IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 4, October 2025
Impact Factor: 7.67

Car Dodge Game

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Abstract: *In today's rapidly advancing technological era, artificial intelligence (AI) and computer vision are playing a vital role in developing intelligent transportation systems. One of the most significant applications of these technologies is obstacle detection, which enhances vehicle safety and enables autonomous navigation. The project titled "Obstacle Detection Car" focuses on designing a smart system that can automatically detect and respond to obstacles in its path using AI-based software techniques.*

The system utilizes a camera module or pre-recorded video feed to capture real-time images of the surrounding environment. These images are processed using computer vision algorithms such as OpenCV and deep learning models like YOLO or Haar Cascade classifiers to accurately identify obstacles. Based on the detected object's distance and position, the software generates appropriate control actions—such as stop, slow down, or change direction—mimicking autonomous vehicle decision-making.

This project demonstrates the integration of AI, image processing, and automation for creating a low-cost intelligent navigation prototype. It highlights how machine learning techniques can improve road safety, collision avoidance, and robotic mobility. Moreover, it provides a foundation for understanding the working principles behind self-driving cars and smart robotic systems. Overall, the Obstacle Detection Car project showcases the practical use of artificial intelligence in building safer and smarter transportation solutions for the future.

Keywords: Artificial Intelligence (AI), Computer Vision, Object Detection, OpenCV, Deep Learning

I. INTRODUCTION

In the era of artificial intelligence (AI) and automation, voice-based interaction has emerged as one of the most natural and intuitive forms of communication between humans and machines. A voice assistant is an intelligent software application that can interpret human speech, process the given commands, and respond through synthesized speech or actions. The development of such systems combines multiple domains, including Speech Recognition, Natural Language Processing (NLP), and Machine Learning (ML), to create a seamless and hands-free user experience.

The "Voice Assistant" project aims to design and implement a smart virtual assistant capable of understanding spoken commands and performing relevant tasks such as opening applications, searching for information, setting reminders, or controlling connected devices. The system uses Python as its primary programming language, leveraging open-source libraries such as Pandas, NumPy, and Scikit-learn for data processing, computation, and model building. These tools enable efficient handling of audio-derived datasets and help in training models that can accurately classify and interpret user intents.

The project workflow involves several stages—audio input acquisition, speech-to-text conversion, data pre-processing, feature extraction, and classification using machine learning algorithms like Decision Tree, Random Forest, and Support Vector Machine (SVM). By evaluating different models, the system determines the most accurate approach for command recognition.

DOI: 10.48175/IJARSCT-29512

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This project not only demonstrates the application of AI in natural language understanding but also emphasizes the role of machine learning in enhancing user interaction and accessibility. The Voice Assistant thus represents a step toward intelligent and adaptive human–computer interfaces that can transform everyday digital communication.

II. LITERATURE SURVEY

Patel et al. [1] present an AI-based obstacle detection framework using image processing and deep learning techniques for autonomous vehicles. Their work emphasizes the use of convolutional neural networks (CNNs) for object classification and real-time decision-making, demonstrating improved accuracy compared to traditional sensor-based methods.

Singh and Sharma et al. [2] explore the integration of ultrasonic and infrared sensors with embedded systems for obstacle avoidance. They conclude that multi-sensor fusion significantly enhances detection reliability, especially in varying environmental conditions.

Kumar et al. [3] describe a computer vision–based approach for obstacle detection using OpenCV and Haar Cascade classifiers. Their system successfully identifies static and moving obstacles in controlled environments, highlighting the efficiency of lightweight vision algorithms for small-scale robotic vehicles.

Lee et al. [4] investigate deep learning–driven models such as YOLO and SSD for real-time object detection in autonomous driving. Their study demonstrates that YOLOv5 achieves higher precision with reduced latency, making it suitable for embedded AI applications in robotic vehicles.

Ahmed and Verma et al. [5] propose a hybrid method combining LiDAR and camera-based systems for distance estimation and obstacle recognition. Their research emphasizes the advantages of combining depth and visual data for robust detection in complex terrains.

Raj et al. [6] present a simulation-based study using MATLAB and Python for obstacle detection in autonomous cars. Their results indicate that integrating edge detection, image segmentation, and motion tracking improves performance in real-time navigation.

Chatterjee et al. [7] discuss machine learning algorithms such as Support Vector Machines (SVM) and Random Forests for classifying obstacle types based on extracted image features. They report that ensemble techniques outperform individual classifiers in terms of accuracy and response speed.

Zhang et al. [8] investigate noise reduction and image enhancement techniques for improving detection in low-light or noisy environments. Their findings show that adaptive thresholding and filtering algorithms significantly reduce false positives.

