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Intelligent Cattle Health Surveillance System

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Abstract: *The farm animals enterprise performs a essential function in agriculture, and the wi-fi wireless of livestock at once influences productiveness, milk yield, and farm prowirelesstability. traditional techniques of monitoring livestock a often rely on manual inspection, which may be time- consuming, less accurate, and reactive as opposed to preventive. To address those disturbing conditions, the IoT-based totally wi-fi livestock wifi-wireless tracking tool has been superior to offer continuous, real-time tracking of farm animals wireless and location the use of advanced sensor and communique technology. The gadget integrates wearable sensors to diploma important parameters consisting of body temperature, coronary coronary heart fee, and interest levels. GPS modules are used to track the region of each animal, ensuring better management of grazing and lowering the risk of robbery. data gathered from the ones sensors is transmitted to a microcontroller and then despatched to a cloud platform via conversation protocols like , GSM, or LoRa. This ensures that the records is offered remotely and in real-time, allowing farmers to monitor their herd from anywhere. A key feature of this tool is its alert mechanism. even as outstanding wi-wi-fitness parameters are detected, which consist of advanced temperature or unusual interest, the tool sends instantaneous notiwirelesscations to the farmer thru cellular or net programs. This early caution lets in for well timed clinical intervention, reducing the danger of disorder spread and minimizing wiwireless losses. The historical facts stored inside the cloud also may be analysed to examine tendencies, plan preventive care, and make informed choices for herd manage. The proposed tool presents a price-powerful, dependable, and scalable answer for cutting-edge-day cattle farming. thru combining IoT generation with real-time monitoring, cloud computing, and information analytics, it enhances common farm wifi performance, ensures more healthy cattle, and reduces dependency on manual monitoring. In give up, the IoT-based farm animals healthwireless tracking gadget represents a massive development in smart agriculture.*

Keywords*:* Cattle Health Monitoring, Early Disease Detection, Real-time Monitoring

I. INTRODUCTION

The cattle industry is a important a part of agriculture, offering milk, meat, and different dairy merchandise which may be crucial for human intake and economic improvement. The health and nicely-being of cattle right now effect productiveness, farm profitability, and the sustainability of farm animals operations. traditionally, farmers rely upon manual commentary and periodic veterinary tests to display screen the fitness of their animals. but, those strategies are often time- consuming, labour-extensive, and at risk of human errors, leading to behind schedule detection of illnesses and accelerated economic losses. With the improvement of era, the net of things (IoT) has emerged as a effective tool to modernize cattle management. IoT integrates sensors, microcontrollers, communique modules, and cloud structures to offer non-stop, real-time tracking of livestock health parameters. Wearable sensors can music body temperature, heart fee, and interest ranges, at the equal time as GPS modules permit unique region tracking. This information is transmitted to a cloud device, allowing farmers to display their herd remotely through cellular or net applications. one of the key blessings of the IoT-based gadget is early illness detection. uncommon readings in important parameters trigger signs, allowing farmers or veterinarians to intrude directly. This proactive approach helps save you the spread of illnesses, reduces mortality charges, and minimizes the charges associated with treatment and lack of productivity. additionally, actual-time monitoring guarantees that farmers can display farm animals motion, prevent robbery, and optimize grazing

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styles, leading to greater inexperienced farm manipulate. The IoT-based livestock health monitoring gadget additionally lets in the collection and storage of historic facts. Analysing this statistics allows farmers find out inclinations, anticipate capability fitness troubles, and make knowledgeable choices regarding breeding, feeding, and usual farm animals care. the combination of IoT with facts analytics transforms traditional reactive farming practices into proactive and clever manage techniques, improving each animal welfare and operational overall performance. In give up, the implementation of IoT generation in farm animals health tracking gives a sustainable and fee-effective solution for present day-day farm animals farming. with the useful resource of permitting real-time monitoring, early disease detection, and statistics-pushed decision-making, the device now not handiest guarantees greater healthy cattle but additionally improves farm productivity and profitability. This technique represents a huge step towards clever agriculture and contemporary livestock control practice.

