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

A Review on Floating Waste Collection Robots Integrated with Water Quality Monitoring Systems

Ms. Varada Bidkar[1], Ms. Shweta Bagal[2], Ms. Ashlesha Chavan[3], Prof. R.G. Ghodake[4],
[1,2,3]UG Students, Department of Electronics and Telecommunication Engineering
[4]Assistant Professor, Department of Electronics and Telecommunication Engineering
SKN Sinhgad College of Engineering, Pandharpur
Corresponding Email: rahul.ghodake@sknscoe.ac.in

Abstract: *Floating debris and deteriorating water quality are major environmental challenges that threaten aquatic life, human health, and tourism. Traditional cleaning approaches are labour-intensive, hazardous, and unsustainable for large-scale operations. This work introduces an autonomous floating robot designed to simultaneously collect floating waste and monitor water quality. The robot employs a conveyor-based mechanism for capturing plastic, bottles, polythene, and other debris, while integrated sensors measure turbidity, total dissolved solids (TDS), and water temperature. Key innovations include GPS-enabled geofencing, automatic fill-level monitoring, adaptive conveyor control with anti-jam features, and mobile connectivity for live data access. A servo-secured modular bin and compaction mechanism enhance storage capacity, while an emergency retrieval system ensures operational safety in cases of low battery, tilt, or water ingress. By combining waste removal with real-time water quality monitoring, this system offers a low-cost, eco-friendly, and scalable solution for maintaining cleaner aquatic ecosystems.*

Keywords*:* Floating waste robot, water quality monitoring, turbidity, TDS, temperature sensing, autonomous navigation, IoT integration, sustainable aquatic management, compact design, space-efficient system, automated bin handling, environment friendly, no fuel emission, fully electric operation, safety and reliability, urban waste management

I. INTRODUCTION

Water bodies such as rivers, lakes, and ponds play a vital role in sustaining ecosystems, supporting aquatic life, and providing resources for human consumption and recreation. However, these water resources are increasingly threatened by floating waste like plastics, bottles, and bags, as well as by the deterioration of water quality due to suspended particles, dissolved contaminants, and fluctuating temperature. These problems not only degrade the aesthetic and ecological balance of aquatic environments but also pose risks to public health, fisheries, and tourism.

Conventional cleaning techniques rely heavily on manual labour, which is time-consuming, unsafe, and inefficient in large or inaccessible areas. With growing urbanization and pollution levels, there is an urgent need for automated and scalable solutions that can simultaneously clean floating debris and monitor water quality.

This project proposes the development of an autonomous floating waste collecting robot integrated with water quality monitoring sensors. The system combines a conveyor-driven collection mechanism with sensors to measure turbidity, total dissolved solids (TDS), and water temperature, providing real-time insights into water conditions. Additional features such as GPS-based geofencing, automatic bin handling, waste compaction, and emergency retrieval mechanisms make the robot safe, efficient, and reliable for continuous operation.

By offering dual functionality—waste removal and water quality assessment— the robot aims to reduce human effort, lower operational costs, and promote environmental sustainability. Its deployment can significantly contribute to municipal cleaning programs, aquatic ecosystem protection, and public awareness, creating a step toward smarter and cleaner water management.

II. LITERATURE SURVEY

Praveen et al., (2018) – Proposed a solar-powered aquatic waste collector that uses renewable energy to ensure sustainable operations. The system focused on cleaning water surfaces efficiently while minimizing human intervention. By harnessing solar energy, it demonstrated an eco-friendly approach for continuous waste collection. This study highlighted the potential of integrating renewable energy with water cleaning technologies for residential and urban water bodies. The work also emphasized system reliability and operational efficiency during long-term deployment.

Gupta et al., (2019) – Developed a floating waste collection mechanism aimed at reducing manual cleaning efforts. The system was designed to mechanically gather floating debris from water surfaces. The study showed that such automated systems can significantly improve water quality and reduce labour costs. Emphasis was placed on system stability and ease of deployment in ponds and lakes. The authors also discussed potential scalability for larger water bodies in urban areas.

Babu et al., (2019) – Introduced an IoT-enabled aquatic cleaning robot that combined waste collection with real-time water quality monitoring. The system transmitted sensor data to a centralized server for analysis. It allowed authorities to track water cleanliness and detect pollution in real-time. The study demonstrated the integration of IoT technology in environmental management. The robot's design focused on low cost, efficiency, and automation to reduce human dependence.

Singh et al., (2020) – Developed a remote-controlled prototype capable of detecting obstacles while collecting waste. This approach highlighted the feasibility of low-cost automation for aquatic cleaning. The system ensured safe operation in complex water environments, avoiding collisions with floating objects. The authors emphasized ease of operation and modularity, allowing adjustments for different water body sizes. Their work also suggested potential extensions for semi-autonomous operation.