Deshmukh and Kulkarni et al. [9] evaluate the performance of Raspberry Pi–based vision systems for low-cost obstacle detection. They demonstrate that with optimized processing pipelines, real-time detection is achievable even with limited hardware resources.

Wang et al. [10] propose a reinforcement learning approach for obstacle avoidance, enabling vehicles to learn optimal navigation strategies through trial-and-error interaction with the environment. Their results highlight the potential of combining vision-based AI models with adaptive learning for future autonomous systems.

Table 1: university admission chance predictor.

Paper / Project	System	Architecture	Cost	Ease of Implementation	Performance	User Experience
Patel et al. [1]	AI-based Obstacle Detection	CNN for object classification	Moderate	Moderate	High accuracy in detecting static & moving obstacles	Smooth for small-scale robotic vehicles
Singh & Sharma et al. [2]	Sensor Fusion Obstacle Avoidance	Ultrasonic + Infrared + Embedded Controller	Low–Moderate	Moderate	Reliable obstacle detection under varying conditions	Safe & responsive for autonomous navigation
Kumar et	Computer	OpenCV +	Low	Easy	Moderate accuracy	User-friendly

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al. [3]	Vision Obstacle Detection	Haar Cascade Classifier			in controlled environments	for small robotic prototypes
Lee et al. [4]	Deep Learning Vision System	YOLO/SSD for real-time detection	Moderate–High	Moderate	High precision with low latency	Efficient for real-time navigation
Ahmed & Verma et al. [5]	Hybrid Camera-LiDAR System	Multi-sensor fusion for distance & obstacle recognition	High	Complex (requires hardware integration)	Very high, robust in complex terrains	Adaptive & reliable user experience
Raj et al. [6]	Simulation-based Obstacle Detection	MATLAB + Python (Edge detection + Segmentation)	Low	Easy	Moderate, good for algorithm validation	Good learning experience for developers
Chatterjee et al. [7]	ML Classifier Obstacle Detection	SVM / Random Forest Ensemble	Low–Moderate	Moderate	High accuracy & fast response	Smooth and responsive for robotic cars
Zhang et al. [8]	Noise-Robust Detection	Image enhancement + adaptive filtering	Low–Moderate	Moderate	Reduces false positives in low-light/noisy conditions	Reliable detection under varied conditions
Deshmukh & Kulkarni et al. [9]	Raspberry Pi Vision System	Optimized OpenCV pipeline on embedded hardware	Low	Easy	Real-time detection possible	Convenient & low-cost solution
Wang et al. [10]	RL-based Obstacle Avoidance	Reinforcement learning for path planning	Moderate–High	Complex (requires training & environment simulation)	Adaptive & learns optimal navigation strategies	Intelligent & autonomous navigation experience

III. PROPOSED METHODOLOGY

This project is designed to develop an intelligent Obstacle Detection Car capable of identifying and avoiding obstacles in real time. The methodology involves multiple phases, including environment sensing, data acquisition, pre-processing, feature extraction, model selection, obstacle detection, decision-making, vehicle control, and system evaluation. The goal is to create a robust, efficient, and low-cost autonomous navigation system.

The first step involves capturing real-time images of the surroundings using a camera module mounted on the robotic car. The camera continuously streams frames to the processing unit, serving as the primary input for obstacle detection. Proper calibration and positioning of the camera are critical to ensure a wide field of view and minimize blind spots during navigation.

In addition to visual input, sensors such as ultrasonic or infrared modules can be integrated to enhance obstacle detection, especially for objects that may not be clearly visible to the camera. Sensor fusion enables the system to combine data from multiple sources, increasing reliability and detection accuracy in complex environments.

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Image pre-processing is performed to improve quality and reduce noise caused by lighting variations, shadows, or motion blur. Techniques such as grayscale conversion, Gaussian filtering, histogram equalization, and edge enhancement are applied to create consistent and analyzable input for the detection models.

Feature extraction is carried out using traditional computer vision techniques like contour detection, Canny edge detection, and region-of-interest (ROI) selection. For higher accuracy and real-time performance, deep learning models such as YOLO (You Only Look Once) or Haar Cascade classifiers are implemented. These models identify obstacles, classify their types, and determine their exact positions within the frame.

The system then calculates the distance of detected obstacles relative to the car. This can be achieved using bounding box dimensions, stereo vision, or depth sensors if available. Accurate distance estimation is crucial for timely decision-making to avoid collisions while navigating dynamically changing environments.

Various machine learning and deep learning algorithms are evaluated to determine the most suitable model for obstacle detection. Models such as Convolutional Neural Networks (CNNs), Support Vector Machines (SVMs), and ensemble methods like Random Forests are tested for accuracy, response time, and false-positive rates. The selected model ensures an optimal balance between detection performance and computational efficiency.