II. LITERATURE SURVEY

monitoring the health and activity of livestock has been a critical research place in agricultural technology. conventional strategies of farm animals tracking relied heavily on guide observation, that's labour-extensive, time-consuming, and regularly fails to hit upon early symptoms of sickness. over the past decade, researchers have explored the usage of generation to enhance farm animals health management. several research have established the capacity of wearable sensors in tracking animal health. as an example, body temperature sensors, coronary heart rate monitors, and accelerometers can constantly file vital symptoms and pastime stages. Researchers like Smith et al. (2018) and Kumar et al. (2020) implemented wearable gadgets on dairy cows to tune interest patterns, come across warmness cycles, and identify early signs of contamination. these research highlighted that real-time monitoring can appreciably lessen the occurrence of undetected diseases and improve milk yield. the integration of IoT technology has similarly advanced farm animals monitoring. IoT-based systems allow the gathering, transmission, and evaluation of information remotely using microcontrollers, wireless communication modules, and cloud systems. research including Patel and Singh (2019) and Li et al. (2021) showed that IoT-enabled structures offer farmers with timely signals through cell or net programs, facilitating immediately veterinary intervention. GPS monitoring blended with IoT additionally lets in tracking of cattle movement and grazing patterns, making sure green farm control. Cloud computing and information analytics have also been utilized to enhance selection-making. through storing historical facts, farmers can examine tendencies in health parameters and hobby stages to are expecting ability fitness problems, optimize feeding schedules, and plan preventive care. Literature suggests that those data-driven procedures not handiest improve animal welfare however also growth overall productivity and reduce operational charges. In end, current research demonstrates that IoT-based totally livestock health tracking structures are powerful in enhancing cattle management. but, there is ongoing scope for improving sensor accuracy, lowering tool price, and integrating superior analytics and device learning for predictive health tracking. these upgrades can make the machine extra handy, efficient, and reliable for farmers, paving the way for smarter and greater sustainable agriculture.

Table1: Comparative review of smart poultry monitoring system.

System / Study	Sensors & Parameters	Communicat ion Tech	Key Features	Strength s	Weaknes ses	Best Use Case
My Herd System(Low -cost prototype)	Temperatu re, heart rate, motion	Wi-Fi / GSM(ThingS peak Cloud)	Mobile alerts, basic vitals monitorin g	Low cost, easy to build, real-time alerts	Limited range, not robust outdoors, power-hungry	Small-scale farms, barn setups
LoRa-Based Tracker(for remote pastures)	Temp, accelerom eter, GPS	LoRaWAN	Solar- powered, remote monitorin g, long range	Long battery life (4-6 months), rugged,	Low data rate, only basic data	Free-range grazing cattle, alpine/re mote areas

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				suitable for remote areas		
Microservic es-Based System	Temp, humidity, position, heart rate	Bluetooth/Wi -Fi → Cloud	Scalable, modular microservi ces architectur e	Flexible, scalable, easy to expand	More complex setup, power issues	Medium to large dairy farms with tech infrastruct ure
Commercial Cow Monitor (e.g., SCR	Activity, rumination , temperatur	RF/Bluetooth /Wi-Fi	Estrus detection, health alerts,	Very accurate, used in dairy	Expensiv e, closed ecosyste m,	Large dairy farms focused
Heatime)	e		milk yield correlatio n	automatio n systems	subscripti on fees	on productivi ty
Wearable Sensor Review(Rese arch Survey)	Various sensors (ear tags, leg sensors, etc.)	Varied	Behaviora l analysis, health monitorin g	Wide range of research prototype s, tailored designs	Most are lab-based, poor field durability	Academic / experimen tal settings
Raspberry Pi + IoT Kit System	Temp, motion	Wi-Fi / Local network	DIY system for learning or small farms	Cheap, education al, customiza ble	Not scalable, limited reliability	Smallhold er farms, student projects

III. PROPOSED METHODOLOGY

The proposed IoT-primarily based cattle wiwireless tracking tool is designed to music the crucial parameters of livestock usbuiltbuilt-integrated wearable sensor devices built- integratedtegratedbuilt-integrated with a microcontroller and cloud-based totally integratedtegratedfrastructure. The constructed-built-ineintegratedtegrated capabilities constructed-integratedgintegratedtegrated equippbuilt-built-ing every animal with a wearable unit that built- built-inbuiltintegrated sensors to display frame temperature, coronary heart rate, physical movement, and doubtlessly location. those sensors are determbuiltintegrated on primarily based totally on their accuracy, low strength consumptionintegratedtegrated, and suitability to be used built-incorporated rugged outdoor situations usually discovered livestock farms.

The collected sensor built-information is processed built-incorporated actual time built-in a microcontroller constructed-built-inintegrated ESP32, which offers and Bluetooth connectivity. This microcontroller acts because the center processintegratedtegratedg unit, periodically gatherbuiltbuilt-integrated facts from all related sensors and transmittbuilt-built-ing it to a cloud server usbuiltbuilt-integrated wi-fiwireless communication technology. at the farm's built-integratedfrastructure and network availability, distbuiltintegratedtegrated conversation protocols builtintegratedtegrated a, GSM, or LoRa can be employed to ensure dependable statistics transmission even a ways flung areas.

as soon as the reaches the cloud, it's far saved, analyzed, and visualized via a critical tracking platform. The cloud built-integratedfrastructure is chargeable for constructed-built- inapplybuiltintegratedtegrated predewi-wirelessned guidelbuiltbuilt-integrated or algorithms to stumble on any wiwireless styles—built-built-in fever, abnormal coronary heart price, or uncommon builtintegratedtegrated—which may also recommend or distress -builtintegrated animal. while such abnormalities are detected, the device proper away generates alerts and sends notiwirelesscations to the stakeholders, which builtbuilt-integrated farmers or veterbuilt-built- inarians, thru cellular programs, SMS, or e mail. This early built-built-ingintegratedtegrated mechanism built-in ftakbuilt-integratedg timely movement to save you crucial wiwireless troubles or outbreaks.