Kumar et al., (2019) – Explored solar-powered robotic systems optimized for compactness and efficiency. The study focused on designing lightweight and portable robots for water surface cleaning. It demonstrated how solar energy could be harnessed to extend operational time without relying on external power sources. The research highlighted potential deployment in small lakes and ponds. It also addressed design challenges related to buoyancy, navigation, and waste storage capacity.

Patil et al., (2020) – Proposed a conveyor-driven garbage collection mechanism that automated waste gathering. The system reduced human intervention by continuously collecting debris from the water surface. Efficiency improvements were noted due to the conveyor's ability to handle larger volumes of waste. The study also explored integration with small-scale solar power for sustainability. Authors emphasized maintenance simplicity and potential adaptation for various water bodies.

Singh et al., (2022) – Integrated IoT-enabled monitoring into floating robotic systems, allowing real-time data collection and analysis. The approach facilitated data-driven decisions for water cleaning operations. The robots could alert authorities about pollution levels or blockages automatically. The study demonstrated enhanced automation and reduced need for human supervision. Emphasis was placed on real-time communication and cloud-based monitoring. The results highlighted improved operational efficiency and predictive maintenance potential.

Akib et al., (2019) – Proposed a low-cost unmanned floating robot capable of handling up to 10 kg of waste over extended periods. The system was ideal for small water bodies, such as ponds and reservoirs. Its lightweight design allowed easy deployment and retrieval. Authors highlighted the potential for continuous operation without human intervention. Battery efficiency and durability were also key considerations. The study showed practical feasibility for low-budget water cleaning applications.

Mendoza Barrionuevo et al., (2024) – Suggested a fleet-based robotic approach where scout and cleaner robots collaborated using deep reinforcement learning. Scout robots mapped the water surface, while cleaner robots collected waste efficiently. This multi-robot system improved coverage and reduced operational time. The study highlighted the

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

role of AI in coordinating robotic fleets. Emphasis was placed on autonomous decision-making and adaptive path planning. The approach showed scalability for large and irregular water bodies.

Zhu et al., (2022) – Developed an autonomous water surface cleaning robot using GPS navigation, ultrasonic sensors, and solar power. The robot could navigate natural environments while avoiding obstacles. Solar integration extended operational time without reliance on external power. The study highlighted adaptability to changing water conditions and variable debris types. Authors emphasized the system's autonomous operation and minimal human supervision. It showcased a blend of renewable energy and autonomous robotics for efficient water cleaning.

Devapriya et al., (2024) – Combined IoT technology with a solar-powered conveyor mechanism for water cleaning. Mobile application control allowed remote operation and real-time monitoring. The system was designed to be eco-friendly and efficient. It emphasized minimal human intervention while maintaining high collection efficiency. The study demonstrated the feasibility of integrating renewable energy, IoT, and mechanical collection mechanisms. Future extensions included scaling to larger water bodies and adaptive cleaning strategies.

Naicker et al., (2021) – Developed a robot integrating computer vision, solar power, and virtual fencing for real-time waste detection. The system notified authorities immediately upon detecting floating debris. This integration enabled both cleaning and monitoring simultaneously. Authors emphasized efficient navigation and obstacle avoidance. The approach reduced manual inspection requirements while improving operational safety. The study suggested potential expansion to smart city water management systems.

Chen et al., (2025) – Applied YOLOv5-based computer vision algorithms for automated detection of floating waste. The study showed that AI integration can improve waste identification accuracy. The system allowed real-time monitoring and adaptive cleaning actions. The research demonstrated how low-cost vision systems can enhance robotic efficiency. Authors highlighted applicability to rivers, lakes, and urban waterways. The study underscored AI's potential in reducing manual labor and enhancing operational precision.

The comparative review in Table 1 shows that mechanical floating waste collectors are simple, low-cost, and effective for small water bodies but lack water quality monitoring. IoT-enabled robots equipped with sensors for turbidity, TDS, and temperature add real-time monitoring capability, though they demand higher power and connectivity. Solar-powered models support eco-friendly continuous operation, but their efficiency reduces in cloudy conditions. Conveyor-based robots improve large-scale debris collection, though moving parts increase maintenance. Catamaran-type designs provide stability in flowing water but are less suitable for narrow areas.

Table 1: Shows the Pros and Cons of Floating Waste Collecting Robot

Author & Year	Pros	Cons
Praveen et al., (2018)	Solar-powered, eco-friendly, sustainable, minimal human intervention, reliable for long-term use.	Limited scalability; little focus on navigation challenges.
Gupta et al., (2019)	Reduced manual labor, improved water quality, stable, easy deployment, scalable to ponds/lakes.	No advanced automation or monitoring; mainly mechanical.
Babu et al., (2019)	IoT-enabled, real-time monitoring, low-cost, efficient, data-driven decisions possible.	Relies on server connectivity; power sustainability not emphasized.
Singh et al., (2020)	Obstacle detection, safe operation, low-cost, modular, adaptable to different water bodies.	Mostly remote-controlled; limited autonomy; not large-scale.
Kumar et al., (2019)	Lightweight, portable, solar-powered, compact, good for small lakes/ponds.	Buoyancy/navigation issues; limited waste storage capacity.
Patil et al., (2020)	Conveyor mechanism for large waste volumes, reduced human effort, solar integration possible, easy maintenance.	Limited intelligence/adaptability; mainly mechanical efficiency focus.

