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 Comprehensive Review of Vehicle Price Prediction Systems

Vishnu Waghmare[1], Vaibhav Hinchageri[2], Pranay Kadam[3], Prof. B. B. Godbole[4]
[1,2,3]UG Students, Department of Electronics and Telecommunication Engineering
[4]Professor, Department of Electronics and Telecommunication Engineering
SKN Sinhgad College of Engineering, Pandharpur

Abstract: *The "Vehicle Price Prediction" project is a machine learning-based program that calculates a car's resale value using Streamlit and Python. The method uses a dataset that includes variables such vehicle brand, year of manufacture, kilometers traveled, fuel type, gearbox type, and ownership status. These attributes are preprocessed and transformed into numerical values using Label Encoder to ensure adherence to the learning model. A Random Forest Regressor is trained on the dataset to identify complex correlations between input features and the target variable (vehicle price). The integration of Streamlit, which provides a simple and entertaining graphical interface, allows users to enter their vehicle parameters and receive a real-time pricing estimate through dropdown menus and numeric fields.*
Data loading, preparation, and model training are the first steps in the system's workflow. Interactive user input is then used for prediction. Before applying transformations, user-provided values are merged with a dummy row from the dataset to ensure encoding consistency. Following processing, the expected resale price—which is shown in lakhs of rupees—is predicted by the trained model. This initiative helps consumers and sellers make data-driven decisions, showcasing the real-world use of artificial intelligence in the car industry. In order to bridge the gap between raw data and actionable insights, it can also act as a basis for more sophisticated systems like integrated car resale platforms, dealership assistance tools, and consumer-focused applications.

Keywords*:* Vehicle Price Prediction, Machine Learning, Random Forest Regressor, Data Preprocessing, Streamlit, Regression Model

I. INTRODUCTION

Over the past few decades, the automotive industry has grown significantly, and one important area within this industry is the used automobile market. According to recent industry research, the worldwide used automobile market is expected to increase at a compound annual growth rate of 6.5% and reach over 2.5 trillion dollars by 2028. The demand for trustworthy and precise car price prediction systems is rising, as seen by this quick and exponential growth. Fair and open pricing systems are becoming increasingly important as more buyers choose used cars for their affordability and value.
However, the current used car industry is marked by a number of innate difficulties. The knowledge imbalance between buyers and sellers is one of the most significant problems, as it frequently results in unfair negotiations. It is challenging to arrive at a uniform assessment because price changes are also influenced by a number of factors, including as ownership history, fuel type, brand reputation, and kilometers driven. Additionally, subjective and emotional decision-making typically influences pricing, with buyers undervaluing cars and sellers overvaluing them. The situation is made more difficult by regional pricing differences, since cars with the same features may cost various amounts depending on where you live. The establishment of an effective, transparent, and broadly applicable pricing system is hampered by these complications.
Conventional methods of estimating car prices have typically depended on professional manual appraisal, historical sales data analysis, comparison with other models, and general market trends. Even though these techniques offer valuable insights, they frequently need a lot of subjective judgment, are inconsistent, and take a long time. These systems' lack of uniformity results in differences in accuracy, which eventually influences the decision-making process for both buyers

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

and sellers. As a result, the demand for data-driven, automated systems that can make accurate and timely pricing forecasts is rising.

In order to overcome these obstacles, machine learning has become a game-changing technology. Machine learning algorithms can produce unbiased and precise predictions by evaluating enormous volumes of both structured and unstructured data. Applications of machine learning in the automotive sector go beyond price prediction to include inventory management, consumer behavior research, autonomous driving, predictive maintenance, and price optimization. In particular, machine learning uses statistical and computer models that adjust to changing market conditions to remove subjectivity from the forecast of car prices. This lessens the possibility of human error while guaranteeing that the anticipated price accurately reflects current market trends.

In this regard, creating a machine learning-based automated vehicle price prediction system not only increases market transparency for used cars but also gives buyers and sellers access to data- supported insights. In the expanding global automotive sector, these systems play a major role in standardizing pricing procedures, decreasing inefficiencies in negotiations, and promoting confidence.