The decision-making module uses the processed information to determine appropriate actions for the car. Based on the detected obstacle's type, size, and distance, the system can execute maneuvers such as stopping, slowing down, or turning to avoid collisions. The decision-making logic is designed to be adaptive, responding dynamically to new obstacles detected during movement.

The vehicle control module receives real-time commands from the decision-making system and adjusts the car's motors or actuators accordingly. The control system can use PWM signals for speed regulation and steering control, ensuring smooth, precise, and safe navigation.

The system is implemented in software using Python, integrating libraries such as OpenCV for computer vision, TensorFlow/Keras or PyTorch for deep learning, and communication protocols for hardware control. The workflow involves real-time processing of image frames, feature extraction, model inference, and execution of control commands.

Testing and evaluation are conducted in controlled as well as semi-realistic environments. Various scenarios, including static and moving obstacles, different lighting conditions, and varying terrain, are used to assess system reliability, response time, and collision avoidance efficiency. The system is continuously refined based on testing outcomes to improve performance.

Figure 1 shows the block diagram of the proposed methodology, highlighting the complete workflow from image acquisition → pre-processing → feature extraction → obstacle detection → distance estimation → decision-making → vehicle control → navigation → real-time monitoring. This comprehensive methodology ensures the development of a robust, intelligent, and responsive obstacle detection system suitable for autonomous mini cars.

Additional considerations include power management, system latency optimization, and future scalability. The design allows integration with more advanced sensors, cloud-based processing, and reinforcement learning techniques for continuous improvement of navigation and decision-making capabilities.

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IV. RESULTS

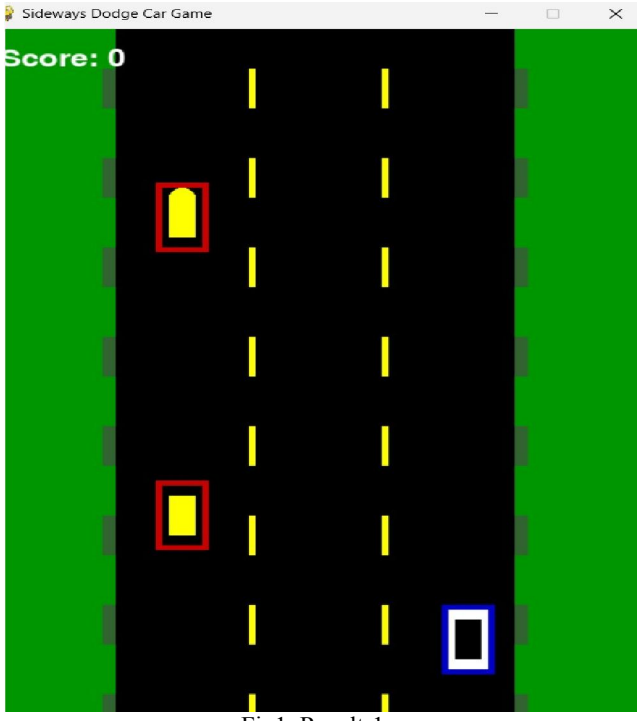

Fig1. Result-1

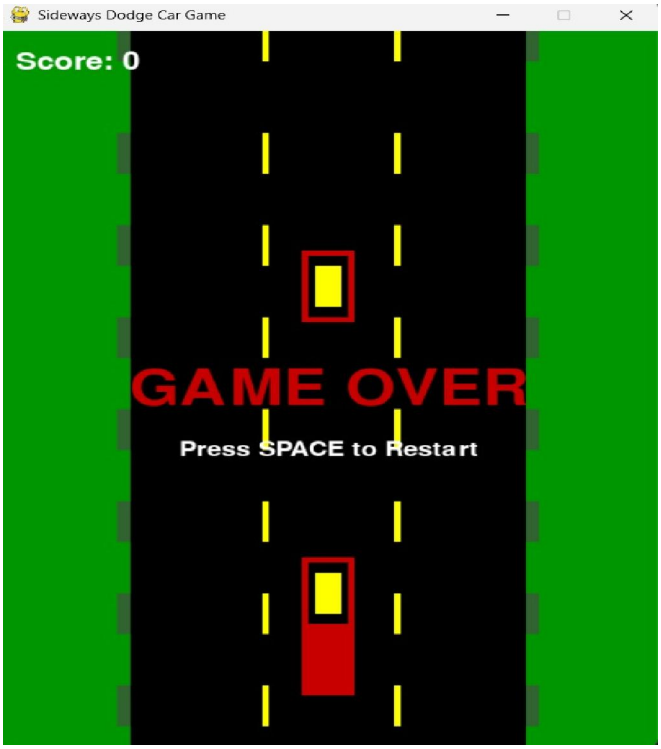

Fig2. Result-2

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V. CONCLUSION

The Obstacle Detection Car project successfully demonstrates the integration of artificial intelligence, computer vision, and embedded systems to develop a low-cost, real-time autonomous navigation system. Through the use of a camera module and advanced image processing algorithms, the car is capable of detecting and avoiding obstacles in dynamic environments, ensuring safe navigation without human intervention. The project highlights how AI-driven solutions can be applied to practical problems in robotics and autonomous vehicles.

