While fine-tuned BERT models became state-of-the-art for supervised fake news detection, they remained constrained by their need for labeled data, representing a powerful but ultimately limited predecessor to the approach taken in this work.

[5] Brown et al. (2020). Language Models are Few-Shot Learners. *NeurIPS*.

Brown et al. catalyzed a paradigm shift with GPT-3, demonstrating that sufficiently large language models (LLMs) possess remarkable few-shot and zero-shot learning capabilities.

This work is the direct intellectual precursor to our method, proving that LLMs can perform tasks like classification from natural language instructions alone, without task-specific training data.

[6] Radford et al. (2019). Language Models are Unsupervised Multitask Learners.

This work on GPT-2 established the core premise that language models trained on diverse internet-scale text can develop broad world knowledge and task-agnostic capabilities. It laid the groundwork for the reasoning and knowledge application we leverage in our project for discerning factual from deceptive content.

[7] Raffel et al. (2020). Exploring the Limits of Transfer Learning with a Unified Text-to-Text Transformer. *JMLR*.

Raffel et al. introduced a unified framework that cast every NLP problem as a text-to-text task. This conceptualization directly influences our project's design, where we frame the "True News Detection" problem as a text generation task where the model's output is a classification label ("Real" or "Fake").

[8] Ouyang et al. (2022). Training language models to follow instructions with human feedback. *NeurIPS*.

This research on InstructGPT was pivotal for aligning LLMs with human intent through Reinforcement Learning from Human Feedback (RLHF). It made LLMs more reliable, controllable, and safer, which is a critical requirement for our system to provide consistent and trustworthy veracity assessments.

[9] Thorne & Vlachos (2021). Evidence-based Fact-Checking of Health-Related Claims. This work emphasized the importance of evidence-based verification, moving beyond stylistic analysis. It aligns with our project's underlying principle that true detection should be based on reasoning and consistency with world knowledge, a capability inherent in advanced LLMs.



[10] Lewis et al. (2020). Retrieval-Augmented Generation for Knowledge-Intensive NLP Tasks. NeurIPS.

While our current implementation is purely zero-shot, the RAG architecture provides a clear pathway for future enhancement. It demonstrates how to ground LLMs in external, verifiable knowledge sources, which could be integrated into our LangChain pipeline to create an even more robust, evidence-backed detection system.

[11] The Gemini Team (2023). Gemini: A Family of Highly Capable Multimodal Models. Google Technical Report.

The Gemini models represent the current state-of-the-art in LLM reasoning, knowledge, and multimodal understanding. Our project directly leverages the Gemini API as its core engine, utilizing its advanced capabilities to perform the nuanced reasoning required for zero-shot news veracity classification.

[12] The LangChain Framework (2022-2023).

LangChain provides the essential software scaffolding for building complex LLM applications. In our project, it is not merely a tool but a critical architectural component that enables the structured orchestration of the classification pipeline, prompt management, and seamless integration with the Gemini API, ensuring a robust and scalable system.

Table 1: fake news detection.

Paper / Project	System Architecture	Cost	Ease of Implementation	Performance	User Experience	Limitations
[1] Lazer et al.	Social Science Framework	Low (Theoretical)	Complex (Requires multi-disciplinary integration)	Foundational for understanding spread	Guides policy and manual fact-checking	Not an automated technical system
[2] Vosoughi et al.	Large-scale Data Analysis	High (Data collection)	Complex (Requires massive social media datasets)	Quantified diffusion patterns of true vs. false news	Useful for researchers and platform designers	Descriptive, not a predictive detection model
[3] Pérez-Rosas et al.	Linguistic Feature-based ML	Low-Moderate	Moderate (Requires feature engineering and labeled data)	Good accuracy in controlled domains	Works as a batch classification system	Poor generalization, topic-specific, requires labeled data
[4] Shu et al.	Social Context & Network Analysis	Moderate-High	Complex (Needs access to social network metadata)	Effective when propagation data is available	Integrated into social media platforms	Not suitable for nascent claims; platform-dependent
[5] Thorne et al. (FEVER)	Knowledge-Based Verification (BERT)	High (Dataset creation, model training)	Complex (Evidence retrieval & model training pipeline)	High accuracy on Wikipedia-based claims	Serves as a benchmark for fact-checking systems	Limited to structured knowledge bases (e.g., Wikipedia)
[7] Brown et al. (GPT-3)	Few-Shot/Zero-Shot LLM	High (API or infrastructure)	Easy (Prompt-based)	Highly flexible and generalizable	Intuitive natural language interaction	Can be expensive and computationally intensive
				State-of-the-		Proprietary



[8] Gemini Team	Multimodal LLM (Gemini)	Variable (API-based)	Easy (Well-documented API)	art reasoning and knowledge	Accessible via simple API calls	model, costs associated with usage
[9] LangChain	LLM Application Framework	Low (Open-source)	Easy (Python framework)	Enables robust and complex AI chains	Simplifies development of LLM-powered apps	Adds an abstraction layer; requires learning the framework

III. PROPOSED METHODOLOGY

The research methodology for the "True News Detection" project follows a systematic approach comprising four key phases: data collection and preprocessing, system architecture design, core classification process, and evaluation framework.

For the data collection phase, the project utilizes established benchmark datasets including LIAR, FakeNewsNet, and NELA-GT to ensure comprehensive evaluation across diverse news domains and formats. These datasets provide labeled examples of both genuine and deceptive news content, enabling robust testing without requiring model training. The preprocessing pipeline involves standard natural language processing techniques including text cleaning to remove HTML tags and special characters, as well as strategic truncation to accommodate the model's context window limitations while preserving semantic integrity.

The system architecture employs a modern technology stack centered around the LangChain framework for application orchestration and the Google Gemini API as the core inference engine. LangChain provides essential components including PromptTemplate for standardizing inputs, LLMChain for sequencing operations, and output parsers for structuring model responses into consistent JSON formats. This architecture ensures a scalable and maintainable pipeline that handles the complete workflow from text input to classified output, with built-in error handling for API limitations and system failures.

The core classification process leverages sophisticated prompt engineering to activate the model's zero-shot capabilities. The system frames the detection task as a natural language inference problem, providing detailed instructions that guide the model to evaluate articles based on logical consistency, factual plausibility, writing style analysis, and source credibility assessment. Figure 1 shows block diagram of proposed methodology

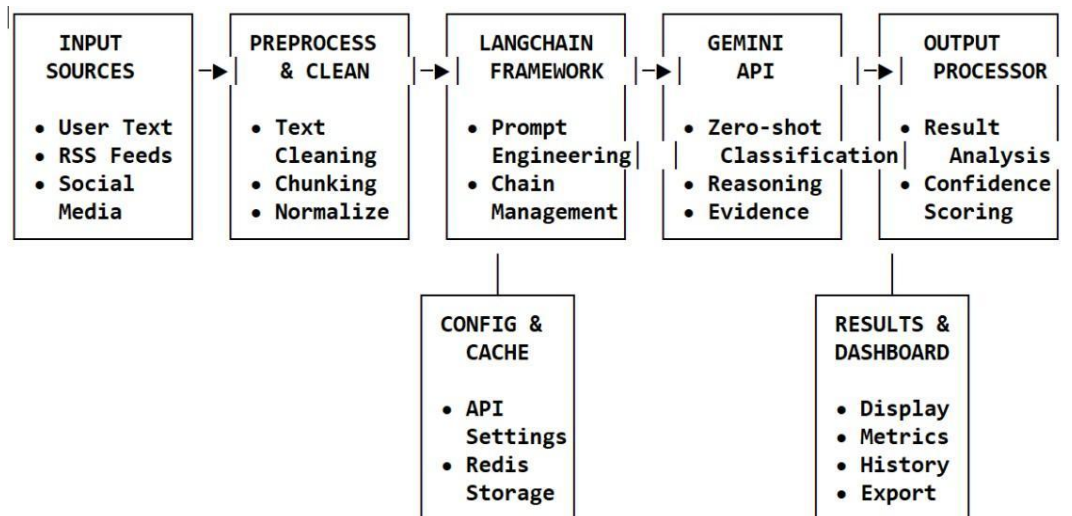


Figure1: Block Diagram of Proposed System



The evaluation framework employs rigorous quantitative metrics including accuracy, precision, recall, F1-score, and confusion matrix analysis to assess system performance against ground truth labels. Additionally, the project incorporates qualitative analysis of the model's reasoning outputs to validate the logical soundness of its decision-making process. For comparative context, the system's performance is benchmarked against traditional supervised approaches like fine-tuned BERT models and other large language models using identical prompts. This comprehensive evaluation strategy ensures thorough validation of both the classification accuracy and the explanatory quality of the system's outputs, providing a holistic assessment of its practical utility for real-world misinformation detection.

The horizontal block diagram illustrates the streamlined workflow of the fake news detection system. The process flows sequentially from left to right, starting with input sources that collect news content from diverse channels. The text then progresses to the preprocess & clean module where it undergoes essential preparation including noise removal, normalization, and semantic chunking for optimal processing.