II. LITERATURE SURVEY

[1] Amshi, A. T. et al. proposed a method for predicting used vehicle prices by aggregating Decision Tree and Gradient Boosting models. The study focuses on improving prediction accuracy by combining the interpretability of decision trees with the robustness of boosting algorithms. Technologies used include Python-based machine learning frameworks such as scikit-learn and XGBoost. The advantage of this approach is that it reduces overfitting and enhances predictive performance, making it applicable for online used-car marketplaces and dealerships for price estimation.

[2] Huang, J., et al. investigated a fusion model for used car price prediction by combining XGBoost, CatBoost, LightGBM, and neural networks. This hybrid approach leverages ensemble learning and deep learning techniques to improve accuracy. Libraries like XGBoost, CatBoost, LightGBM, and TensorFlow/Keras were used. The key advantage is high predictive accuracy across heterogeneous datasets. Its application lies in creating automated valuation systems for used car platforms.

[3] Guo, S., & Zhang, B. et al. applied XGBoost on a large dataset of vehicle attributes for predicting used car prices. Python libraries such as XGBoost and pandas were utilized for preprocessing and modeling. The approach provides fast training times and strong performance even on complex datasets. It is particularly beneficial for automotive dealers and online marketplaces requiring scalable, efficient price prediction.

[4] Fayyaz, I., Ali, G. G. M. N., et al.. emphasized advanced feature engineering alongside machine learning techniques for heterogeneous pre-owned car price prediction. Tools included Python, scikit-learn, and feature selection libraries. By carefully engineering features, the model's accuracy significantly improved. This method is advantageous for datasets with diverse vehicle types and is useful in applications where fine-grained valuation is needed.

[5] Chen, R. et al. conducted a comparative study using Linear Regression, Decision Tree, and K-Nearest Neighbors for car price prediction. Python and scikit-learn were the primary tools. The advantage is a clear understanding of model strengths and weaknesses for different data types. Its applications include initial pricing analysis for car dealerships or online vehicle platforms.

[6] Bisht, R. K., Rawat, et al. various supervised machine learning methods with parameter tuning to improve used car price prediction. Libraries used include scikit-learn and XGBoost. The study demonstrates that hyperparameter tuning improves model performance. This approach is applicable to any automated pricing system requiring optimal predictive accuracy.

[7] Bhatnagar, P. et al. explored ensemble regressors like voting, gradient boosting, and random forest regressors for car price prediction. Python libraries such as scikit-learn and XGBoost were employed. Ensemble methods increase prediction stability and accuracy, making them useful for robust pricing models in dynamic markets.

[8] AlShared, A. et al. applied traditional data mining techniques to predict used car prices. Tools included Weka and Python-based data mining libraries. The study highlights the advantages of simple, interpretable models for price prediction. It is applicable for educational purposes and small-scale vehicle valuation systems.

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

[9] R., Burmachach, N., et al. Random Forest, CatBoost, and SVM for predicting passenger car prices based on features like model, mileage, year, color, and condition. Python, scikit-learn, and CatBoost libraries were used. The main advantage is high accuracy even with categorical features, making it suitable for online platforms and vehicle appraisal services.

[10] Gupta, P., et al. employed supervised learning models to analyze attributes like mileage, make, model, year, and condition for price prediction. Tools include Python, scikit-learn, and Pandas for data processing. Advantages include scalability and reliable prediction across multiple car types. Applications include online car marketplaces and dealer inventory management systems.

[11] Bergmann, S., et al. investigated the impact of granular vehicle information on resale price prediction using machine learning. Tools used include Python, scikit-learn, and ensemble techniques. Advantages include improved prediction precision and actionable insights for car resellers. Applications extend to platforms that need detailed valuation metrics for used vehicles.

[12] Marnholkar, T. et al. developed a machine learning-based predictive model for pre-owned car prices. Python, scikit-learn, and Pandas were the main tools. The approach is advantageous due to its adaptability to new datasets and practical application in resale price forecasting for automotive businesses