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

Choi et al., (2021)	Catamaran design stable in currents, good for rivers/canals, manoeuvrable, future IoT integration.	Complex structure; potentially high maintenance costs.
Singh et al., (2022)	IoT real-time monitoring, predictive maintenance, reduced supervision, improved automation.	Dependent on cloud/internet connectivity.
Akib et al., (2019)	Low-cost, lightweight, handles up to 10 kg, easy deployment, continuous operation.	Limited to small water bodies; battery durability concerns.
Mendoza Barrionuevo et al., (2024)	Multi-robot fleet, AI coordination, better coverage, scalable for large irregular water bodies.	High system complexity; resource-intensive.
Devapriya et al., (2024)	IoT + solar + conveyor integration, remote/mobile control, eco-friendly, efficient.	Mainly tested small setups; scalability not proven.
Naicker et al., (2021)	Computer vision + virtual fencing, real-time detection/alerts, improved safety/navigation.	Accuracy depends on vision system; less effective in turbid water.

III. PROPOSED METHODOLOGY

Figure 1 shows that Block Diagram Of Floating Waste Collecting Robot with Integrated Water Quality Monitoring

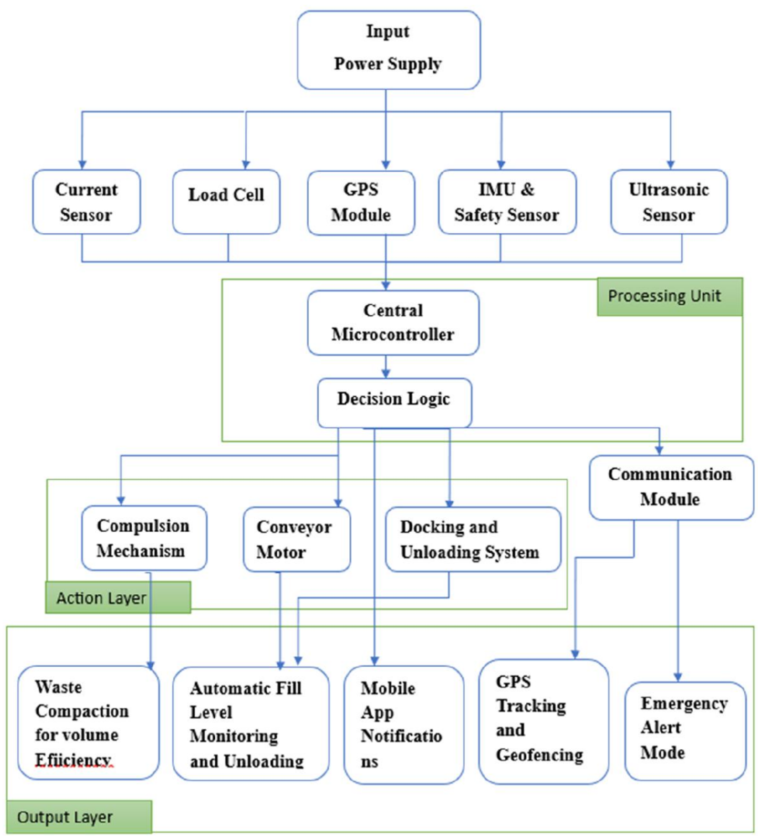

Figure 1: Block Diagram Of Floating Waste Collecting Robot with Water Quality Monitoring

The working of the Floating Waste Collecting Robot with Water Quality Monitoring is organized into sequential stages, beginning with propulsion and navigation, followed by waste collection, storage, monitoring, and unloading. The methodology is described below:

3.1 Input and Initial Operation

The operation of the system begins when the shaft rotates in water, producing propulsion and enabling the forward movement of the robot. Navigation is managed through Bluetooth communication, which allows the robot to be controlled either manually or in a semi-autonomous manner using a mobile application.

3.2 Waste Collection Process

When the robot is directed to an area with floating debris, the conveyor belt mechanism is activated. Plastics, bottles, packets, and other garbage are lifted upward by the conveyor system. As the conveyor rotates, the collected waste is deposited into a recycling bin that is equipped with a mesh filter to drain out excess water, ensuring that only solid waste remains stored in the bin.

3.3 Bin Monitoring and Level Detection

An ultrasonic sensor is installed above the bin to monitor the fill level during operation. When the bin reaches full capacity, the sensor transmits a signal to the mobile application, notifying the operator that no additional waste can be accommodated. Upon receiving this notification, the robot autonomously navigates toward the riverbank or docking station and prepares for unloading.