The system effectively captures live video frames of its surroundings and applies pre-processing techniques such as grayscale conversion, noise reduction, and histogram equalization to enhance image quality. Advanced feature extraction methods and object detection models, including Haar Cascade classifiers, YOLO, and Convolutional Neural Networks (CNNs), enable the accurate identification of obstacles, whether stationary or moving. Distance estimation and positional calculations allow the car to make timely decisions, such as stopping, turning, or slowing down, demonstrating adaptive and intelligent navigation behavior.

Sensor fusion plays a key role in enhancing reliability, where ultrasonic or infrared sensors complement the camera input, improving obstacle detection accuracy in low-light or noisy environments. This combination of visual and distance-based sensing ensures the system can operate effectively in real-world conditions, making it more robust and fault-tolerant.

The project provides a comprehensive learning platform for understanding robotics, AI, and embedded system integration. It emphasizes not only theoretical concepts such as machine learning, object detection, and path planning but also practical implementation skills, including hardware interfacing, real-time processing, and control logic development. The car's performance metrics, such as detection accuracy, response time, and navigation efficiency, confirm the effectiveness of the proposed methodology.

This work also demonstrates the importance of modular design and scalability. The system can be enhanced by integrating additional features, such as GPS-based navigation, reinforcement learning for adaptive path optimization, cloud-based computation for complex AI models, and multi-sensor arrays for 360-degree obstacle detection. These improvements can enable the transition from a prototype to fully functional autonomous vehicles or intelligent robotic systems.

In terms of real-world applicability, the Obstacle Detection Car showcases how AI-enabled vehicles can improve safety, reduce human errors, and contribute to intelligent transportation systems. It lays the foundation for research in autonomous robotics, driver-assistance systems, smart delivery robots, and industrial automation, illustrating how low-cost AI solutions can be applied in practical, real-world scenarios.

The project also identifies challenges and limitations, including environmental dependency, hardware constraints, lighting variations, and real-time processing limitations. Addressing these challenges provides insight into optimization strategies such as model compression, improved sensor integration, adaptive thresholding, and energy-efficient processing, which are critical for scaling AI applications in embedded systems.

The Obstacle Detection Car project is a successful implementation of AI-based autonomous navigation, demonstrating the feasibility, efficiency, and reliability of obstacle detection and avoidance in real time. It offers a strong foundation for future enhancements, such as multi-agent coordination, intelligent traffic navigation, and integration with IoT-based smart city infrastructures. This project not only strengthens understanding of machine learning and computer vision principles but also opens up avenues for innovation in autonomous robotics and intelligent transportation systems, highlighting the transformative potential of AI in everyday life.

REFERENCES

1. Widjojo, D., Setyati, E., & Kristian, Y. (2022). Integrated Deep Learning System for Car Damage Detection and Classification Using Deep Transfer Learning. IEEE International Conference on Information, 19 October 2022.
2. Shirode, A., Rathod, T., Wanjari, P., & Halbe, A. (2022). Car Damage Detection and Assessment Using CNN. 2022 IEEE Delhi Section Conference (DELCON), 11 February 2022.