III. PROPOSED METHODOLOGY

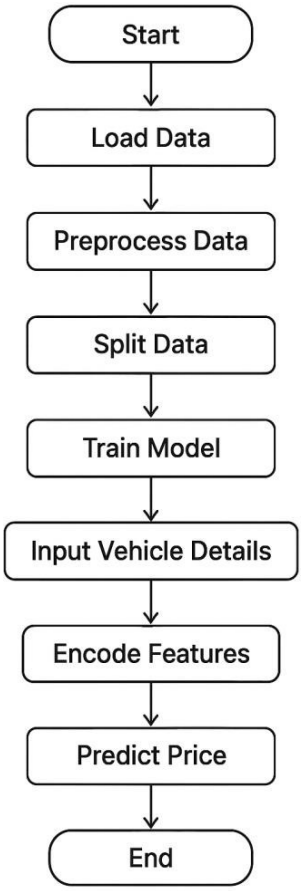

Fig: Flowchart Of Vehical Price Detection System

The critical initialization step, which prepares the prediction system's digital environment, marks the start of the entire procedure. In this fundamental stage, all required software frameworks and libraries are loaded into the computer's memory. Important tools include Scikit-learn for machine learning algorithms and preprocessing tools, NumPy for

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

numerical calculations, and Pandas for data manipulation. Additionally, because of their strong predictive skills, more sophisticated libraries like XGBoost may be imported. This configuration serves as the workflow's starting point and guarantees that all necessary parts are available to carry out the following phases without a hitch.

The critical initialization step, which prepares the prediction system's digital environment, marks the start of the entire procedure. In this fundamental stage, all required software frameworks and libraries are loaded into the computer's memory. Important tools include Scikit-learn for machine learning algorithms and preprocessing tools, NumPy for numerical calculations, and Pandas for data manipulation. Additionally, because of their strong predictive skills, more sophisticated libraries like XGBoost may be imported. This configuration serves as the workflow's starting point and guarantees that all necessary parts are available to carry out the following phases without a hitch.

In its initial state, raw data is frequently untidy and inappropriate for direct use in a machine learning model. As a result, a thorough data cleansing and preparation step is required. To guarantee the consistency and quality of the data, a number of painstaking procedures must be followed. It is necessary to rectify missing values in crucial columns by either deleting those records or imputing reasonable values. To keep the model from becoming skewed, duplicate entries are found and eliminated. Furthermore, using methods like Label Encoding or One-Hot Encoding, categorical data—text-based attributes like "fuel type" or "brand"—needs to be transformed into a numerical representation that a computer can understand. In order to prevent features with greater numeric ranges from unduly influencing the model, numerical features like "year" and "mileage" may be scaled or normalized to put them onto a common scale.

The system then advances to the model preparation stage after receiving a clean and ready dataset. To do this, the complete dataset must be divided into two separate subsets: a testing set and a training set. Typically, 80% of the data is randomly selected for training, with the remaining 20% set aside for testing. The model will learn the intricate correlations between vehicle attributes and their corresponding costs from the training set. To give an objective assessment of the model's final performance and generalization to fresh, unseen data, the testing set—which the model has never seen during training—is kept hidden.

The model training stage is the core component of the system. Here, the training dataset is sent to a selected machine learning method, like Random Forest or Gradient Boosting. Through recurrent analysis of the samples, the algorithm finds underlying patterns and correlations, such as the relationship between a higher price and a newer model year or a decrease in mileage. By doing this, the model creates an internal mathematical representation of how the market value of a car is determined by its qualities taken together. In essence, this "trained model" is a sophisticated function that can estimate a car's price given a collection of its features.

A background training phase is followed by an interactive user-facing phase in the workflow. A user enters information using an interface, like a web form, in order to forecast the cost of their particular car. The brand, model, year, mileage, fuel type, transmission, and condition of the car are the same inputs that the model was trained on. One new data point that the model has never seen before is represented by this user-provided data.

The same preprocessing changes that were made to the historical data must be made to this fresh data before it can be entered into the trained model. To guarantee compatibility, this is an essential step. The same encoding mappings that were developed during the first stage of data preparation are used to encode the user's categorical inputs (such as "Diesel" for fuel type) into the same numerical format. To ensure consistency, any scaling that is applied to the training data is also applied to the user's numerical inputs.

The price prediction itself is the process's culmination. The trained machine learning model receives the user data that has been appropriately scaled and encoded.