The prepared content enters the langchain framework which manages the orchestration of classification tasks through prompt engineering and chain management. This framework interacts bidirectionally with the config & cache module that handles API settings and provides Redis-based storage for performance optimization. The core classification occurs in the gemini api component, where Google's generative AI performs zero-shot verification with built-in reasoning capabilities.

IV. CONCLUSION

The "True News Detection" project successfully demonstrates a novel and effective paradigm for identifying misinformation by leveraging the zero-shot classification capabilities of advanced Large Language Models. By integrating the LangChain framework with the Google Gemini API, we have developed a system that analyzes news articles and classifies them as "Real" or "Fake" based on inherent reasoning and world knowledge, entirely without the need for task-specific training data.

This approach directly addresses the critical limitation of traditional supervised methods: their dependency on large, labeled, and domain-specific datasets, which renders them inflexible and slow to adapt to the evolving landscape of misinformation. Our methodology proves that framing fake news detection as a natural language inference problem allows a powerful LLM to critically evaluate text for logical consistency, factual plausibility, and stylistic cues, providing not only a classification but also an explainable rationale for its decision.

Looking ahead, this work opens several promising avenues for future research. The system's architecture is inherently extensible; the current text-only analysis can be augmented with multimodal capabilities to assess images and videos, or integrated with Retrieval-Augmented Generation (RAG) to ground its reasoning in live, verifiable data from fact-checking databases and trusted sources. Furthermore, exploring more sophisticated chain-of-thought prompting could break down the verification process into discrete, logical steps, potentially increasing both the accuracy and transparency of the final verdict.

In a broader context, this project signifies a shift from static, data-bound AI systems towards dynamic, knowledge-driven reasoning engines. It underscores that the fight against misinformation can be empowered by models that generalize and reason, rather than just memorize patterns from past data. While challenges such as computational cost and the nuanced nature of bias remain, the project establishes a robust foundation. It paves the way for more agile, adaptable, and transparent tools that can help restore trust in our digital information ecosystem.

REFERENCES

1. Lazer, D. M. J., Baum, M. A., Benkler, Y., Berinsky, A. J., Greenhill, K. M., et al. (2018). The science of fake news. *Science*, 359(6380), 1094-1096.
2. Vosoughi, S., Roy, D., & Aral, S. (2018). The spread of true and false news online. *Science*, 359(6380), 1146-1151.
3. Pérez-Rosas, V., Kleinberg, B., Lefevre, A., & Mihalcea, R. (2018). Automatic detection of fake news. *Proceedings of the 27th International Conference on Computational Linguistics*.
4. Shu, K., Silva, A., Wang, S., Tang, J., & Liu, H. (2017). Fake news detection on social media: A data mining perspective. *ACM SIGKDD Explorations Newsletter*, 19(1), 22-36.



5. Thorne, J., Vlachos, A., Christodoulopoulos, C., & Mittal, A. (2018). FEVER: a large-scale dataset for fact extraction and VERification. Proceedings of the 2018 Conference of the North American Chapter of the Association for Computational Linguistics.
6. Devlin, J., Chang, M. W., Lee, K., & Toutanova, K. (2019). BERT: Pre-training of deep bidirectional transformers for language understanding. Proceedings of the 2019 Conference of the North American Chapter of the Association for Computational Linguistics.
7. Brown, T. B., Mann, B., Ryder, N., Subbiah, M., Kaplan, J., et al. (2020). Language models are few-shot learners. Advances in Neural Information Processing Systems, 33, 1877-1901.
8. Ouyang, L., Wu, J., Jiang, X., Almeida, D., Wainwright, C., et al. (2022). Training language models to follow instructions with human feedback. Advances in Neural Information Processing Systems, 35, 27730-27744.
9. Lewis, P., Perez, E., Piktus, A., Petroni, F., Karpukhin, V., et al. (2020). Retrieval- augmented generation for knowledge-intensive nlp tasks. Advances in Neural Information Processing Systems, 33, 9459-9474.
10. Xian, Y., Lampert, C. H., Schiele, B., & Akata, Z. (2017). Zero-shot learning—A comprehensive evaluation of the good, the bad and the ugly. IEEE Transactions on Pattern Analysis and Machine Intelligence, 40(8), 1451-1464.
11. Yin, W., Hay, J., & Roth, D. (2019). Benchmarking zero-shot text classification: Datasets, evaluation and entailment approach. Proceedings of the 2019 Conference on Empirical Methods in Natural Language Processing.
12. Shu, K., Mahudeswaran, D., Wang, S., Lee, D., & Liu, H. (2020). FakeNewsNet: A data repository with news content, social context, and spatiotemporal information for studying fake news on social media. Big Data, 8(3), 171-188.
13. Wang, W. Y. (2017). "Liar, liar pants on fire": A new benchmark dataset for fake news detection. Proceedings of the 55th Annual Meeting of the Association for Computational Linguistics.
14. Radford, A., Wu, J., Child, R., Luan, D., Amodei, D., & Sutskever, I. (2019). Language models are unsupervised multitask learners. OpenAI Technical Report.
15. Vaswani, A., Shazeer, N., Parmar, N., Uszkoreit, J., Jones, L., et al. (2017). Attention is all you need. Advances in Neural Information Processing Systems, 30, 5998-6008.
16. Liu, Y., Ott, M., Goyal, N., Du, J., Joshi, M., et al. (2019). RoBERTa: A robustly optimized BERT pretraining approach. Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics.
17. Raffel, C., Shazeer, N., Roberts, A., Lee, K., Narang, S., et al. (2020). Exploring the limits of transfer learning with a unified text-to-text transformer. Journal of Machine Learning Research, 21(140), 1-67.
18. Zhou, X., & Zafarani, R. (2020). A survey of fake news: Fundamental theories, detection methods, and opportunities. ACM Computing Surveys, 53(5), 1-40.
19. Sharma, K., Qian, F., Jiang, H., Ruchansky, N., Zhang, M., & Liu, Y. (2019). Combating fake news: A survey on identification and mitigation techniques. ACM Transactions on Intelligent Systems and Technology, 10(3), 1-42.
20. Chen, Y., Conroy, N. J., & Rubin, V. L. (2015). Misleading online content: Recognizing fake news. Proceedings of the 2015 International Conference on Recent Advances in Natural Language Processing.
21. Wang, A., Singh, A., Michael, J., Hill, F., Levy, O., & Bowman, S. (2019). GLUE: A multi-task benchmark and analysis platform for natural language understanding. Proceedings of the 2018 EMNLP Workshop BlackboxNLP.
22. Conneau, A., Khandelwal, K., Goyal, N., Chaudhary, V., Wenzek, G., et al. (2020). Unsupervised cross-lingual representation learning at scale. Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics.
23. Rajpurkar, P., Zhang, J., Lopyrev, K., & Liang, P. (2016). SQuAD: 100,000+ questions for machine comprehension of text. Proceedings of the 2016 Conference on Empirical Methods in Natural Language Processing.
24. Yang, Z., Dai, Z., Yang, Y., Carbonell, J., Salakhutdinov, R., & Le, Q. V. (2019). XLNet: Generalized autoregressive pretraining for language understanding. Advances in Neural Information Processing Systems, 32, 5754-5764.
25. Lan, Z., Chen, M., Goodman, S., Gimpel, K., Sharma, P., & Soricut, R. (2020). ALBERT: A lite BERT for self-supervised learning of language representations. Proceedings of the 8th International Conference on Learning Representations.