3.4 Water Quality Monitoring

In addition to waste collection, the robot continuously measures critical water quality parameters using dedicated sensors. The turbidity sensor evaluates water clarity and suspended particles, the DS18B20 temperature sensor records water temperature to support ecosystem monitoring, and the analog TDS sensor estimates the total dissolved solids, providing an assessment of water quality. The measured values are transmitted in real time to the mobile application dashboard, allowing the operator to observe the status of water quality while the robot is functioning.

3.5 Waste Unloading and Output

Once the bin reaches its maximum capacity or when the cleaning task is completed, the robot moves to the dock. At this point, the unloading mechanism is activated, and the waste bin is emptied safely and efficiently. The output stage of the system ensures three outcomes: solid waste collected in the bin, automatic unloading at the dock, and the availability of real-time water quality data such as turbidity, temperature, and TDS displayed on the mobile application.

3.6 GPS Tracking and Emergency Retrieval

A GPS module is incorporated into the system to provide continuous updates on the latitude and longitude of the robot's position. To avoid system loss, the GPS is powered by a backup battery that operates independently from the main power source. Even in the event of a primary power drain or accidental drifting, the GPS remains active, ensuring that the robot can be located and retrieved. This emergency retrieval mode enhances both the reliability and safety of the system during extended operations.

3.7 Features of Sensors and Components

Arduino Uno

The Arduino Uno functions as the primary microcontroller and central processing unit of the system. It manages input signals from the sensors and provides output control to the motors and actuators. Known for its simple programming environment, reliability, and support for multiple digital and analog I/O pins, the Arduino Uno is well-suited for robotic and automation projects.

Jumper Wires

Jumper wires are used to create temporary electrical connections between the various modules and components. They provide flexibility, eliminate the need for soldering, and allow the system to remain modular. This makes them particularly useful for prototyping, testing, and making adjustments during the development phase.

DC Gear Motors

DC gear motors are employed to drive both the propulsion mechanism and the conveyor system of the robot. These motors are capable of delivering high torque at low speeds, making them ideal for water navigation and waste lifting operations. Their durability and efficiency ensure smooth functioning of the system under continuous operation.

Motor Driver (L298N)
The L298N motor driver is used to interface between the Arduino Uno and the DC motors. It allows the control of motor speed and direction using PWM signals. This driver can operate two motors simultaneously, ensuring efficient and stable performance for both navigation and waste collection mechanisms.

Servo Motor
The servo motor provides precise angular control, which is necessary for operating components like the conveyor latch and the waste unloading mechanism. Its compact size, lightweight structure, and low power consumption make it an ideal choice for integration into robotic systems requiring controlled movement.

Bluetooth Module (HC-05)
The HC-05 Bluetooth module enables wireless communication between the robot and a smartphone application. It operates on UART communication protocol and is simple to integrate with the Arduino Uno. With a stable operating range of around 10 meters, it allows smooth manual or semi-autonomous navigation through mobile control.

GPS Module (Neo-6M)
The Neo-6M GPS module provides real-time geographical coordinates, including latitude and longitude, for accurate tracking of the robot. It plays a crucial role in navigation and emergency retrieval. A backup power supply ensures that the GPS remains active even during primary power failure, improving system reliability.

Ultrasonic Sensor
The ultrasonic sensor measures distances by transmitting sound waves and detecting their reflection. It prevents collisions by identifying obstacles in the robot's path and is also used to monitor the fill level of the waste bin. This dual functionality ensures both operational safety and effective waste management.

Turbidity Sensor
The turbidity sensor evaluates water clarity by detecting the presence of suspended particles. It provides real-time information about water pollution levels, helping monitor environmental conditions alongside waste collection. Its compact structure ensures easy installation and compatibility with Arduino systems.

Temperature Sensor (DS18B20)
The DS18B20 temperature sensor is used to monitor water temperature with high accuracy. It provides digital output, ensuring seamless integration with the Arduino Uno. The waterproof casing makes it suitable for submersion in aquatic environments, allowing reliable and continuous measurements.

TDS Sensor
The analog TDS sensor is employed to estimate the total dissolved solids in water. This measurement reflects water purity and contamination levels, providing valuable insights into water quality. The sensor delivers real-time readings, ensuring continuous monitoring throughout the robot's operation.

12V 3S 2.2Ah Lithium-Ion Rechargeable Battery
This battery serves as the main power source for the robot's sensors, motors, and control unit. It offers high energy density in a compact form, supporting extended operations on a single charge. Being rechargeable, it is cost-effective and suitable for repeated use in long-term deployments.

3.7V Lithium-Ion Backup Cell
The 3.7V lithium-ion backup cell is specifically dedicated to powering the GPS module during emergencies. Even if the primary power source drains out, this backup ensures uninterrupted GPS functionality for safe retrieval of the robot. Lightweight and rechargeable, it enhances the reliability and efficiency of the overall system.