IV. CONCLUSION

According to a number of characteristics, including brand, year of manufacture, kilometers traveled, fuel type, transmission, and ownership history, the Vehicle Price Prediction project shows how machine learning techniques may be applied effectively to estimate the market worth of used cars. The system may identify intricate patterns and relationships in the dataset that conventional regression techniques might not be able to handle well by utilizing the Random Forest Regressor model. The preprocessing stage guarantees that the data is converted into an

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

appropriate numerical structure for machine learning models while preserving consistency for fresh user inputs. This includes label encoding of categorical variables. The model's usefulness for customers, dealers, and automotive experts alike is demonstrated by the interactive interface created using Streamlit, which allows users to enter vehicle characteristics and get an instant price estimate. Furthermore, the model's versatility and resilience across many vehicle kinds and categories are highlighted by its capacity to manage a wide range of vehicle parameters.

Analytically speaking, the initiative emphasizes how crucial data-driven decision-making is in the automobile sector. It demonstrates how past car data may be turned into useful insights that can be used to improve pricing tactics and lessen information asymmetry in the used car market. The prediction system also shows how machine learning backends and user-friendly front-end interfaces may be integrated to provide advanced predictive analytics to non-technical users. Additionally, by using real-world data for training, the model provides accurate and comprehensible price estimates that buyers and sellers can use as a guide, possibly lowering fraudulent activity or transaction mispricing. Overall, this project highlights the nexus between data science and practical applications, offering a scalable framework for predictive modeling in the automotive industry and setting the stage for future advancements, like adding more features to improve prediction accuracy, like vehicle condition, location, and market trends.

REFERENCES

[1] Amshi, A. T. (2023) et al. proposed "Vehicle Price Prediction By Aggregating Decision Tree Model With Boosting Model", which combines decision tree and gradient boosting techniques for improved used-vehicle price estimation. arXiv

[2] Huang, J., et al. (2022) investigated "Used Car Price Prediction Analysis Based on Machine Learning", employing a fusion model of XGBoost, CatBoost, LightGBM, and neural networks to build a high-accuracy valuation framework. ResearchGate

[3] Guo, S., & Zhang, B. (2024) presented "Revolutionizing the Used Car Market: Predicting Prices with XGBoost", applying XGBoost to a large dataset of vehicle attributes and showing improved performance over traditional regressors. ResearchGate

[4] Fayyaz, I., Ali, G. G. M. N., & Khairunnesa, S. S. (2025) proposed "Advanced Feature Engineering and Machine Learning Techniques for High Accurate Price Prediction of Heterogeneous Pre-Own Cars," which emphasizes the impact of feature engineering on model performance in used car price prediction. Vehicles, 7(3), 94.

[5] Chen, R. (2025) conducted a comparative study titled "Car Price Prediction Using Machine Learning," evaluating the performance of Linear Regression, Decision Tree, and K-Nearest Neighbors models on vehicle datasets. Proceedings of the International Conference on Machine Learning and Data Engineering, 132701.

[6] Bisht, R. K., Rawat, M., & Joshi, Y. (2025) presented "Comparing Car Price Prediction Accuracies of Different Supervised Machine Learning Methods with Parameter Tunings," which benchmarks various machine learning algorithms for used car price prediction. International Journal of Multidisciplinary Advanced Scientific Research and Innovation,

[7] Bhatnagar, P. (2024) explored "An Analysis of Car Price Prediction using Machine Learning," focusing on the application of voting regressors, gradient boosting regressors, and random forest regressors in vehicle price estimation. Proceedings of the ACM International Conference on Artificial Intelligence, 3674029.

[8] AlShared, A. (2021) investigated "Used Cars Price Prediction and Valuation using Data Mining Techniques," applying various data mining methods to predict used car prices. Rochester Institute of Technology Theses and Dissertations.

[9] Isaev, R., Burmachach, N., & Gimaletdinova, G. (2024) proposed "Predicting Passenger Car Prices with Machine Learning Models," which applies Random Forest, CatBoost Regressor, and Support Vector Machine (SVM) to predict car prices using features such as model, mileage, year, color, and condition. Preprints

[10] Gupta, P., Ghorwade, A., Gupta, A., Mudde, D., & Gore, P. (2024) introduced "Used Car Price Prediction Using Machine Learning," which employs supervised learning models to analyze vehicle attributes like mileage, make, model, year, and condition, aiming to predict used car prices with high accuracy. International Research Journal of Modernization in Engineering Technology and Science.