26. Clark, K., Luong, M. T., Le, Q. V., & Manning, C. D. (2020). ELECTRA: Pre-training text encoders as discriminators rather than generators. Proceedings of the 8th International Conference on Learning Representations.
27. Sanh, V., Debut, L., Chaumond, J., & Wolf, T. (2019). DistilBERT, a distilled version of BERT: smaller, faster, cheaper and lighter. Proceedings of the 5th Workshop on Energy Efficient Machine Learning and Cognitive Computing.
28. Wei, J., Bosma, M., Zhao, V. Y., Guu, K., Views, A. W. M. V., et al. (2022). Finetuned language models are zero-shot learners. Proceedings of the 10th International Conference on Learning Representations.
29. Chung, H. W., Hou, L., Longpre, S., Zoph, B., Tay, Y., et al. (2022). Scaling instruction-finetuned language models. Journal of Machine Learning Research, 23(261), 1-53.
30. Zhang, T., Kishore, V., Wu, F., Weinberger, K. Q., & Artzi, Y. (2020). BERTScore: Evaluating text generation with BERT. Proceedings of the 8th International Conference on Learning Representations.
31. Goyal, T., Li, J. J., & Durrett, G. (2022). News summarization and evaluation in the era of GPT-3. Proceedings of the 2022 Conference of the North American Chapter of the Association for Computational Linguistics.
32. Chen, L., Zaharia, M., & Zou, J. (2023). FrugalGPT: How to use large language models while reducing cost and improving performance. Proceedings of the 40th International Conference on Machine Learning.
33. Bender, E. M., Gebru, T., McMillan-Major, A., & Shmitchell, S. (2021). On the dangers of stochastic parrots: Can language models be too big?. Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency.
34. Howard, J., & Ruder, S. (2018). Universal language model fine-tuning for text classification. Proceedings of the 56th Annual Meeting of the Association for Computational Linguistics.
35. Peters, M. E., Neumann, M., Iyyer, M., Gardner, M., Clark, C., et al. (2018). Deep contextualized word representations. Proceedings of the 2018 Conference of the North American Chapter of the Association for Computational Linguistics.
36. Pennington, J., Socher, R., & Manning, C. (2014). GloVe: Global vectors for word representation. Proceedings of the 2014 Conference on Empirical Methods in Natural Language Processing.
37. Mikolov, T., Sutskever, I., Chen, K., Corrado, G. S., & Dean, J. (2013). Distributed representations of words and phrases and their compositionality. Advances in Neural Information Processing Systems, 26, 3111-3119.
38. Hochreiter, S., & Schmidhuber, J. (1997). Long short-term memory. Neural Computation, 9(8), 1735-1780.
39. Rumelhart, D. E., Hinton, G. E., & Williams, R. J. (1986). Learning representations by back-propagating errors. Nature, 323(6088), 533-536.
40. LeCun, Y., Bengio, Y., & Hinton, G. (2015). Deep learning. Nature, 521(7553), 436-444.
41. Godase, M. V., Mulani, A., Ghodak, M. R., Birajadar, M. G., Takale, M. S., & Kolte, M. A MapReduce and Kalman Filter based Secure IIoT Environment in Hadoop. Sanshodhak, Volume 19, June 2024.
42. Mulani, A. O., & Mane, P. B. (2017). Watermarking and cryptography based image authentication on reconfigurable platform. Bulletin of Electrical Engineering and Informatics, 6(2), 181-187.
43. Gadade, B., Mulani, A. O., & Harale, A. D. IoT Based Smart School Bus and Student Tracking System. Sanshodhak, Volume 19, June 2024.
44. Dhanawadel, A., Mulani, A. O., & Pise, A. C. IOT based Smart farming using Agri BOT. Sanshodhak, Volume 20, June 2024.
45. Mulani, A., & Mane, P. B. (2016). DWT based robust invisible watermarking. Scholars' Press.
46. R. G. Ghodke, G. B. Birajdar, A.O. Mulani, G.N. Shinde, R.B. Pawar, Design and Development of an Efficient and Cost-Effective surveillance Quadcopter using Arduino, Sanshodhak, Volume 20, June 2024.
47. R. G. Ghodke, G. B. Birajdar, A.O. Mulani, G.N. Shinde, R.B. Pawar, Design and Development of Wireless Controlled ROBOT using Bluetooth Technology, Sanshodhak, Volume 20, June 2024.
48. Swami, S. S., & Mulani, A. O. (2017, August). An efficient FPGA implementation of discrete wavelet transform for image compression. In 2017 International Conference on Energy, Communication, Data Analytics and Soft Computing (ICECDS) (pp. 3385-3389). IEEE.



49. Mane, P. B., & Mulani, A. O. (2018). High speed area efficient FPGA implementation of AES algorithm. *International Journal of Reconfigurable and Embedded Systems*, 7(3), 157-165.
50. Mulani, A. O., & Mane, P. B. (2016). Area efficient high speed FPGA based invisible watermarking for image authentication. *Indian journal of Science and Technology*, 9(39), 1-6.
51. Kashid, M. M., Karande, K. J., & Mulani, A. O. (2022, November). IoT-based environmental parameter monitoring using machine learning approach. In *Proceedings of the International Conference on Cognitive and Intelligent Computing: ICCIC 2021, Volume 1* (pp. 43-51). Singapore: Springer Nature Singapore.
52. Nagane, U. P., & Mulani, A. O. (2021). Moving object detection and tracking using Matlab. *Journal of Science and Technology*, 6(1), 2456-5660.
53. Kulkarni, P. R., Mulani, A. O., & Mane, P. B. (2016). Robust invisible watermarking for image authentication. In *Emerging Trends in Electrical, Communications and Information Technologies: Proceedings of ICECIT-2015* (pp. 193-200). Singapore: Springer Singapore.
54. Ghodake, M. R. G., & Mulani, M. A. (2016). Sensor based automatic drip irrigation system. *Journal for Research*, 2(02).
55. Mandwale, A. J., & Mulani, A. O. (2015, January). Different Approaches For Implementation of Viterbi decoder on reconfigurable platform. In *2015 International Conference on Pervasive Computing (ICPC)* (pp. 1-4). IEEE.
56. Jadhav, M. M., Chavan, G. H., & Mulani, A. O. (2021). Machine learning based autonomous fire combat turret. *Turkish Journal of Computer and Mathematics Education*, 12(2), 2372-2381.
57. Shinde, G., & Mulani, A. (2019). A robust digital image watermarking using DWT-PCA. *International Journal of Innovations in Engineering Research and Technology*, 6(4), 1-7.
58. Mane, D. P., & Mulani, A. O. (2019). High throughput and area efficient FPGA implementation of AES algorithm. *International Journal of Engineering and Advanced Technology*, 8(4).
59. Mulani, A. O., & Mane, D. P. (2017). An Efficient implementation of DWT for image compression on reconfigurable platform. *International Journal of Control Theory and Applications*, 10(15), 1-7.
60. Deshpande, H. S., Karande, K. J., & Mulani, A. O. (2015, April). Area optimized implementation of AES algorithm on FPGA. In *2015 International Conference on Communications and Signal Processing (ICCSP)* (pp. 0010-0014). IEEE.
61. Deshpande, H. S., Karande, K. J., & Mulani, A. O. (2014, April). Efficient implementation of AES algorithm on FPGA. In *2014 International Conference on Communication and Signal Processing* (pp. 1895-1899). IEEE.
62. Kulkarni, P., & Mulani, A. O. (2015). Robust invisible digital image watermarking using discrete wavelet transform. *International Journal of Engineering Research & Technology (IJERT)*, 4(01), 139-141.
63. Mulani, A. O., Jadhav, M. M., & Seth, M. (2022). Painless Non - invasive blood glucose concentration level estimation using PCA and machine learning. *The CRC Book entitled Artificial Intelligence, Internet of Things (IoT) and Smart Materials for Energy Applications*.
64. Mulani, A. O., & Shinde, G. N. (2021). An approach for robust digital image watermarking using DWT - PCA. *Journal of Science and Technology*, 6(1).
65. Mulani, A. O., & Mane, P. B. (2014, October). Area optimization of cryptographic algorithm on less dense reconfigurable platform. In *2014 International Conference on Smart Structures and Systems (ICSSS)* (pp. 86-89). IEEE.
66. Jadhav, H. M., Mulani, A., & Jadhav, M. M. (2022). Design and development of chatbot based on reinforcement learning. *Machine Learning Algorithms for Signal and Image Processing*, 219-229.
67. Mulani, A. O., & Mane, P. (2018). Secure and area efficient implementation of digital image watermarking on reconfigurable platform. *International Journal of Innovative Technology and Exploring Engineering*, 8(2), 56-61.
68. Kalyankar, P. A., Mulani, A. O., Thigale, S. P., Chavhan, P. G., & Jadhav, M. M. (2022). Scalable face image retrieval using AESC technique. *Journal Of Algebraic Statistics*, 13(3), 173-176.
69. Takale, S., & Mulani, A. (2022). DWT-PCA based video watermarking. *Journal of Electronics, Computer Networking and Applied Mathematics (JECNAM)* ISSN, 2799-1156.