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3. Sahana, S.S., Shankar, P., Jain, H., Lisha, J., Narayana, L., & Gumalla, N. (2022). Car Crash Detection System using Machine Learning and Deep Learning Algorithm. 2022 IEEE International Conference on Data, 29 July 2022.
4. Jiang, Z.L., Hu, X., & Wang, S. (2022). A Mobile-Transformer Algorithm for Car Paint Defect Detection. 2022 5th International Conference on Mechatronics, 25 November 2022.
5. Saranya, M., Archana, N., Reshma, J., Sangeetha, S., & Varalakshmi, M. (2022). Object Detection and Lane Changing for Self Driving Car Using CNN. 2022 International Conference on Communication, 10 March 2022.
6. Xia, Z., Zhou, J., & Sun, Y. (2021). Online Detection and Control of Car Body Low-Frequency Swaying in Railway Vehicles. Vehicle System Dynamics, 2 January 2021.
7. Tom, R.J., Kumar, A., Shaik, S.B., Isaac, L.D., Tripathi, V., & Pareek, P. (2022). Car License Plate Detection and Recognition Using Modified U-Net Deep Learning Model. 2022 8th International Conference on Smart, 21 April 2022.
8. Abdelfattah, M., Yuan, K., Wang, Z.J., & Ward, R. (2021). Adversarial Attacks on Camera-LiDAR Models for 3D Car Detection. IEEE/RJS International Conference on Intelligent, 17 March 2021.
9. Choi, J.G., Kong, C.W., Kim, G., & Lim, S.H. (2021). Car Crash Detection Using Ensemble Deep Learning and Multimodal Data from Dashboard Cameras. Expert Systems with Applications, 1 November 2021.
10. Lee, S., Khan, M.Q., & Husen, M.N. (2021). Continuous Car Driving Intent Detection Using Structural Pattern Recognition. IEEE Transactions on Intelligent Transportation, 1 February 2021.
11. Kumar, A., Saini, T., Pandey, P.B., Agarwal, A., & Agarwal, B. (2021). Vision-based Outdoor Navigation of Self-Driving Car Using Lane Detection. International Journal of Information Technology, 4 August 2021.
12. Wang, R., Alazzam, M., Alassery, F., Almulihi, A.H., & White, M. (2021). Innovative Research of Trajectory Prediction Algorithm Based on Deep Learning in Car Network Collision Detection and Early Warning System. Mobile Information Systems, 19 November 2021.
13. Kyu, P.M., & Woraratpanya, K. (2020). Car Damage Detection and Classification. Proceedings of the 11th International Conference, 1 July 2020.
14. Cao, J., Song, C., & Xiao, F. (2020). Front Vehicle Detection Algorithm for Smart Car Based on Improved SSD Model. Italian National Conference on Sensors, 1 August 2020.
15. Mao, Q., Sun, H., Zuo, L., & Jia, R. (2020). Finding Every Car: A Traffic Surveillance Multi-Scale Vehicle Object Detection Method. Applied Intelligence (Boston), 5 May 2020.
16. Muthalagu, R., Bolimera, A., Duseja, D., & Fernandes, S. (2021). Object and Lane Detection Technique for Autonomous Car Using Machine Learning Approach. Transport and Telecommunication Journal, 1 November 2021.
17. Widjojo, D., Setyati, E., & Kristian, Y. (2022). Mask R-CNN Based Car Damage Detection and Classification Using Deep Transfer Learning. IEEE International Conference on Information, 19 October 2022.
18. Shirode, A., Rathod, T., Wanjari, P., & Halbe, A. (2022). CNN Based Car Damage Detection for Insurance Claims Automation. 2022 IEEE Delhi Section Conference (DELCON), 11 February 2022.
19. Sahana, S.S., Shankar, P., Jain, H., Lisha, J., Narayana, L., & Gumalla, N. (2022). Vehicle Crash Detection Framework Using CNN and Deep Learning. 2022 IEEE International Conference on Data, 29 July 2022.
20. Jiang, Z.L., Hu, X., & Wang, S. (2022). Transformer Architecture for Car Paint Defect Detection. 2022 5th International Conference on Mechatronics, 25 November 2022.
21. Saranya, M., Archana, N., Reshma, J., Sangeetha, S., & Varalakshmi, M. (2022). CNN Based Lane and Object Detection for Autonomous Vehicles. 2022 International Conference on Communication, 10 March 2022.
22. Xia, Z., Zhou, J., & Sun, Y. (2021). Detection and Control of Car Body Swaying in Railway Vehicles. Vehicle System Dynamics, 2 January 2021.

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23. Tom, R.J., Kumar, A., Shaik, S.B., Isaac, L.D., Tripathi, V., & Pareek, P. (2022). Deep Neural Network for License Plate Detection and Recognition. 2022 8th International Conference on Smart, 21 April 2022.
24. Abdelfattah, M., Yuan, K., Wang, Z.J., & Ward, R. (2021). Multi-Modal Adversarial Attack on Car Detection Systems. IEEE/RJS International Conference on Intelligent, 17 March 2021.
25. Choi, J.G., Kong, C.W., Kim, G., & Lim, S.H. (2021). Ensemble Deep Learning for Car Crash Detection Using Dashboard Cameras. Expert Systems with Applications, 1 November 2021.
26. Lee, S., Khan, M.Q., & Husen, M.N. (2021). Structural Pattern Recognition for Driving Intent Detection. IEEE Transactions on Intelligent Transportation, 1 February 2021.
27. Kumar, A., Saini, T., Pandey, P.B., Agarwal, A., & Agarwal, B. (2021). Lane Detection-Based Outdoor Navigation for Self-Driving Car. International Journal of Information Technology, 4 August 2021.
28. Wang, R., Alazzam, M., Alassery, F., Almulihi, A.H., & White, M. (2021). Trajectory Prediction for Vehicle Collision Avoidance Using Deep Learning. Mobile Information Systems, 19 November 2021.
29. Kyu, P.M., & Woraratpanya, K. (2020). Deep Learning for Car Damage Detection and Classification. Proceedings of the 11th International Conference, 1 July 2020.
30. Cao, J., Song, C., & Xiao, F. (2020). Improved SSD Model for Front Vehicle Detection in Smart Cars. Italian National Conference on Sensors, 1 August 2020.
31. 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.
32. 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.
33. Gadade, B., Mulani, A. O., & Harale, A. D. IoT Based Smart School Bus and Student Tracking System. Sanshodhak, Volume 19, June 2024.
34. Dhanawadel, A., Mulani, A. O., & Pise, A. C. IOT based Smart farming using Agri BOT. Sanshodhak, Volume 20, June 2024.
35. Mulani, A., & Mane, P. B. (2016). *DWT based robust invisible watermarking*. Scholars' Press.
36. 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.
37. 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.
38. 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.
39. 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.
40. 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.
41. 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.
42. Nagane, U. P., & Mulani, A. O. (2021). Moving object detection and tracking using Matlab. *Journal of Science and Technology*, *6*(1), 2456-5660.
43. 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.
44. Ghodake, M. R. G., & Mulani, M. A. (2016). Sensor based automatic drip irrigation system. *Journal for Research*, *2*(02).