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

[11] Bergmann, S., et al. (2025) assessed "Machine Learning for Predicting Used Car Resale Prices," evaluating the predictive power of granular information about vehicle equipment when forecasting the resale value of used cars. ScienceDirect.
[12] Marnholkar, T. (2025) developed "Pre-Owned Car Price Prediction: A Machine Learning Approach," employing machine learning techniques to develop a predictive model for estimating resale values of pre-owned cars.
[13] 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.
[14] 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.
[15] Gadade, B., Mulani, A. O., & Harale, A. D. IoT Based Smart School Bus and Student Tracking System. Sanshodhak, Volume 19, June 2024.
[16] Dhanawadel, A., Mulani, A. O., & Pise, A. C. IOT based Smart farming using Agri BOT. Sanshodhak, Volume 20, June 2024.
[17] Mulani, A., & Mane, P. B. (2016). DWT based robust invisible watermarking. Scholars' Press.
[18] 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.
[19] 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.
[20] 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.
[21] 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.
[22] 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.
[23] 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.
[24] Nagane, U. P., & Mulani, A. O. (2021). Moving object detection and tracking using Matlab. Journal of Science and Technology, 6(1), 2456-5660.
[25] 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.
[26] Ghodake, M. R. G., & Mulani, M. A. (2016). Sensor based automatic drip irrigation system. Journal for Research, 2(02).
[27] 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.
[28] 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.
[29] 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.
[30] 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).
[31] 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.
[32] 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.

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

[33] 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.
[34] 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.
[35] 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.
[36] Mulani, A. O., & Shinde, G. N. (2021). An approach for robust digital image watermarking using DWT‐PCA. Journal of Science and Technology, 6(1).
[37] 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.
[38] 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.
[39] 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.
[40] 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.
[41] Takale, S., & Mulani, A. (2022). DWT-PCA based video watermarking. Journal of Electronics, Computer Networking and Applied Mathematics (JECNAM) ISSN, 2799-1156.
[42] Kamble, A., & Mulani, A. O. (2022). Google assistant based device control. Int. J. of Aquatic Science, 13(1), 550-555.
[43] 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.
[44] 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.
[45] 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.
[46] 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.
[47] 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.
[48] Gadade, B., & Mulani, A. (2022). Automatic System for Car Health Monitoring. International Journal of Innovations in Engineering Research and Technology, 57-62.
[49] 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.
[50] 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.
[51] 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.
[52] 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.
[53] 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.

[54] Takale, S., & Mulani, D. A. (2022). Video Watermarking System. International Journal for Research in Applied Science & Engineering Technology (IJRASET), 10.
[55] Mandwale, A., & Mulani, A. O. (2015, January). Different approaches for implementation of Viterbi decoder. In IEEE international conference on pervasive computing (ICPC).
[56] 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.
[57] 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.
[58] Kambale, A. (2023). Home automation using google assistant. UGC care approved journal, 32(1), 1071-1077.
[59] 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.
[60] 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.
[61] Mandwale, A., & Mulani, A. O. (2016). Implementation of High Speed Viterbi Decoder using FPGA. International Journal of Engineering Research & Technology, IJERT.
[62] 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.
[63] Shinde, R., & Mulani, A. O. (2015). Analysis of Biomedical Image ‖ . International Journal on Recent & Innovative trend in technology (IJRITT).
[64] Sawant, R. A., & Mulani, A. O. (2022). Automatic PCB Track Design Machine. International Journal of Innovative Science and Research Technology, 7(9).
[65] 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).
[66] Gadade, B., Mulani, A. O., & Harale, A. D. (2024). Iot based smart school bus and student monitoring system. Naturalista Campano, 28(1), 730-737.
[67] 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.
[68] Salunkhe, D. S. S., & Mulani, D. A. O. (2024). Solar Mount Design Using High-Density Polyethylene. NATURALISTA CAMPANO, 28(1).
[69] 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.
[70] 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.
[71] 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.
[72] 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.
[73] Godse, A. P. A.O. Mulani (2009). Embedded Systems (First Edition).
[74] 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.
[75] 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.