70. Kamble, A., & Mulani, A. O. (2022). Google assistant based device control. *Int. J. of Aquatic Science*, 13(1), 550-555.
71. Kondekar, R. P., & Mulani, A. O. (2017). Raspberry Pi based voice operated Robot. *International Journal of Recent Engineering Research and Development*, 2(12), 69-76.
72. Ghodake, R. G., & Mulani, A. O. (2018). Microcontroller based automatic drip irrigation system. In *Techno-Societal 2016: Proceedings of the International Conference on Advanced Technologies for Societal Applications* (pp. 109-115). Springer International Publishing.
73. Mulani, A. O., Birajadar, G., Ivković, N., Salah, B., & Darlis, A. R. (2023). Deep learning based detection of dermatological diseases using convolutional neural networks and decision trees. *Traitement du Signal*, 40(6), 2819.
74. Boxey, A., Jadhav, A., Gade, P., Ghanti, P., & Mulani, A. O. (2022). Face Recognition using Raspberry Pi. *Journal of Image Processing and Intelligent Remote Sensing (JIPIRS)* ISSN, 2815-0953.
75. Patale, J. P., Jagadale, A. B., Mulani, A. O., & Pise, A. (2023). A Systematic survey on Estimation of Electrical Vehicle. *Journal of Electronics, Computer Networking and Applied Mathematics (JECNAM)* ISSN, 2799-1156.
76. Gadade, B., & Mulani, A. (2022). Automatic System for Car Health Monitoring. *International Journal of Innovations in Engineering Research and Technology*, 57-62.
77. Shinde, M. R. S., & Mulani, A. O. (2015). Analysis of Biomedical Image Using Wavelet Transform. *International Journal of Innovations in Engineering Research and Technology*, 2(7), 1-7.
78. Mandwale, A., & Mulani, A. O. (2014, December). Implementation of convolutional encoder & different approaches for viterbi decoder. In *IEEE International Conference on Communications, Signal Processing Computing and Information technologies*.
79. Mulani, A. O., Jadhav, M. M., & Seth, M. (2022). Painless machine learning approach to estimate blood glucose level with non-invasive devices. In *Artificial intelligence, internet of things (IoT) and smart materials for energy applications* (pp. 83-100). CRC Press.
80. Maske, Y., Jagadale, A. B., Mulani, A. O., & Pise, A. C. (2023). Development of BIOBOT system to assist COVID patient and caretakers. *European Journal of Molecular & Clinical Medicine*, 10(01), 2023.
81. Utpat, V. B., Karande, D. K., & Mulani, D. A. Grading of Pomegranate Using Quality Analysis || . *International Journal for Research in Applied Science & Engineering Technology (IJRASET)*, 10.
82. Takale, S., & Mulani, D. A. (2022). Video Watermarking System. *International Journal for Research in Applied Science & Engineering Technology (IJRASET)*, 10.
83. Mandwale, A., & Mulani, A. O. (2015, January). Different approaches for implementation of Viterbi decoder. In *IEEE international conference on pervasive computing (ICPC)*.
84. Maske, Y., Jagadale, M. A., Mulani, A. O., & Pise, A. (2021). Implementation of BIOBOT System for COVID Patient and Caretakers Assistant Using IOT. *International Journal of Information Technology and*, 30-43.
85. Mulani, A. O., & Mane, D. P. (2016). Fast and Efficient VLSI Implementation of DWT for Image Compression. *International Journal for Research in Applied Science & Engineering Technology*, 5, 1397-1402.
86. Kambale, A. (2023). Home automation using google assistant. *UGC care approved journal*, 32(1), 1071-1077.
87. Pathan, A. N., Shejal, S. A., Salgar, S. A., Harale, A. D., & Mulani, A. O. (2022). Hand gesture controlled robotic system. *Int. J. of Aquatic Science*, 13(1), 487-493.
88. Korake, D. M., & Mulani, A. O. (2016). Design of Computer/Laptop Independent Data transfer system from one USB flash drive to another using ARM11 processor. *International Journal of Science, Engineering and Technology Research*.
89. Mandwale, A., & Mulani, A. O. (2016). Implementation of High Speed Viterbi Decoder using FPGA. *International Journal of Engineering Research & Technology, IJERT*.
90. Kolekar, S. D., Walekar, V. B., Patil, P. S., Mulani, A. O., & Harale, A. D. (2022). Password Based Door Lock System. *Int. J. of Aquatic Science*, 13(1), 494-501.
91. Shinde, R., & Mulani, A. O. (2015). Analysis of Biomedical Image || . *International Journal on Recent & Innovative trend in technology (IJRITT)*.



92. Sawant, R. A., & Mulani, A. O. (2022). Automatic PCB Track Design Machine. International Journal of Innovative Science and Research Technology, 7(9).
93. ABHANGRAO, M. R., JADHAV, M. S., GHODKE, M. P., & MULANI, A. (2017). Design And Implementation Of 8-bit Vedic Multiplier. International Journal of Research Publications in Engineering and Technology (ISSN No: 2454-7875).
94. Gadade, B., Mulani, A. O., & Harale, A. D. (2024). Iot based smart school bus and student monitoring system. Naturalista Campano, 28(1), 730-737.
95. Mulani, D. A. O. (2024). A Comprehensive Survey on Semi-Automatic Solar-Powered Pesticide Sprayers for Farming. Journal of Energy Engineering and Thermodynamics (JEET) ISSN, 2815-0945.
96. Salunkhe, D. S. S., & Mulani, D. A. O. (2024). Solar Mount Design Using High-Density Polyethylene. NATURALISTA CAMPANO, 28(1).
97. Seth, M. (2022). Painless Machine learning approach to estimate blood glucose level of Non-Invasive device. Artificial Intelligence, Internet of Things (IoT) and Smart Materials for Energy Applications.
98. Kolhe, V. A., Pawar, S. Y., Gohery, S., Mulani, A. O., Sundari, M. S., Kiradoo, G., ... & Sunil, J. (2024). Computational and experimental analyses of pressure drop in curved tube structural sections of Coriolis mass flow metre for laminar flow region. Ships and Offshore Structures, 19(11), 1974-1983.
99. Basawaraj Birajadar, G., Osman Mulani, A., Ibrahim Khalaf, O., Farhah, N., G Gawande, P., Kinage, K., & Abdullah Hamad, A. (2024). Epilepsy identification using hybrid CoPrO-DCNN classifier. International Journal of Computing and Digital Systems, 16(1), 783-796.
100. Kedar, M. S., & Mulani, A. (2021). IoT Based Soil, Water and Air Quality Monitoring System for Pomegranate Farming. Journal of Electronics, Computer Networking and Applied Mathematics (JECNAM) ISSN, 2799-1156.
101. Godse, A. P. A.O. Mulani (2009). Embedded Systems (First Edition).
102. Pol, R. S., Bhalerao, M. V., & Mulani, A. O. A real time IoT based System Prediction and Monitoring of Landslides. International Journal of Food and Nutritional Sciences, Volume 11, Issue 7, 2022.
103. Mulani, A. O., Sardey, M. P., Kinage, K., Salunkhe, S. S., Fegade, T., & Fegade, P. G. (2025). ML-powered Internet of Medical Things (MLIOMT) structure for heart disease prediction. Journal of Pharmacology and Pharmacotherapeutics, 16(1), 38-45.
104. Aiwale, S., Kolte, M. T., Harpale, V., Bendre, V., Khurge, D., Bhandari, S., ... & Mulani, A. O. (2024). Non-invasive Anemia Detection and Prediagnosis. Journal of Pharmacology and Pharmacotherapeutics, 15(4), 408-416.
105. Mulani, A. O., Bang, A. V., Birajadar, G. B., Deshmukh, A. B., Jadhav, H. M., & Liyakat, K. K. S. (2024). IoT Based Air, Water, and Soil Monitoring System for Pomegranate Farming. Annals of Agri-Bio Research, 29(2), 71-86.
106. Kulkarni, T. M., & Mulani, A. O. (2024). Face Mask Detection on Real Time Images and Videos using Deep Learning. International Journal of Electrical Machine Analysis and Design (IJEMAD), 2(1).
107. Thigale, S. P., Jadhav, H. M., Mulani, A. O., Birajadar, G. B., Nagrale, M., & Sardey, M. P. (2024). Internet of things and robotics in transforming healthcare services. Afr J Biol Sci (S Afr), 6(6), 1567-1575.
108. Pol, D. R. S. (2021). Cloud Based Memory Efficient Biometric Attendance System Using Face Recognition. Stochastic Modeling & Applications, 25(2).
109. Nagtilak, M. A. G., Ulegaddi, M. S. N., Adat, M. A. S., & Mulani, A. O. (2021). Breast Cancer Prediction using Machine Learning.
110. Rahul, G. G., & Mulani, A. O. (2016). Microcontroller Based Drip Irrigation System.
111. Kulkarni, T. M., & Mulani, A. O. Deep Learning Based Face-Mask Detection: An Approach to Reduce Pandemic Spreads in Human Healthcare. African Journal of Biological Sciences, 6(6), 2024.
112. Mulani, A., & Mane, P. B. (2016). DWT based robust invisible watermarking. Scholars' Press.
113. Dr. Vaishali Satish Jadhav, Dr. Shweta Sadanand Salunkhe, Dr. Geeta Salunkhe, Pranali Rajesh Yawle, Dr. Rahul S. Pol, Dr. Altaf Osman Mulani, Dr. Manish Rana, Iot Based Health Monitoring System for Human, Afr. J. Biomed. Res. Vol. 27 (September 2024).