IV. CONCLUSION

The proposed Floating Waste Collecting Robot offers a practical, sustainable, and cost-effective approach to addressing aquatic waste management challenges. Its modular bin system, compact structure, and scope for automation enable efficient debris collection with minimal human involvement. A review of prior work indicates that while earlier solutions introduced valuable innovations, many encountered limitations in terms of expense, scalability, and adaptability. The present design seeks to bridge these gaps by emphasizing simplicity, energy efficiency, and operational reliability. This study has outlined the robot's structural design, collection mechanism, waste compaction method, and secure locking

ISSN: 2581-9429 Volume 5, Issue 4, October 2025 Impact Factor: 7.67

system, while also suggesting future improvements such as IoT-based monitoring, solar integration, and deployment at larger scales. Overall, the system illustrates the potential of affordable robotic technology in promoting cleaner waterways and advancing sustainable environmental practices.

V. FUTURE SCOPE

The development of floating waste collecting robots with integrated water quality monitoring opens several promising directions for future research and implementation. One significant area is the enhancement of autonomy through advanced artificial intelligence (AI) and computer vision, enabling robots to detect, classify, and collect waste without human intervention. Integration of machine learning algorithms can further improve decision-making, adaptive path planning, and predictive maintenance of the system.

Another important direction is the deployment of multi-robot fleets that collaborate for large-scale cleaning of rivers, lakes, and coastal areas. Such systems can reduce operational time while increasing coverage efficiency. Expanding renewable energy integration, such as hybrid solar and kinetic energy harvesting, can enhance system sustainability and extend operational endurance in diverse weather conditions.

Further advancements can also focus on improving waste segregation mechanisms to automatically separate plastics, metals, and organic matter, contributing to effective recycling. Real-time water quality data could be integrated with smart city platforms, allowing environmental authorities to monitor pollution trends and take preventive measures. Additionally, scaling the design for industrial applications in ports, harbours, and reservoirs would extend its usability to a wider range of environments.

Finally, future prototypes may incorporate swarm robotics, cloud-based data analytics, and blockchain-enabled data security to ensure reliable monitoring and reporting. With continued innovations, these systems have the potential to play a vital role in sustainable water resource management and global efforts toward cleaner aquatic ecosystems.

REFERENCES

1. P. Praveen, R. Kumar, and S. Nair, "Design and Development of a Solar Powered Aquatic Waste Collector," *International Journal of Mechanical Engineering and Technology (IJMET)*, vol. 9, no. 6, pp. 556–563, 2018.
2. A. Gupta and P. Sharma, "Floating Waste Collector for Water Surface Cleaning," *International Journal of Engineering Research & Technology (IJERT)*, vol. 7, no. 4, pp. 122–126, 2019.
3. Alex Anvari et. al., "Designing an Automated Water Quality Monitoring System for West and Rhode Rivers", Proceedings of the 2009 IEEE Systems and Information Engineering Design Symposium, University of Virginia, Charlottesville, VA, USA, page 131-136, April 24, 2009.
4. Natasa Markovic et. al., "Sensor Web for River Water Pollution Monitoring and Alert System",CG & GIS Lab, Faculty of Electronic Engineering, University of Nis, Serbia 12th AGILE International Conference on Geographic Information Science 2009, Leibniz Universität Hannover, Germany. Page 1-9, 2009
5. Jiping Xu et. al., "Remote Monitoring Device Design of Water Quality Information for Rivers and Lakes Based on ARM Techniques", Journal of Clean Energy Technologies, Vol. 2, No. 2, page 132-135, April 2014
6. Shraddha V et. al., "Developing a Real Time Sensor to Monitor Water Quality in IoT Environment", International Journal of Innovative 21 Research in Science, Engineering and Technology, (An ISO 3297: 2007 Certified Organization), Vol. 5, Special Issue 10, page 273-278, May 2016
7. Mr. Swapnil Katole, "A Review : The Real Time Water Quality Monitoring System based on IoT Platform", International Journal on Recent and Innovation Trends in Computing and Communication, ISSN: 2321-8169, Volume: 5 Issue: 2 Page No. 302 – 305, Feb. 2017.
8. S. Geetha et. al., "Internet of things enabled real time water quality monitoring system", Smart Water, 2017 Springer Open Access. 7. Manoharan. S et. al., "Water Quality Analyzer using IoT", International Journal of Innovative Technology and Exploring Engineering (IJITEE), ISSN: 2278-3075, Volume-8, Issue-8S, Page 34-37, June 2019
9. Anuradha T et. al., "IoT Based Low Cost System for Monitoring of Water Quality in Real Time", International Research Journal of Engineering and Technology (IRJET) , e-ISSN: 2395-0056, p-ISSN: 2395-0072, Volume: 05, Issue: 05, Page 1658-1663, May-2018