[76] 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.
[77] 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.
[78] 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).
[79] 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.
[80] Pol, D. R. S. (2021). Cloud Based Memory Efficient Biometric Attendance System Using Face Recognition. Stochastic Modeling & Applications, 25(2).
[81] Nagtilak, M. A. G., Ulegaddi, M. S. N., Adat, M. A. S., & Mulani, A. O. (2021). Breast Cancer Prediction using Machine Learning.
[82] Rahul, G. G., & Mulani, A. O. (2016). Microcontroller Based Drip Irrigation System.
[83] 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.
[84] Mulani, A., & Mane, P. B. (2016). DWT based robust invisible watermarking. Scholars' Press.
[85] 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).
[86] 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).
[87] Altaf Osman Mulani, Electric Vehicle Parameters Estimation Using Web Portal, Recent Trends in Electronics & Communication Systems, Volume 10, Issue 3, 2023.
[88] 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.
[89] 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.
[90] 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.
[91] 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.
[92] 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.
[93] 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.
[94] 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.
[95] 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.
[96] 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.

[97] 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.
[98] 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.
[99] 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.
[100] 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.
[101] 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.
[102] 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.
[103] 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.
[104] 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.
[105] 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.
[106] 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.
[107] Karande, K. J., & Talbar, S. N. (2014). Independent component analysis of edge information for face recognition. Springer India.
[108] Karande, K. J., & Talbar, S. N. (2008). Face recognition under variation of pose and illumination using independent component analysis. ICGST-GVIP, ISSN.
[109] 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.
[110] 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.
[111] 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.
[112] 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.
[113]
[114] 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
[115] 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
[116] 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

[117] 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

[118] 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

[119] 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).

[120] 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

[121] 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

[122] 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.

[123] 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.

[124] 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.

[125] 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.

[126] 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.

[127] 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.

[128] 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.

[129] 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.

[130] Siddheshwar Gangonda and Prachi Mukherji, "Speech Processing for Marathi Numeral Recognition", International Conference on Recent Trends, Feb 2012, IOK COE, Pune.

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

[131] 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.
[132] 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.
[133] 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.
[134] Siddheshwar Gangonda and Prachi Mukherji, "Speech Processing for Marathi Numeral Recognition", ePGCON 2011, 26th April 2011 organized by MAEER's MIT, Kothrud, Pune-38.
[135] Siddheshwar Gangonda, "Medical Image Processing", Aavishkar-2K7, 17th and 18th March 2007 organized by Department of Electronics and Telecommunication Engineering, SVERI's COE, Pandharpur.
[136] Siddheshwar Gangonda, "Image enhancement & Denoising", VISION 2k7, 28th Feb-2nd March 2007 organized by M.T.E. Society's Walchand College of Engineering, Sangli.
[137] Siddheshwar Gangonda, "Electromagnetic interference & compatibility" KSHITIJ 2k6, 23rd and 24th Sept. 2006 organized by Department of Mechanical Engineering, SVERI's COE, Pandharpur.
[138] 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
[139] 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.
[140] 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.
[141] 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.
[142] 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.
[143] 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.
[144] 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.
[145] A. C. Pise, et. al., "Python Algorithm to Estimate Range of Electrical Vehicle", Web of Science, Vol 21, No 1 (2022) December 2022
[146] 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).
[147] 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.
[148] 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
[149] 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.
[150] 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.

[151] 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.
[152] 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
[153] A. C. Pise, et. al., "Adaptive Noise Cancellation in Speech Signal", International Journal of Innovative Engg and Technology, 2017
[154] 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
[155] A. C. Pise, et. al.,"Review on Agricultural Plant Diseases Detection by Image Processing", ISSN 2278-62IX, IJLTET, Vol 7, Issue 1 May 2016
[156] A. C. Pise, et. al. "Segmentation of Retinal Images for Glaucoma Detection", International Journal of Engineering Research and Technology (06, June-2015).
[157] A. C. Pise, et. al. "Color Local Texture Features Based Face Recognition", International Journal of Innovations in Engineering and Technology(IJIET) , Dec. 2014
[158] 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.
[159] 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.
[160] 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
[161] 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.
[162] 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.
[163] 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.
[164] 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.
[165] A. C. Pise, et. al., "Facial Expression Recognition Using Facial Features," IEEE International Conference on Communication and Electronics Systems (ICCES 2018), October 2018.
[166] 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.
[167] 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.
[168] 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.
[169] 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.
[170] 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.