114. Dr. Vaishali Satish Jadhav, Geeta D. Salunke, Kalyani Ramesh Chaudhari, Dr. Altaf Osman Mulani, Dr. Sampada Padmakar Thigale, Dr. Rahul S. Pol, Dr. Manish Rana, Deep Learning-Based Face Mask Recognition in Real-Time Photos and Videos, *Afr. J. Biomed. Res.* Vol. 27 (September 2024).
115. Altaf Osman Mulani, Electric Vehicle Parameters Estimation Using Web Portal, *Recent Trends in Electronics & Communication Systems*, Volume 10, Issue 3, 2023.
116. Aryan Ganesh Nagtilak, Sneha Nitin Ulegaddi, Mahesh Mane, Altaf O. Mulani, Automatic Solar Powered Pesticide Sprayer for Farming, *International Journal of Microwave Engineering and Technology*, Volume 9 No. 2, 2023.
117. Annasaheb S. Dandage, Vitthal R. Rupnar, Tejas A Pise, and A. O. Mulani, Real-Time Language Translation Application Using Tkinter. *International Journal of Digital Communication and Analog Signals*. 2025; 11(01): -p.
118. AnnaSaheb S Dandage, Vitthal R. Rupnar, Tejas A Pise, and A. O. Mulani, IoT-Powered Weather Monitoring and Irrigation Automation: Transforming Modern Farming Practices. . 2025; 11(01): -p.
119. Mulani, A.O., Kulkarni, T.M. (2025). Face Mask Detection System Using Deep Learning: A Comprehensive Survey. In: Singh, S., Arya, K.V., Rodriguez, C.R., Mulani, A.O. (eds) *Emerging Trends in Artificial Intelligence, Data Science and Signal Processing. AIDSP 2023. Communications in Computer and Information Science*, vol 2439. Springer, Cham. https://doi.org/10.1007/978-3-031-88759-8_3.
120. Karve, S., Gangonda, S., Birajadar, G., Godase, V., Ghodake, R., Mulani, A.O. (2025). Optimized Neural Network for Prediction of Neurological Disorders. In: Singh, S., Arya, K.V., Rodriguez, C.R., Mulani, A.O. (eds) *Emerging Trends in Artificial Intelligence, Data Science and Signal Processing. AIDSP 2023. Communications in Computer and Information Science*, vol 2440. Springer, Cham. https://doi.org/10.1007/978-3-031-88762-8_18.
121. Saurabh Singh, Karm Veer Arya, Ciro Rodriguez Rodriguez, and Altaf Osman Mulani, *Emerging Trends in Artificial Intelligence, Data Science and Signal Processing, Communications in Computer and Information Science (CCIS)*, volume 2440.
122. Saurabh Singh, Karm Veer Arya, Ciro Rodriguez Rodriguez, and Altaf Osman Mulani, *Emerging Trends in Artificial Intelligence, Data Science and Signal Processing, Communications in Computer and Information Science (CCIS)*, volume 2439.
123. Godase, V., Mulani, A., Pawar, A., & Sahani, K. (2025). A Comprehensive Review on PIR Sensor-Based Light Automation Systems. *International Journal of Image Processing and Smart Sensors*, 1(1), 22-29.
124. Godase, V., Mulani, A., Takale, S., & Ghodake, R. (2025). Comprehensive Review on Automated Field Irrigation using Soil Image Analysis and IoT. *Journal of Advance Electrical Engineering and Devices*, 3(1), 46-55.
125. Altaf Osman Mulani, Deshmukh M., Jadhav V., Chaudhari K., Mathew A.A., Shweta Salunkhe. Transforming Drug Therapy with Deep Learning: The Future of Personalized Medicine. *Drug Research*. 2025 Aug 29.
126. Altaf O. Mulani, Vaibhav V. Godase, Swapnil R. Takale, Rahul G. Ghodake (2025), Image Authentication Using Cryptography and Watermarking, *International Journal of Image Processing and Smart Sensors*, Vol. 1, Issue 2, pp 27-34.
127. Altaf O. Mulani, Vaibhav V. Godase, Swapnil R. Takale, Rahul G. Ghodake (2025), Advancements in Artificial Intelligence: Transforming Industries and Society, *International Journal of Artificial Intelligence of Things (AIoT) in Communication Industry*, Vol. 1, Issue 2, pp 1-5.
128. Altaf O. Mulani, Vaibhav V. Godase, Swapnil R. Takale, Rahul G. Ghodake (2025), AI-Powered Predictive Analytics in Healthcare: Revolutionizing Disease Diagnosis and Treatment, *Journal of Advance Electrical Engineering and Devices*, Vol. 3, Issue 2, pp 27-34.
129. Godase, V., Mulani, A., Takale, S., & Ghodake, R. (2025). A Holistic Review of Automatic Drip Irrigation Systems: Foundations and Emerging Trends. Available at SSRN 5247778.
130. V. Godase, R. Ghodake, S. Takale, and A. Mulani, —Design and Optimization of Reconfigurable Microwave Filters Using AI Techniques, *International Journal of RF and Microwave Communication Technologies*, vol. 2, no. 2, pp.26–41, Aug. 2025.
131. V. Godase, A. Mulani, R. Ghodake, S. Takale, “Automated Water Distribution Management and Leakage Mitigation Using PLC Systems,” *Journal of Control and Instrumentation Engineering*, vol.11, no. 3, pp. 1-8, Aug. 2025.



132. V. Godase, A. Mulani, R. Ghodake, S. Takale, "PLC-Assisted Smart Water Distribution with Rapid Leakage Detection and Isolation," Journal of Control Systems and Converters, vol. 1, no. 3, pp. 1-13, Aug. 2025.
133. V. V. Godase, S. R. Takale, R. G. Ghodake, and A. Mulani, "Attention Mechanisms in Semantic Segmentation of Remote Sensing Images," Journal of Advancement in Electronics Signal Processing, vol. 2, no. 2, pp. 45-58, Aug. 2025.
134. D. Waghmare, A. Mulani, S. R. Takale, V. Godase, and A. Mulani, "A Comprehensive Review on Automatic Fruit Sorting and Grading Techniques with Emphasis on Weight-based Classification," Research & Review: Electronics and Communication Engineering, vol. 2, no. 3, pp. 1-10, Oct. 2025.
135. Karande, K. J., & Talbar, S. N. (2014). Independent component analysis of edge information for face recognition. Springer India.
136. Karande, K. J., & Talbar, S. N. (2008). Face recognition under variation of pose and illumination using independent component analysis. ICGST-GVIP, ISSN.
137. Gaikwad, D. S., & Karande, K. J. (2016). Image processing approach for grading and identification of diseases on pomegranate fruit: An overview. International Journal of Computer Science and Information Technologies, 7, 519-522.
138. Kawathekar, P. P., & Karande, K. J. (2014, July). Severity analysis of Osteoarthritis of knee joint from X-ray images: A Literature review. In 2014 International Conference on Signal propagation and computer technology (ICSPCT 2014) (pp. 648-652). IEEE.
139. Daithankar, M. V., Karande, K. J., & Harale, A. D. (2014, April). Analysis of skin color models for face detection. In 2014 International Conference on Communication and Signal Processing (pp. 533-537). IEEE.
140. Karande, J. K., Talbar, N. S., & Inamdar, S. S. (2012, May). Face recognition using oriented Laplacian of Gaussian (OLOG) and independent component analysis (ICA). In 2012 Second International Conference on Digital Information and Communication Technology and it's Applications (DICTAP) (pp. 99-103). IEEE.
141. Shubham Salunkhe, Pruthviraj Zambare, Sakshi Shinde, S. K. Godase. (2024). API Development for Cloud Parameter Curation International. Journal of Electrical and Communication Engineering Technology, 2(1). <https://doi.org/10.37591/ijecet>
142. Badave, A., Pawale, A., Andhale, T., Godase, S. K., & STM JOURNALS. (2024). Smart home safety using fire and gas detection system. Recent Trends in Fluid Mechanics, 1, 35-43. <https://journals.stmjournals.com/rtfm>
143. Asabe, H., Asabe, R., Lengare, O., & Godase, S. (2025). IOT- BASED STORAGE SYSTEM FOR MANAGING VOLATILE MEDICAL RESOURCES IN HEALTHCARE FACILITIES. INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT AND SCIENCE (IJPREMS), 05(03), 2427-2433. <https://www.ijprems.com>
144. Karche, S. N., Mulani, A. O., Department of Electronics, SKN Sinhgad College of Engineering, Korti, & University of Solapur, Maharashtra, India. (2018). AESC Technique for Scalable Face Image Retrieval. International Journal of Innovative Research in Computer and Communication Engineering, 6(4), 3404-3405. <https://doi.org/10.15680/IJIRCCE.2018.0604036>
145. Bankar, A. S., Harale, A. D., & Karande, K. J. (2021). Gestures Controlled Home Automation using Deep Learning: A Review. International Journal of Current Engineering and Technology, 11(06), 617-621. <https://doi.org/10.14741/ijcet/v.11.6.4>
146. Mali, A. S., Ghadge, S. K., Adat, A. S., & Karande, S. V. (2024). Intelligent Medication Management System. IJRSRD - International Journal for Scientific Research & Development, Vol. 12(Issue 3).
147. Water Level Control, Monitoring and Altering System by using GSM in Irrigation Based on Season. (2019). In International Research Journal of Engineering and Technology (IRJET) (Vol. 06, Issue 04, p. 1035) [Journal-article]. <https://www.irjet.net>
148. Modi, S., Misal, V., Kulkarni, S., & Mali A.S. (2025). Hydroponic Farming Monitoring System - Automated system to monitor and control nutrient and pH levels. In Journal of Microcontroller Engineering and Applications (Vol. 12, Issue 3, pp. 11-16). <https://doi.org/10.37591/JoMEA>