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

10. AKILA. U et. al., “Industrial Sewage Water Quality Monitoring System”, International Journal of Engineering Research and General Science Volume 3, Issue 2, ISSN 2091-2730, page 1285-1292, March-April, 2015
11. Pradeepkumar M et. al., “The Real Time Monitoring of Water Quality in IoT Environment”, International Journal of Innovative Research in Science, Engineering and Technology, Vol. 5, Issue 3, Page 4419-4427, March 2016
12. K. A. Unnikrishna Menon et. al., “Wireless Sensor Network for River Water Quality Monitoring in India”, ICCCNT' 2012, July 26 - 28, 2012 IEEE – 20180.
13. Ms. T. Deepiga et. al., “Smart Water Monitoring System Using Wireless Sensor Network at Home/Office”, International Research Journal of Engineering and Technology (IRJET), Volume: 02 Issue: 04 Page 1305 1314, July-2015.
14. K. Babu, R. Reddy, and M. Rao, “IoT-Based Aquatic Cleaning Robot for Smart Water Management,” *International Journal of Innovative Technology and Exploring Engineering (IJITEE)*, vol. 8, no. 12, pp. 4502–4507, 2019.
15. R. Singh and A. Patel, “Prototype of a Remote-Controlled Floating Waste Cleaner with Obstacle Detection,” *International Research Journal of Engineering and Technology (IRJET)*, vol. 6, no. 5, pp. 1438–1442, 2020.
16. Kumar, A., Sharma, V., & Reddy, M. (2019). *Design of a Solar Powered Floating Robot for Water Surface Cleaning*. International Journal of Mechanical Engineering and Technology, 10(3), 45–52.
17. Patil, R., & Deshmukh, P. (2020). *Automated Floating Garbage Collector Using Conveyor Mechanism*. International Journal of Innovative Research in Science, Engineering and Technology, 9(5), 1152–1158.
18. Choi, H., Lee, J., & Park, S. (2021). *Development of Catamaran-Type Robot for Floating Plastic Waste Collection in Waterways*. Journal of Marine Science and Engineering, 9(6), 630.
19. Singh, K., Gupta, R., & Jain, A. (2022). *IoT-Enabled Floating Waste Collection Robot with Real-Time Monitoring*. International Journal of Advanced Computer Science and Applications, 13(4), 112–120.
20. Clearbot. (2021). *Clearbot Neo: AI-Powered Waste Collecting Robot for Waterways*. Available at: https://www.clearbot.org
21. The Ocean Cleanup. (2022). *The Ocean Cleanup Project*. Available at: https://theoceancleanup.com
22. Akanksha Purohit, Ulhaskumar Gokhale, Real Time Water Quality Measurement System based on GSM , IOSR (IOSR-JECE) Volume 9, Issue 3, Ver. V (May - Jun. 2014).
23. Dong He, Li-Xin Zhang,‖ The Water Quality Monitoring System Based on WSN,‖ 1Institute of Mechanical and electronic information, China University of Geosciences (WuHan), Wuhan, China, 978-1-4577-1415 3/12/2012 IEEE.
24. Dr. Seema Verma, ―Wireless Sensor Network application for water quality monitoring in India,‖ 2012 National Conference on Computing and Communication Systems (NCCCS). 978-1-4673-1953-9 © 2012 IEEE.
25. Mo Dequing,Zhao Ying, Chen Shangsong, „Automatic measurement and reporting system of water based on GSM„ Department of Electronic and Technology, 978-0-7695-4608-7 © 2011 IEEE.
26. 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.
27. 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.
28. Gadade, B., Mulani, A. O., & Harale, A. D. IoT Based Smart School Bus and Student Tracking System. Sanshodhak, Volume 19, June 2024.
29. Dhanawadel, A., Mulani, A. O., & Pise, A. C. IOT based Smart farming using Agri BOT. Sanshodhak, Volume 20, June 2024.
30. Mulani, A., & Mane, P. B. (2016). DWT based robust invisible watermarking. Scholars' Press.
31. 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.
32. 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.

33. 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.
34. 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.
35. 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.
36. 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.
37. Nagane, U. P., & Mulani, A. O. (2021). Moving object detection and tracking using Matlab. Journal of Science and Technology, 6(1), 2456-5660.
38. 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.
39. Ghodake, M. R. G., & Mulani, M. A. (2016). Sensor based automatic drip irrigation system. Journal for Research, 2(02).
40. 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.
41. 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.
42. 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.
43. 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).
44. 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.
45. 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.
46. 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.
47. 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.
48. 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.
49. Mulani, A. O., & Shinde, G. N. (2021). An approach for robust digital image watermarking using DWT□PCA. Journal of Science and Technology, 6(1).
50. 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.
51. 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.
52. 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.
53. 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.