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

[171] 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.
[172] 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
[173] A. C. Pise, et. al. "Single Chip Solution For Multimode Robotic Control", Ist IEEE International Conferene on Computing Communication and Automation, 26-27 Feb2015.
[174] 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
[175] A. C. Pise, P. Bankar, "Face Recognition using Color Local Texture Features", International Conference on Electronics and Telecommunication, Electrical and Computer Engineering, Apr.2014.
[176] 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.
[177] 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.
[178] 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.
[179] 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.
[180] 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.
[181] 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.
[182] A. C. Pise, et. al. "Segmentation of Optic Disk and Optic Cup from retinal Images", ICEECMPE – Chennai, June 2015
[183] A. C. Pise, et. al. "Diseases Detection of Pomegranate Plant", IEEE Sponsored International conference on Computation of Power, Energy , April 2015.
[184] A. C. Pise, et. al. "Compensation Techniques for I/Q Imbalance in Direct-Conversion Receivers", Conference at SCOE, Pune 2010.
[185] 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
[186] A. C. Pise, et. al. "Compensation Techniques for I/Q Imbalance in Direct Conversion Receiver", Conference at PICT, Pune 2008.
[187] A. C. Pise, et. al. "I/Q Imbalance compensation Techniques in Direct Conversion Receiver ", Conference at DYCOE, Pune 2008.
[188] A. C. Pise, et. al. "DUCHA: A New Dual channel MAC protocol for Multihop Ad-Hoc Networks", Conference at SVCP, Pune 2007.
[189] Godase, V., Pawar, P., Nagane, S., & Kumbhar, S. (2024). Automatic railway horn system using node MCU. Journal of Control & Instrumentation, 15(1).
[190] 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.
[191] 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.
[192] 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.

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

[193] 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.
[194] Dange, R., Attar, E., Ghodake, P., & Godase, V. (2023). Smart agriculture automation using ESP8266 NodeMCU. J. Electron. Comput. Netw. Appl. Math, (35), 1-9.
[195] Godase, V. (2025). Optimized Algorithm for Face Recognition using Deepface and Multi-task Cascaded Convolutional Network (MTCNN). Optimum Science Journal.
[196] Mane, V. G. A. L. K., & Gangonda, K. D. S. Pipeline Survey Robot.
[197] 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.
[198] Godase, V., & Jagadale, A. (2019). Three element control using PLC, PID & SCADA interface. International Journal for Scientific Research & Development, 7(2), 1105-1109.
[199] 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.
[200] 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.
[201] Godase, V. (2025). Comparative study of ladder logic and structured text programming for PLC. Available at SSRN 5383802.
[202] Godase, V., Modi, S., Misal, V., & Kulkarni, S. Real-time object detection for autonomous drone navigation using YOLOv8, ǁ . Advance Research in Communication Engineering and its Innovations, 2(2), 17-27.
[203] Godase, V. (2025). Smart energy management in manufacturing plants using PLC and SCADA. Advance Research in Power Electronics and Devices, 2(2), 14-24.
[204] 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.
[205] Godase, V. (2025). Graphene-Based Nano-Antennas for Terahertz Communication. International Journal of Digital Electronics and Microprocessor Technology, 1(2), 1-14.
[206] 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.
[207] 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.
[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). Cross-Domain Comparative Analysis of Microwave Imaging Systems for Medical Diagnostics and Industrial Testing. Journal of Microwave Engineering & Technologies, 12(2), 39-48p.
[210] 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.
[211] 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.
[212] 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.
[213] 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.
[214] Nagane, M.S., Pawar, M.P., & Godase, P.V. (2022). Cinematica Sentiment Analysis. Journal of Image Processing and Intelligent Remote Sensing.
[215] Godase, V.V. (2025). Tools of Research. SSRN Electronic Journal.

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

[216] Godase, V. (n.d.). EDUCATION AS EMPOWERMENT: THE KEY TO WOMEN'S SOCIO ECONOMIC DEVELOPMENT. Women Empowerment and Development, 174–179.
[217] 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).
[218] 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).
[219] Dhope, V. (2024). SMART PLANT MONITORING SYSTEM. In International Journal of Creative Research Thoughts (IJCRT). https://www.ijcrt.org
[220] 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
[221] 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
[222] 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
[223] 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.
[224] 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.
[225] 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
[226] 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
[227] 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
[228] 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.
[229] 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
[230] 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
[231] 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
[232] 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.
[233] 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

[234] 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.
[235] 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.
[236] 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.