149. Siddheshwar S. Gangonda, Prashant P. Patavardhan, Kailash J. Karande, "VGHN: variations aware geometric moments and histogram features normalization for robust uncontrolled face recognition", International Journal of Information Technology, <https://doi.org/10.1007/s41870-021-00703-0>.
150. Siddheshwar Gangonda and Prachi Mukherji, "Speech Processing for Marathi Numeral Recognition using MFCC & DTW Features", International Journal of Engineering Research And Applications (IJERA) pp. 118-122, ISSN: 2248-9622.
151. Siddheshwar S. Gangonda, Prashant P. Patavardhan, Kailash J. Karande, "Recognition of Marathi Numerals Using MFCC and DTW Features", Book Title: Recent Trends on Image Processing and Pattern Recognition, RTIP2R 2018, CCIS 1037, pp. 1-11, © Springer Nature Singapore Pte Ltd. 2019 https://doi.org/10.1007/978-981-13-9187-3_17.
152. Siddheshwar S. Gangonda, Prashant P. Patavardhan, Kailash J. Karande, "Analysis of Face Recognition Algorithms for Uncontrolled Environments", Book Title: Computing, Communication and Signal Processing, pp. 919-926, © Springer Nature Singapore Pte Ltd. 2018.
153. Siddheshwar S. Gangonda, Prashant P. Patavardhan, Kailash J. Karande, "Recognition of Marathi Numerals using MFCC and DTW Features", 2nd International Conference on Recent Trends in Image Processing and Pattern Recognition (RTIP2R 2018), 21th -22th Dec., 2018, organized by Solapur University, Solapur in collaboration with University of South Dakota (USA) and Universidade de Evora (Portugal), India.
154. Siddheshwar S. Gangonda, Prashant P. Patavardhan, Kailash J. Karande, "A Comprehensive Survey of Face Databases for Constrained and Unconstrained Environments", 2nd IEEE Global Conference on Wireless Computing & Networking (GCWCN-2018), 23th-24th Nov., 2018, organized by STES's Sinhgad Institute of Technology, Lonavala, India.
155. Siddheshwar S. Gangonda, Prashant P. Patavardhan, Kailash J. Karande, "An Extensive Survey of Prominent Researches in Face Recognition under different Conditions", 4th International Conference on Computing, Communication, Control And Automation (ICCUBEA-2018), 16th to 18th Aug. 2018 organized by Pimpri Chinchwad College of Engineering (PCCOE), Pune, India.
156. Siddheshwar S. Gangonda, Prashant P. Patavardhan, Kailash J. Karande, "Analysis of Face Recognition Algorithms for Uncontrolled Environments", 3rd International Conference on Computing, Communication and Signal Processing (ICCASP 2018), 26th-27th Jan.2018, organized by Dr. BATU, Lonere, India.
157. Siddheshwar Gangonda and Prachi Mukherji, "Speech Processing for Marathi Numeral Recognition", International Conference on Recent Trends, Feb 2012, IOK COE, Pune.
158. S. S. Gangonda, "Bidirectional Visitor Counter with automatic Door Lock System", National Conference on Computer, Communication and Information Technology (NCCCIT-2018), 30th and 31st March 2018 organized by Department of Electronics and Telecommunication Engineering, SKN SCOE, Korti, Pandharpur.
159. Siddheshwar Gangonda and Prachi Mukherji, "Speech Processing for Marathi Numeral Recognition using MFCC & DTW Features", ePGCON 2012, 23rd and 24th April 2012 organized by Commis COE for Woman, Pune.
160. Siddheshwar Gangonda and Prachi Mukherji, "Speech Processing for Marathi Numeral Recognition", National Conference on Emerging Trends in Engineering and Technology (VNCET'12), 30th March 2012 organized by Vidyavardhini's College of Engineering and Technology, Vasai Road, Thane.
161. Siddheshwar Gangonda and Prachi Mukherji, "Speech Processing for Marathi Numeral Recognition", ePGCON 2011, 26th April 2011 organized by MAEER's MIT, Kothrud, Pune-38.
162. Siddheshwar Gangonda, "Medical Image Processing", Aavishkar-2K7, 17th and 18th March 2007 organized by Department of Electronics and Telecommunication Engineering, SVERI's COE, Pandharpur.
163. Siddheshwar Gangonda, "Image enhancement & Denoising", VISION 2k7, 28th Feb-2nd March 2007 organized by M.T.E. Society's Walchand College of Engineering, Sangli.
164. Siddheshwar Gangonda, "Electromagnetic interference & compatibility" KSHITIJ 2k6, 23rd and 24th Sept. 2006 organized by Department of Mechanical Engineering, SVERI's COE, Pandharpur.
165. A. Pise and K. Karande, "A genetic Algorithm-Driven Energy-Efficient routing strategy for optimizing performance in VANETs," Engineering Technology and Applied Science Research, vol. 15, no. 5, 2025, [Online]. Available: <https://etasr.com/index.php/ETASR/article/view/12744>



166. A. C. Pise, K. J. Karande, "Investigating Energy-Efficient Optimal Routing Protocols for VANETs: A Comprehensive Study", ICT for Intelligent Systems, Lecture Notes in Networks and Systems 1109, Proceedings of ICTIS 2024 Volume 3, Lecture Notes in Networks and Systems, Springer, Singapore, ISSN 2367-3370, PP 407-417, 29 October 2024 https://doi.org/10.1007/978-981-97-6675-8_33.
167. A. C. Pise, et. al., "Smart Vehicle: A Systematic Review", International Journal - The Ciência & Engenharia - Science & Engineering Journal ISSN: 0103-944X Volume 11 Issue 1, 2023pp: 992–998, 2023.
168. A. C. Pise, et. al., "Smart Vehicle: A Systematic Review", International Journal of Research Publication and Reviews, ISSN 2582-7421, Vol 4, no 10, pp 2728-2731 October 2023.
169. A. C. Pise, et. al., "Development of BIOBOT System to Assist COVID Patient and Caretakers", European Journal of Molecular and Clinical Medicine ; 10(1):3472-3480, 2023.
170. A. C. Pise, et. al., "IoT Based Landmine Detection Robot", International Journal of Research in Science & Engineering ISSN: 2394-8299 Vol: 03, No. 04, June-July 2023.
171. A. C. Pise, et. al., "A Systematic survey on Estimation of Electrical Vehicle", Journal of Electronics, Computer Networking and Applied Mathematics (JECNAM) ISSN: 2799-1156, Volume 3, Issue 01, Pages 1-6, December 2023.
172. A. C. Pise, et. al., "Python Algorithm to Estimate Range of Electrical Vehicle", Web of Science, Vol 21, No 1 (2022) December 2022
173. A. C. Pise, et. al., "Implementation of BIOBOT System for COVID Patient and Caretakers Assistant using IOT", International Journal of Information technology and Computer Engineering. 30-43. 10.55529/ijitc.21.30.43, (2022).
174. A. C. Pise, et. al., "An IoT Based Real Time Monitoring of Agricultural and Micro irrigation system", International journal of scientific research in Engineering and management (IJSREM), VOLUME: 06 ISSUE: 04 | APRIL – 2022, ISSN:2582-3930.
175. A. C. Pise, Dr. K. J. Karande, "An Exploratory study of Cluster Based Routing Protocol in VANET: A Review", International Journal of Advanced Research in Engineering and Technology(IJARET), 12,10, 2021, 17-30, Manuscript ID :00000-94375 Source ID : 00000006, Journal_uploads/ IJARET/VOLUME_12_ISSUE_10/IJARET_12_10_002.pdf
176. A. C. Pise, et. al., "Android based Portable Health Support System," A Peer Referred & Indexed International Journal of Research, Vol.8, issue.4 , April 2019.
177. A. C. Pise, et. al., "Facial Expression Recognition Using Image Processing," International Journal of VLSI Design, Microelectronics and Embedded System, Vol.3, issue.2 , July 2018.
178. A. C. Pise, et. al., "Detection of Cast Iron Composition by Cooling Curve Analysis using Thermocouple Temperature Sensor," UGC Approved International Journal of Academic Science (IJRECE), Vol.6, Issue.3 , July-September 2018.
179. A. C. Pise, et. al., "Android Based Portable Health Support", System International Journal of Engineering Sciences & Research Technology (IJESRT 2017) Vol.6, Issue 8, pp 85-88 5th Aug 2017
180. A. C. Pise, et. al., "Adaptive Noise Cancellation in Speech Signal", International Journal of Innovative Engg and Technology, 2017
181. A. C. Pise, et. al., "Lung Cancer Detection System by using Baysian Classifier", ISSN 2454-7875, IJRPET, published online in conference special issue VESCOMM-2016, February 2016
182. A. C. Pise, et. al., "Review on Agricultural Plant Diseases Detection by Image Processing", ISSN 2278-62IX, IJLTET, Vol 7, Issue 1 May 2016
183. A. C. Pise, et. al. "Segmentation of Retinal Images for Glaucoma Detection", International Journal of Engineering Research and Technology (06, June-2015).
184. A. C. Pise, et. al. "Color Local Texture Features Based Face Recognition", International Journal of Innovations in Engineering and Technology(IJiet) , Dec. 2014
185. A. C. Pise, et. al. "Single Chip Solution For Multimode Robotic Control", International Journal of Engineering Research and Technology (IJERT-2014), Vol. 3, Issue 12, Dec. 2014.
186. Anjali C. Pise et. al., "Remote monitoring of Greenhouse parameters using zigbee Wireless Sensor Network", International Journal of Engineering Research & Technology ISSN 2278-0181 (online) Vol. 3, Issue 2, and pp: (2412-2414), Feb. 2014.