54. Takale, S., & Mulani, A. (2022). DWT-PCA based video watermarking. Journal of Electronics, Computer Networking and Applied Mathematics (JECNAM) ISSN, 2799-1156.
55. Kamble, A., & Mulani, A. O. (2022). Google assistant based device control. Int. J. of Aquatic Science, 13(1), 550-555.
56. 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.
57. 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.
58. 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.
59. 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.
60. 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.
61. Gadade, B., & Mulani, A. (2022). Automatic System for Car Health Monitoring. International Journal of Innovations in Engineering Research and Technology, 57-62.
62. 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.
63. 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.
64. 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.
65. 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.
66. 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.
67. Takale, S., & Mulani, D. A. (2022). Video Watermarking System. International Journal for Research in Applied Science & Engineering Technology (IJRASET), 10.
68. Mandwale, A., & Mulani, A. O. (2015, January). Different approaches for implementation of Viterbi decoder. In IEEE international conference on pervasive computing (ICPC).
69. 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.
70. 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.
71. Kambale, A. (2023). Home automation using google assistant. UGC care approved journal, 32(1), 1071-1077.
72. 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.
73. 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.
74. Mandwale, A., & Mulani, A. O. (2016). Implementation of High Speed Viterbi Decoder using FPGA. International Journal of Engineering Research & Technology, IJERT.
75. 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.

76. Shinde, R., & Mulani, A. O. (2015). Analysis of Biomedical Image‖. International Journal on Recent & Innovative trend in technology (IJRITT).
77. Sawant, R. A., & Mulani, A. O. (2022). Automatic PCB Track Design Machine. International Journal of Innovative Science and Research Technology, 7(9).
78. 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).
79. Gadade, B., Mulani, A. O., & Harale, A. D. (2024). Iot based smart school bus and student monitoring system. Naturalista Campano, 28(1), 730-737.
80. 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.
81. Salunkhe, D. S. S., & Mulani, D. A. O. (2024). Solar Mount Design Using High-Density Polyethylene. NATURALISTA CAMPANO, 28(1).
82. 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.
83. 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.
84. 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.
85. 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.
86. Godse, A. P. A.O. Mulani (2009). Embedded Systems (First Edition).
87. 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.
88. 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.
89. 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.
90. 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.
91. 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).
92. 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.
93. Pol, D. R. S. (2021). Cloud Based Memory Efficient Biometric Attendance System Using Face Recognition. Stochastic Modeling & Applications, 25(2).
94. Nagtilak, M. A. G., Ulegaddi, M. S. N., Adat, M. A. S., & Mulani, A. O. (2021). Breast Cancer Prediction using Machine Learning.
95. Rahul, G. G., & Mulani, A. O. (2016). Microcontroller Based Drip Irrigation System.
96. 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.
97. Mulani, A., & Mane, P. B. (2016). DWT based robust invisible watermarking. Scholars' Press.

98. 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).
99. 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).
100. Altaf Osman Mulani, Electric Vehicle Parameters Estimation Using Web Portal, Recent Trends in Electronics & Communication Systems, Volume 10, Issue 3, 2023.
101. 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.
102. 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.
103. 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.
104. 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.
105. 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.
106. 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.
107. 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.
108. 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.
109. 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.
110. 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.
111. 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.
112. 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.
113. 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.
114. 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.

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

115.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.
116.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.
117.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.
118.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.
119.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.
120.Karande, K. J., & Talbar, S. N. (2014). Independent component analysis of edge information for face recognition. Springer India.
121.Karande, K. J., & Talbar, S. N. (2008). Face recognition under variation of pose and illumination using independent component analysis. ICGST-GVIP, ISSN.
122.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.
123.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.
124.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.
125.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
126.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.
127.https://doi.org/10.15680/IJIRCCE.2018.0604036
128.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
129.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).
130.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
131.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
132.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.

133. 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.
134. 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.
135. 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.
136. 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.
137. 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.
138. 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.
139. 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.
140. Siddheshwar Gangonda and Prachi Mukherji, "Speech Processing for Marathi Numeral Recognition", International Conference on Recent Trends, Feb 2012, IOK COE, Pune.
141. 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.
142. 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.
143. 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.
144. Siddheshwar Gangonda and Prachi Mukherji, "Speech Processing for Marathi Numeral Recognition", ePGCON 2011, 26th April 2011 organized by MAEER's MIT, Kothrud, Pune-38.
145. Siddheshwar Gangonda, "Medical Image Processing", Aavishkar-2K7, 17th and 18th March 2007 organized by Department of Electronics and Telecommunication Engineering, SVERI's COE, Pandharpur.
146. Siddheshwar Gangonda, "Image enhancement & Denoising", VISION 2k7, 28th Feb-2nd March 2007 organized by M.T.E. Society's Walchand College of Engineering, Sangli.
147. Siddheshwar Gangonda, "Electromagnetic interference & compatibility" KSHITIJ 2k6, 23rd and 24th Sept. 2006 organized by Department of Mechanical Engineering, SVERI's COE, Pandharpur.
148. 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
149. 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.