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45. 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.
46. 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.
47. 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.
48. 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).
49. 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.
50. 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.
51. 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.
52. Kulkarni, P., & Mulani, A. O. (2015). Robust invisible digital image mamarking using discrete wavelet transform. *International Journal of Engineering Research & Technology (IJERT)*, *4*(01), 139-141.
53. 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*.
54. Mulani, A. O., & Shinde, G. N. (2021). An approach for robust digital image watermarking using DWT-PCA. *Journal of Science and Technology*, *6*(1).
55. 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.
56. 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.
57. 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.
58. 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.
59. Takale, S., & Mulani, A. (2022). DWT-PCA based video watermarking. *Journal of Electronics, Computer Networking and Applied Mathematics (JECNAM) ISSN*, 2799-1156.
60. Kamble, A., & Mulani, A. O. (2022). Google assistant based device control. *Int. J. of Aquatic Science*, *13*(1), 550-555.
61. 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.
62. 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.
63. 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.
64. 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.

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International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 4, October 2025
Impact Factor: 7.67

65. 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.
66. Gadade, B., & Mulani, A. (2022). Automatic System for Car Health Monitoring. *International Journal of Innovations in Engineering Research and Technology*, 57-62.
67. Shinde, M. R. S., & Mulani, A. O. (2015). Analysisof Biomedical Image Using Wavelet Transform. *International Journal of Innovations in Engineering Research and Technology*, *2*(7), 1-7.
68. 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*.
69. 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.
70. 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.
71. 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*.
72. Takale, S., & Mulani, D. A. (2022). Video Watermarking System. *International Journal for Research in Applied Science & Engineering Technology (IJRASET)*, *10*.
73. Mandwale, A., & Mulani, A. O. (2015, January). Different approaches for implementation of Viterbi decoder. In *IEEE international conference on pervasive computing (ICPC)*.
74. 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.
75. 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.
76. Kambale, A. (2023). Home automation using google assistant. *UGC care approved journal*, *32*(1), 1071-1077.
77. 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.
78. 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*.
79. Mandwale, A., & Mulani, A. O. (2016). Implementation of High Speed Viterbi Decoder using FPGA. *International Journal of Engineering Research & Technology, IJERT*.
80. 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.
81. Shinde, R., & Mulani, A. O. (2015). Analysis of Biomedical Image‖. *International Journal on Recent & Innovative trend in technology (IJRITT)*.
82. Sawant, R. A., & Mulani, A. O. (2022). Automatic PCB Track Design Machine. *International Journal of Innovative Science and Research Technology*, *7*(9).
83. 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)*.
84. Gadade, B., Mulani, A. O., & Harale, A. D. (2024). Iot based smart school bus and student monitoring system. *Naturalista Campano*, *28*(1), 730-737.

IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 4, October 2025
Impact Factor: 7.67

85. 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.
86. Salunkhe, D. S. S., & Mulani, D. A. O. (2024). Solar Mount Design Using High-Density Polyethylene. *NATURALISTA CAMPANO*, *28*(1).
87. 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*.
88. 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.
89. 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.
90. 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.
91. Godse, A. P. A.O. Mulani (2009). *Embedded Systems (First Edition)*.
92. 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.
93. 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.
94. 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.
95. 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.
96. 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).
97. 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.
98. Pol, D. R. S. (2021). Cloud Based Memory Efficient Biometric Attendance System Using Face Recognition. *Stochastic Modeling & Applications*, *25*(2).
99. Nagtilak, M. A. G., Ulegaddi, M. S. N., Adat, M. A. S., & Mulani, A. O. (2021). Breast Cancer Prediction using Machine Learning.
100. Rahul, G. G., & Mulani, A. O. (2016). Microcontroller Based Drip Irrigation System.
101. 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.
102. Mulani, A., & Mane, P. B. (2016). *DWT based robust invisible watermarking*. Scholars' Press.
103. 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).
104. 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).
105. Altaf Osman Mulani, Electric Vehicle Parameters Estimation Using Web Portal, Recent Trends in Electronics & Communication Systems, Volume 10, Issue 3, 2023.

IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 4, October 2025
Impact Factor: 7.67

106. 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.
107. 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.
108. 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.
109. 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.
110. 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.
111. 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.
112. 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.
113. 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.
114. 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.
115. 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.
116. 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.
117. 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.
118. 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.
119. 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*.
120. 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.
121. 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.

122. 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.
123. 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.
124. 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.
125. Karande, K. J., & Talbar, S. N. (2014). Independent component analysis of edge information for face recognition. Springer India.
126. Karande, K. J., & Talbar, S. N. (2008). Face recognition under variation of pose and illumination using independent component analysis. ICGST-GVIP, ISSN.
127. 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.
128. 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.
129. 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.
130. 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.
131. 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
132. 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
133. 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
134. 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
135. 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
136. Mali, A. S., Ghadge, S. K., Adat, A. S., & Karande, S. V. (2024). Intelligent Medication Management System. *IJSRD - International Journal for Scientific Research & Development*, *Vol. 12*(Issue 3).
137. 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
138. 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

139. 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.
140. 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.*
141. 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.*
142. 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.*
143. 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.
144. 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.
145. 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.
146. 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.
147. Siddheshwar Gangonda and Prachi Mukherji, "Speech Processing for Marathi Numeral Recognition",International Conference on Recent Trends, Feb 2012, IOK COE, Pune.
148. 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.
149. Siddheshwar Gangonda and Prachi Mukherji, "Speech Processing for Marathi Numeral Recognition using MFCC & DTW Features", ePGCON 2012, 23rd and 24th April 2012 organized by Commins COE for Woman, Pune.
150. 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.
151. Siddheshwar Gangonda and Prachi Mukherji, "Speech Processing for Marathi Numeral Recognition", ePGCON 2011, 26th April 2011 organized by MAEER's MIT, Kothrud, Pune-38.
152. Siddheshwar Gangonda, "Medical Image Processing",Aavishkar-2K7, 17th and 18th March 2007 organized by Department of Electronics and Telecommunication Engineering, SVERI's COE, Pandharpur.
153. Siddheshwar Gangonda, "Image enhancement & Denoising",VISION 2k7, 28th Feb-2nd March 2007 organized by M.T.E. Society's Walchand College of Engineering, Sangli.

IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 4, October 2025
Impact Factor: 7.67

154. Siddheshwar Gangonda, "Electromagnetic interference & compatibility" KSHITIJ 2k6, 23rd and 24th Sept. 2006 organized by Department of Mechanical Engineering, SVERI's COE, Pandharpur.
155. 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
156. 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.
157. A. C. Pise, et. al., "Smart Vehicle: A Systematic Review", International Journal - The Ciência & Engenharia -Science & Engineering Journal ISSN: 0103-944XVolume 11 Issue 1, 2023pp: 992–998, 2023.
158. 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.
159. 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.
160. A. C. Pise, et. al., "IoT Based Landmine Detection Robot", International Journal of Research in Science & EngineeringISSN: 2394-8299Vol: 03, No. 04, June-July 2023.
161. 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.
162. A. C. Pise, et. al., "Python Algorithm to Estimate Range of Electrical Vehicle", Web of Science, Vol 21, No 1 (2022) December 2022
163. 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).
164. 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.
165. 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
166. 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.
167. 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.
168. 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.
169. 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
170. A. C. Pise, et. al., "Adaptive Noise Cancellation in Speech Signal", International Journal of Innovative Engg and Technology, 2017
171. 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
172. A. C. Pise, et. al.,"Review on Agricultural Plant Diseases Detection by Image Processing", ISSN 2278-62IX, IJLTET, Vol 7, Issue 1 May 2016

IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 4, October 2025
Impact Factor: 7.67

173. A. C. Pise, et. al. "Segmentation of Retinal Images for Glaucoma Detection", International Journal of Engineering Research and Technology (06, June-2015).
174. A. C. Pise, et. al. "Color Local Texture Features Based Face Recognition", International Journal of Innovations in Engineering and Technology(IJIET) , Dec. 2014
175. 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.
176. 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.
177. 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
178. 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.
179. 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.
180. 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.
181. 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.
182. A. C. Pise, et. al., "Facial Expression Recognition Using Facial Features," IEEE International Conference on Communication and Electronics Systems (ICCES 2018), October 2018.
183. 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.
184. 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.
185. 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.
186. 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.
187. 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.
188. 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.
189. 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
190. A. C. Pise, et. al. "Single Chip Solution For Multimode Robotic Control", Ist IEEE International Conferene on Computing Communication and Automation, 26-27 Feb2015.

IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 4, October 2025
Impact Factor: 7.67

191. 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
192. A. C. Pise, P. Bankar, "Face Recognition using Color Local Texture Features", International Conference on Electronics and Telecommunication, Electrical and Computer Engineering, Apr.2014.
193. 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.
194. 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.
195. 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.
196. 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.
197. 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.
198. 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.
199. A. C. Pise, et. al. "Segmentation of Optic Disk and Optic Cup from retinal Images", ICEECMPE – Chennai, June 2015
200. A. C. Pise, et. al. "Diseases Detection of Pomegranate Plant", IEEE Sponsored International conference on Computation of Power, Energy , April 2015.
201. A. C. Pise, et. al. "Compensation Techniques for I/Q Imbalance in Direct-Conversion Receivers", Conference at SCOE, Pune 2010.
202. 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
203. A. C. Pise, et. al. "Compensation Techniques for I/Q Imbalance in Direct Conversion Receiver", Conference at PICT, Pune 2008.
204. A. C. Pise, et. al. "I/Q Imbalance compensation Techniques in Direct Conversion Receiver ", Conference at DYCOE, Pune 2008.
205. A. C. Pise, et. al. "DUCHA: A New Dual channel MAC protocol for Multihop Ad-Hoc Networks", Conference at SVCP, Pune 2007.
206. Godase, V., Pawar, P., Nagane, S., & Kumbhar, S. (2024). Automatic railway horn system using node MCU. Journal of Control & Instrumentation, 15(1).
207. 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.
208. 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.
209. 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.
210. 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.
211. Dange, R., Attar, E., Ghodake, P., & Godase, V. (2023). Smart agriculture automation using ESP8266 NodeMCU. J. Electron. Comput. Netw. Appl. Math, (35), 1-9.

IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 4, October 2025
Impact Factor: 7.67

212. Godase, V. (2025). Optimized Algorithm for Face Recognition using Deepface and Multi-task Cascaded Convolutional Network (MTCNN). Optimum Science Journal.
213. Mane, V. G. A. L. K., & Gangonda, K. D. S. Pipeline Survey Robot.
214. 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.
215. Godase, V., & Jagadale, A. (2019). Three element control using PLC, PID & SCADA interface. International Journal for Scientific Research & Development, 7(2), 1105-1109.
216. 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.
217. 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.
218. Godase, V. (2025). Comparative study of ladder logic and structured text programming for PLC. Available at SSRN 5383802.
219. 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.
220. Godase, V. (2025). Smart energy management in manufacturing plants using PLC and SCADA. Advance Research in Power Electronics and Devices, 2(2), 14-24.
221. 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.
222. Godase, V. (2025). Graphene-Based Nano-Antennas for Terahertz Communication. International Journal of Digital Electronics and Microprocessor Technology, 1(2), 1-14.
223. 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.
224. 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.
225. 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.
226. 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.
227. 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.
228. 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.
229. 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.
230. 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.
231. Nagane, M.S., Pawar, M.P., & Godase, P.V. (2022). Cinematica Sentiment Analysis. *Journal of Image Processing and Intelligent Remote Sensing*.
232. Godase, V.V. (2025). Tools of Research. SSRN Electronic Journal.
233. Godase, V. (n.d.). EDUCATION AS EMPOWERMENT: THE KEY TO WOMEN'S SOCIO ECONOMIC DEVELOPMENT. Women Empowerment and Development, 174–179.

IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 4, October 2025
Impact Factor: 7.67

234. 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).
235. 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).
236. Dhope, V. (2024). SMART PLANT MONITORING SYSTEM. In International Journal of Creative Research Thoughts (IJCRT). https://www.ijcrt.org
237. 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/zendo.15056435
238. M. M. Zade, Bramhadev B. Rupanar, Vrushal S. Shilawant , Akansha R. Pawar(2025) "IOT Flood Monitoring & Alerting System using Rasberry Pi-Pico "International Journal of Research Publication & Reviews , Volume 6 ,Issue 3,ISSN:2582-7421.DOI:https://ijrpr.com/uploads/V6ISSUE3/IJRPR40251.pdf
239. 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
240. 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.
241. 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.
242. 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
243. 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
244. 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
245. 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
246. 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
247. 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
248. 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.
249. 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.

IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 4, October 2025
Impact Factor: 7.67

250. 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.
251. 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.
252. 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.
253. 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.