187. A. C. Pise, K. J. Karande, "Cluster Head Selection Based on ACO In Vehicular Ad-hoc Networks", Machine Learning for Environmental Monitoring in Wireless Sensor Networks
188. A. C. Pise, K. J. Karande, "Architecture, Characteristics, Applications and Challenges in Vehicular Ad Hoc Networks" Presented in 27th IEEE International Symposium on Wireless Personal Multimedia Communications (WPMC 2024) "Secure 6G – AI Nexus: Where Technology Meets Humanity" Accepted for book chapter to be published in international Scopus index book by River publisher.
189. A. C. Pise, Dr. K. J. Karande, "K-mean Energy Efficient Optimal Cluster Based Routing Protocol in Vehicular Ad Hoc Networks", International Conference on Innovations in Artificial Intelligence and Machine Learning (ICAIML-2022), August 20th and 21st 2022 Springer database Conference.
190. A. C. Pise, Mr. D. Nale, "Web-Based Application for Result Analysis", , International Conference on Innovations in Artificial Intelligence and Machine Learning (ICAIML-2022), August 20th and 21st 2022 Springer database Conference.
191. A. C. Pise, et. al., "Detection of Cast Iron Composition by Cooling Curve Analysis using Thermocouple Temperature Sensor," 2nd International Conference on Engineering Technology, Science and Management Innovation (ICETSMI – 2018), 2nd September 2018.
192. A. C. Pise, et. al., "Facial Expression Recognition Using Facial Features," IEEE International Conference on Communication and Electronics Systems (ICCES 2018), October 2018.
193. A. C. Pise, et. al., "Estimating Parameters of Cast Iron Composition using Cooling Curve Analysis," IEEE International Conference on Communication and Electronics Systems (ICCES 2018), Coimbatore, October 2018.
194. A. C. Pise, et. al., "Android based portable Health Support System," International Conference on Innovations in Engineering and Technology (CIET 2016), SKN Sinhgad College of Engineering, 30-31 Dec 2016.
195. A. C. Pise, et. al., "Baysian Classifier & FCM Segmentation for Lung Cancer Detection in early stage," International Conference on Innovations in Engineering and Technology (CIET 2016), SKN Sinhgad College of Engineering, 30-31 Dec 2016.
196. A. C. Pise, et. al., "Cast Iron Composition Measurement by Coding Curve Analysis," International Conference on Innovations in Engineering and Technology (CIET 2016), SKN Sinhgad College of Engineering, 30-31 Dec 2016.
197. A. C. Pise, et. al., "War field Intelligence Defence Flaging Vehicle," International Conference on Innovations in Engineering and Technology (CIET 2016), SKN Sinhgad College of Engineering, 30-31 Dec 2016.
198. A. C. Pise, et. al. "Disease Detection of Pomegranate Plant", IEEE sponsored International Conference on Computation of Power, Energy, Information and Communication, 22- 23 Apr. 2015.
199. A. C. Pise, P. Bankar. "Face Recognition by using GABOR and LBP", IEEE International Conference on Communication and Signal Processing, ICCSP, 2-4 Apr. 2015
200. A. C. Pise, et. al. "Single Chip Solution For Multimode Robotic Control", Ist IEEE International Conferene on Computing Communication and Automation, 26-27 Feb2015.
201. Anjali C. Pise, Vaishali S. Katti, "Efficient Design for Monitoring of Greenhouse Parameters using Zigbee Wireless Sensor Network", fifth SARC international conference IRF,IEEE forum ISBN 978-93-84209-21-6,pp 24-26, 25th May 2014
202. A. C. Pise, P. Bankar, "Face Recognition using Color Local Texture Features", International Conference on Electronics and Telecommunication, Electrical and Computer Engineering, Apr.2014.
203. A. C. Pise, et.al. "Monitoring parameters of Greenhouse using Zigbee Wireless Sensor Network", 1st International Conference on Electronics and Telecommunication, Electrical and Computer Engineering, 5-6 Apr.2014.
204. A. C. Pise, et. al. "Compensation schemes and performance Analysis of IQ Imbalances in Direct Conversion Receivers", International Conference at GHPCOE, Gujarat, (Online Proceeding is Available), 2009.
205. A. C. Pise, K. J. Karande, "Energy-Efficient Optimal Routing Protocols in VANETs", 66th Annual IETE Convention, AIC -2023 September16-17, 2023, under the Theme: The Role of 5G In Enabling Digital Transformation for Rural Upliftment.



206. A. C. Pise, et. al. "Automatic Bottle Filling Machine using Raspberry Pi", National Conference on computer ;Communication & information Technology (NCCIT-2018) dated 30th & 31st March 2018.
207. A. C. Pise, et. al. "Design & Implementation of ALU using VHDL", National Conference on computer ;Communication & information Technology (NCCIT-2018) dated 30th & 31st March 2018.
208. A. C. Pise, et. al. "Mechanism and Control of Autonomus four rotor Quad copter", National Conference on Computer, Electrical and Electronics Engineering, 23- 24 Apr. 2016.
209. A. C. Pise, et. al. "Segmentation of Optic Disk and Optic Cup from retinal Images", ICEECMPE – Chennai, June 2015
210. A. C. Pise, et. al. "Diseases Detection of Pomegranate Plant", IEEE Sponsored International conference on Computation of Power, Energy , April 2015.
211. A. C. Pise, et. al. "Compensation Techniques for I/Q Imbalance in Direct-Conversion Receivers", Conference at SCOE, Pune 2010.
212. A. C. Pise, et. al. "I/Q Imbalance compensation Techniques in Direct Conversion Receiver ", Advancing Trends in Engineering and Management Technologies, ATEMT-2009, Conference at Shri Ramdeobaba Kamla Nehru Engineering College, Nagpur, 20-21 November 2009
213. A. C. Pise, et. al. "Compensation Techniques for I/Q Imbalance in Direct Conversion Receiver", Conference at PICT, Pune 2008.
214. A. C. Pise, et. al. "I/Q Imbalance compensation Techniques in Direct Conversion Receiver ", Conference at DYCOE, Pune 2008.
215. A. C. Pise, et. al. "DUCHA: A New Dual channel MAC protocol for Multihop Ad-Hoc Networks", Conference at SVCP, Pune 2007.
216. Godase, V., Pawar, P., Nagane, S., & Kumbhar, S. (2024). Automatic railway horn system using node MCU. Journal of Control & Instrumentation, 15(1).
217. Godase, V., & Godase, J. (2024). Diet prediction and feature importance of gut microbiome using machine learning. Evolution in Electrical and Electronic Engineering, 5(2), 214-219.
218. Jamadade, V. K., Ghodke, M. G., Katakdhond, S. S., & Godase, V. A Comprehensive Review on Scalable Arduino Radar Platform for Real-time Object Detection and Mapping.
219. Godase, V. (2025). A comprehensive study of revolutionizing EV charging with solar-powered wireless solutions. Advance Research in Power Electronics and Devices e-ISSN, 3048-7145.
220. Godase, V. (2025, April). Advanced Neural Network Models for Optimal Energy Management in Microgrids with Integrated Electric Vehicles. In Proceedings of the International Conference on Trends in Material Science and Inventive Materials (ICTMIM-2025) DVD Part Number: CFP250J1-DVD.
221. Dange, R., Attar, E., Ghodake, P., & Godase, V. (2023). Smart agriculture automation using ESP8266 NodeMCU. J. Electron. Comput. Netw. Appl. Math, (35), 1-9.
222. Godase, V. (2025). Optimized Algorithm for Face Recognition using Deepface and Multi-task Cascaded Convolutional Network (MTCNN). Optimum Science Journal.
223. Mane, V. G. A. L. K., & Gangonda, K. D. S. Pipeline Survey Robot.
224. Godase, V. (2025). Navigating the digital battlefield: An in-depth analysis of cyber-attacks and cybercrime. International Journal of Data Science, Bioinformatics and Cyber Security, 1(1), 16-27.
225. Godase, V., & Jagadale, A. (2019). Three element control using PLC, PID & SCADA interface. International Journal for Scientific Research & Development, 7(2), 1105-1109.
226. Godase, V. (2025). Edge AI for Smart Surveillance: Real-time Human Activity Recognition on Low-power Devices. International Journal of AI and Machine Learning Innovations in Electronics and Communication Technology, 1(1), 29-46.
227. Godase, V., Modi, S., Misal, V., & Kulkarni, S. (2025). LoRaEdge-ESP32 synergy: Revolutionizing farm weather data collection with low-power, long-range IoT. Advance Research in Analog and Digital Communications, 2(2), 1-11.
228. Godase, V. (2025). Comparative study of ladder logic and structured text programming for PLC. Available at SSRN 5383802.