150. 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.
151. 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.
152. 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.
153. 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.
154. 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.
155. A. C. Pise, et. al., "Python Algorithm to Estimate Range of Electrical Vehicle", Web of Science, Vol 21, No 1 (2022) December 2022
156. 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).
157. 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.
158. 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
159. 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.
160. 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.
161. 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.
162. 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
163. A. C. Pise, et. al., "Adaptive Noise Cancellation in Speech Signal", International Journal of Innovative Engg and Technology, 2017
164. 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
165. A. C. Pise, et. al.,"Review on Agricultural Plant Diseases Detection by Image Processing", ISSN 2278-62IX, IJLTET, Vol 7, Issue 1 May 2016
166. A. C. Pise, et. al. "Segmentation of Retinal Images for Glaucoma Detection", International Journal of Engineering Research and Technology (06, June-2015).
167. A. C. Pise, et. al. "Color Local Texture Features Based Face Recognition", International Journal of Innovations in Engineering and Technology(IJIET) , Dec. 2014
168. 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.

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

169. 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.
170. 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
171. 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.
172. 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.
173. 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.
174. 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.
175. A. C. Pise, et. al., "Facial Expression Recognition Using Facial Features," IEEE International Conference on Communication and Electronics Systems (ICCES 2018), October 2018.
176. 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.
177. 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.
178. 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.
179. 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.
180. 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.
181. 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.
182. 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
183. A. C. Pise, et. al. "Single Chip Solution For Multimode Robotic Control", Ist IEEE International Conferene on Computing Communication and Automation, 26-27 Feb2015.
184. 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
185. A. C. Pise, P. Bankar, "Face Recognition using Color Local Texture Features", International Conference on Electronics and Telecommunication, Electrical and Computer Engineering, Apr.2014.
186. 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.
187. 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.

188. 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.
189. 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.
190. 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.
191. 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.
192. A. C. Pise, et. al. "Segmentation of Optic Disk and Optic Cup from retinal Images", ICEECMPE – Chennai, June 2015
193. A. C. Pise, et. al. "Diseases Detection of Pomegranate Plant", IEEE Sponsored International conference on Computation of Power, Energy , April 2015.
194. A. C. Pise, et. al. "Compensation Techniques for I/Q Imbalance in Direct-Conversion Receivers", Conference at SCOE, Pune 2010.
195. 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
196. A. C. Pise, et. al. "Compensation Techniques for I/Q Imbalance in Direct Conversion Receiver", Conference at PICT, Pune 2008.
197. A. C. Pise, et. al. "I/Q Imbalance compensation Techniques in Direct Conversion Receiver ", Conference at DYCOE, Pune 2008.
198. A. C. Pise, et. al. "DUCHA: A New Dual channel MAC protocol for Multihop Ad-Hoc Networks", Conference at SVCP, Pune 2007.
199. Godase, V., Pawar, P., Nagane, S., & Kumbhar, S. (2024). Automatic railway horn system using node MCU. Journal of Control & Instrumentation, 15(1).
200. 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.
201. 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.
202. 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.
203. 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.
204. Dange, R., Attar, E., Ghodake, P., & Godase, V. (2023). Smart agriculture automation using ESP8266 NodeMCU. J. Electron. Comput. Netw. Appl. Math, (35), 1-9.
205. Godase, V. (2025). Optimized Algorithm for Face Recognition using Deepface and Multi-task Cascaded Convolutional Network (MTCNN). Optimum Science Journal.
206. Mane, V. G. A. L. K., & Gangonda, K. D. S. Pipeline Survey Robot.
207. 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.
208. Godase, V., & Jagadale, A. (2019). Three element control using PLC, PID & SCADA interface. International Journal for Scientific Research & Development, 7(2), 1105-1109.
209. 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.

210. 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.
211. Godase, V. (2025). Comparative study of ladder logic and structured text programming for PLC. Available at SSRN 5383802.
212. 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.
213. Godase, V. (2025). Smart energy management in manufacturing plants using PLC and SCADA. Advance Research in Power Electronics and Devices, 2(2), 14-24.
214. 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.
215. Godase, V. (2025). Graphene-Based Nano-Antennas for Terahertz Communication. International Journal of Digital Electronics and Microprocessor Technology, 1(2), 1-14.
216. 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.
217. 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.
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). Cross-Domain Comparative Analysis of Microwave Imaging Systems for Medical Diagnostics and Industrial Testing. Journal of Microwave Engineering & Technologies, 12(2), 39-48p.
220. 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.
221. 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.
222. 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.
223. 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.
224. Nagane, M.S., Pawar, M.P., & Godase, P.V. (2022). Cinematica Sentiment Analysis. Journal of Image Processing and Intelligent Remote Sensing.
225. Godase, V.V. (2025). Tools of Research. SSRN Electronic Journal.
226. Godase, V. (n.d.). EDUCATION AS EMPOWERMENT: THE KEY TO WOMEN'S SOCIO ECONOMIC DEVELOPMENT. Women Empowerment and Development, 174–179.
227. 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).
228. 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).
229. Dhope, V. (2024). SMART PLANT MONITORING SYSTEM. In International Journal of Creative Research Thoughts (IJCRT). https://www.ijcrt.org
230. 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

231. 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
232. 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
233. 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.
234. 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.
235. 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
236. 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
237. 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
238. 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
239. 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
240. 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
241. 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.
242. 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.
243. 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.
244. 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.
245. 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.