229. Godase, V., Modi, S., Misal, V., & Kulkarni, S. Real-time object detection for autonomous drone navigation using YOLOv8, || . Advance Research in Communication Engineering and its Innovations, 2(2), 17-27.
230. Godase, V. (2025). Smart energy management in manufacturing plants using PLC and SCADA. Advance Research in Power Electronics and Devices, 2(2), 14-24.
231. Godase, V. (2025). IoT-MCU Integrated Framework for Field Pond Surveillance and Water Resource Optimization. International Journal of Emerging IoT Technologies in Smart Electronics and Communication, 1(1), 9-19.
232. Godase, V. (2025). Graphene-Based Nano-Antennas for Terahertz Communication. International Journal of Digital Electronics and Microprocessor Technology, 1(2), 1-14.
233. Godase, V., Khiste, R., & Palimkar, V. (2025). AI-Optimized Reconfigurable Antennas for 6G Communication Systems. Journal of RF and Microwave Communication Technologies, 2(3), 1-12.
234. Bhaganagare, S., Chavan, S., Gavali, S., & Godase, V. V. (2025). Voice-Controlled Home Automation with ESP32: A Systematic Review of IoT-Based Solutions. Journal of Microprocessor and Microcontroller Research, 2(3), 1-13.
235. Jamadade, V. K., Ghodke, M. G., Katakdhond, S. S., & Godase, V. A Comprehensive Review on Scalable Arduino Radar Platform for Real-time Object Detection and Mapping.
236. Godase, V. (2025). Cross-Domain Comparative Analysis of Microwave Imaging Systems for Medical Diagnostics and Industrial Testing. Journal of Microwave Engineering & Technologies, 12(2), 39-48p.
237. V. K. Jamadade, M. G. Ghodke, S. S. Katakdhond, and V. Godase, —A Review on Real-time Substation Feeder Power Line Monitoring and Auditing Systems,” International Journal of Emerging IoT Technologies in Smart Electronics and Communication, vol. 1, no. 2, pp. 1-16, Sep. 2025.
238. V. V. Godase, “VLSI-Integrated Energy Harvesting Architectures for Battery-Free IoT Edge Systems,” Journal of Electronics Design and Technology, vol. 2, no. 3, pp. 1-12, Sep. 2025.
239. A. Salunkhe et al., “A Review on Real-Time RFID-Based Smart Attendance Systems for Efficient Record Management,” Advance Research in Analog and Digital Communications, vol. 2, no. 2, pp.32-46, Aug. 2025.
240. Vaibhav, V. G. (2025). A Neuromorphic-Inspired, Low-Power VLSI Architecture for Edge AI in IoT Sensor Nodes. Journal of Microelectronics and Solid State Devices, 12(2), 41-47p.
241. Nagane, M.S., Pawar, M.P., & Godase, P.V. (2022). Cinematica Sentiment Analysis. Journal of Image Processing and Intelligent Remote Sensing.
242. Godase, V.V. (2025). Tools of Research. SSRN Electronic Journal.
243. Godase, V. (n.d.). EDUCATION AS EMPOWERMENT: THE KEY TO WOMEN’S SOCIO ECONOMIC DEVELOPMENT. Women Empowerment and Development, 174–179.
244. Godase, V. (n.d.). COMPREHENSIVE REVIEW ON EXPLAINABLE AI TO ADDRESSES THE BLACK BOX CHALLENGE AND ITS ROLE IN TRUSTWORTHY SYSTEMS. In Sinhgad College of Engineering, Artificial Intelligence Education and Innovation (pp. 127–132).
245. Godase, V. (n.d.-b). REVOLUTIONIZING HEALTHCARE DELIVERY WITH AI-POWERED DIAGNOSTICS: A COMPREHENSIVE REVIEW. In SKN Sinhgad College of Engineering, SKN Sinhgad College of Engineering (pp. 58–61).
246. Dhope, V. (2024). SMART PLANT MONITORING SYSTEM. In International Journal of Creative Research Thoughts (IJCRT). <https://www.ijcrt.org>
247. M. M. Zade, Sushant D. Kambale, Shweta A. Mane, Prathamesh M. Jadhav. (2025) “IOT Based early fire detection in Jungles”. RIGJA&AR Volume 2 Issue 1, ISSN:2998-4459. DOI:<https://doi.org/10.5281/zenodo.15056435>
248. M. M. Zade, Bramhadev B. Rupanar, Vrushal S. Shilawant, Akansha R. Pawar (2025) “IOT Flood Monitoring & Alerting System using Raspberry Pi-Pico ” International Journal of Research Publication & Reviews, Volume 6, Issue 3, ISSN:2582-7421. DOI:<https://ijrpr.com/uploads/V6ISSUE3/IJRPR40251.pdf>



249. M.M.Zade(2022) "Touchless Fingerprint Recognition System"(Paper-ID 907)(2022) International Conference on "Advanced Technologies for Societal Applications: Techno-Societal 2022 <https://link.springer.com/book/10.1007/978-3-031-34644-6?page=6>
250. Mr.M.M.Zade published the paper on "Automation of Color Object Sorting Conveyor Belt", in International Journal of Scientific Research in Engineering & Management (IJSREM),ISSN:2582-3930 Volume 06 ,Issue 11th November 2022.
251. Mr.M.M.Zade published the paper on "Cloud Based Patient Health Record Tracking web Developement",in International Journal of Advanced Research in Science, Communication & Technology(IJARSCT),ISSN NO:2581-9429 Volume 02 ,Issue 03,DOI 1048175/IJARSCT-3705,IF 6.252, May 2022.
252. Mr. Mahesh M Zade, "Performance analysis of PSNR Vs. Impulse Noise for the enhancement of Image using SMF", Journal of Applied Science & Computations (JASC UGC Approved), Volume VI, Issue II, Feb.2019
253. Mr. Mahesh M Zade, "Classification of Power Quality Disturbances Using SVM & their Efficiency Comparison", Journal of Applied Science & Computations (JASC UGC Approved), Volume VI, Issue II, Feb.2019
254. Mr. Mahesh M Zade, "Dynamic Clustering of Wireless Sensor Network Using Modified AODV", Journal of Applied Science & Computations (JASC UGC Approved), Volume VI, Issue II, Feb.2019
255. Mr. Mahesh M Zade, "Performance analysis of PSNR Vs. Impulse Noise for the enhancement of Image using SMF", National Conference on Mathematical Modeling and Computational Intelligence 2K19 (MMCI-2k19), in association with JASC, at S. B. Patil College of Engineering, Indapur, Feb.2019
256. Mr. Mahesh M Zade, "Classification of Power Quality Disturbances Using SVM & their Efficiency Comparison", National Conference on Mathematical Modeling and Computational Intelligence 2K19 (MMCI-2k19), in association with JASC, at S. B. Patil College of Engineering, Indapur Feb.2019
257. Mr. Mahesh M Zade, "Dynamic Clustering of Wireless Sensor Network Using Modified AODV", National Conference on Mathematical Modeling and Computational Intelligence 2K19 (MMCI-2k19), in association with JASC, at S. B. Patil College of Engineering, Indapur Feb.2019
258. Mr. Mahesh M Zade & Mr.S.M.Karve,"Performance Analysis of Median Filter for Enhancement of Highly Corrupted Images", National Conference on Advanced Trends in Engineering, Association with IRJMS, Karmyogi Engineering College, Shelave, Pandharpur, March 2016.
259. Mr. Mahesh M Zade & Mr.S.M.Karve,"Implementation of Reed Solomen Encoder & Decoder Using FPGA",National Conference on Advanced Trends in Engineering, Association with IRJMS, Karmyogi Engineering College, Shelave, Pandharpur, March 2016.
260. Mr. Mahesh M Zade & Dr.S.M.Mukane,"Performance of Switching Median Filter for Enhancement of Image", National Conference on Mechatronics at Sinhgad Institute of Technology and Science, Narhe, Pune, Feb. 2016.
261. Mr. Mahesh M Zade & Dr.S.M.Mukane,"Enhancement of Image with the help of Switching Median Filter", National Conference on Emerging Trends in Electronics & Telecommunication Engineering, SVERI's College of Engineering Pandharpur, NCET 2013.
262. Mr.Mahesh M Zade & Dr.S.M.Mukane,"Enhancement of Image with the help of Switching Median Filter", International Journal of Computer Application (IJCA) SVERI's College of Engineering, Pandharpur, Dec.2013.
263. A. O. Mulani, V. Godase, S. Takale, and R. Ghodake, "Secure Image Authentication using AES and DWT Watermarking on Reconfigurable Platform," International Journal of Embedded System and VLSI Design, vol. 1, no. 2, pp. 14-20, Oct. 2025