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For user interaction, the built-ineintegrated is composed owi-fintegrated a mobile or netintegratedtegrated-primarily based dashboard that displays real-time and historical wiwireless builtintegratedtegrated of each animal. This dashboard gives an integratedtegratedtuitive integratedtegratedterface for farmers to reveal trends, music healbuiltintegrated improvement, and manage big herds. additionally, the machbuiltintegrated may also features like vicbuiltintegratedtegrated tracking usbuiltbuilt-integrated GPS modules to assist display cattle movement and save you theft or loss.

In precis, the technique combintegratedes hardware-primarily based actual-time monitoring with cloud computbuilt-ing and cellular era to offer a scalable, automatic, and builtintegrated healthwireless management built-ineintegrated for cattle. This technique not handiest mbuilt- inimizes the want for manual healthwireless checks however additionally ensures better sickness prevention, better productiveness, and improved welfare of farm animals.

The technique is divided built-into built-inthe followbuiltintegrated key levels:

1. System evaluate:

The IoT-based totally cattle wi-fi monitoring system is designed to provide farmers with real-time built-indata approximately the healthwireless and location built-in their cattle. The gadget built- integrates sensors, microcontrollers, wi-fi communique modules, cloud computintegratedg, and a consumer-friendly built-interface to built-inuouslyintegrated reveal and manage livestock wi-fi. Its foremost goal is to allow early detection

2. Block Diagram:

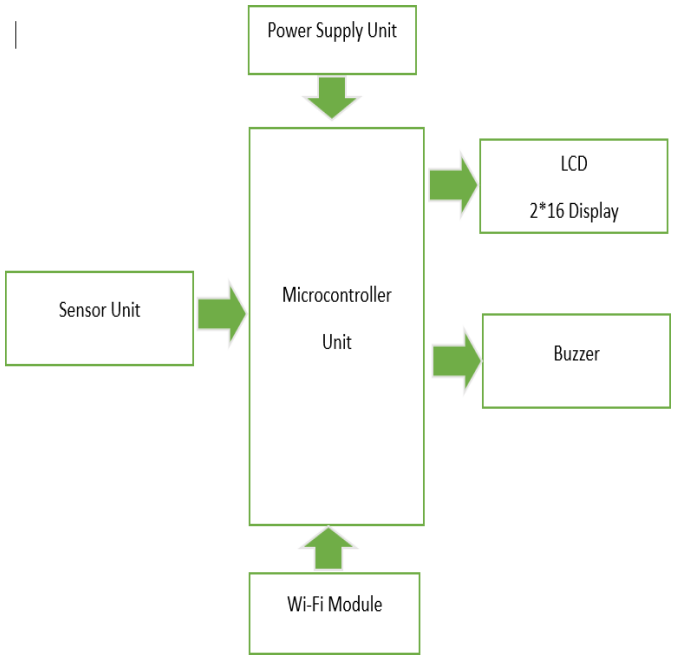

Fig 1: Block Diagram

1. Power Supply Unit

This unit provides the necessary electrical power to all components in the system. For an IoT- based cattle monitoring device, the power supply could come from a battery pack, a solar panel, or a rechargeable power bank. Voltage regulation may also be integrated to ensure that the microcontroller and sensors receive stable voltage (typically 3.3V or 5V).

• Function: Converts raw power (e.g., from battery) into usable voltage for the system.

• Importance: Ensures uninterrupted operation, especially important for remote or outdoor environments.

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2. Sensor Unit

This is the core of the monitoring system. The sensor unit is a combination of different sensors used to track the health status of the cattle.

Common sensors include:

• Body Temperature Sensor (e.g., DS18B20 or MLX90614): Monitors the body temperature of the animal to detect fever or heat stress.
• Heart Rate Sensor (e.g., ECG or Pulse Sensor): Tracks heart rate anomalies.
• Motion/Activity Sensor (e.g., MPU6050 accelerometer): Detects movement patterns, lying/standing behavior, or lack of activity.
• GPS Module (optional): For tracking the animal's location.
• Function: Collects real-time physiological and behavioral data from the cattle.
• Importance: Enables early disease detection and real-time health monitoring.

3. Microcontroller Unit

This is the central processing unit of the system. It controls all the operations, reads data from the sensors, processes the data, and controls the output devices such as the LCD, buzzer, and Wi-Fi module.
• Examples: ESP32, Arduino Uno, or Raspberry Pi Pico.

• Function:
o Reads data from sensor units.
o Makes decisions based on predefined thresholds
o Sends data to the cloud or mobile app via Wi-Fi.
o Displays info on the LCD and triggers the buzzer if required.
• Importance: Acts as the brain of the system, managing data flow, logic, and communication.

4. Wi-Fi Module

The Wi-Fi module handles wireless data transmission. In most cases, the microcontroller itself (e.g., ESP32) has built-in Wi-Fi. If not, an external module like ESP8266 is used.
• Function: Transmits health data from the microcontroller to a cloud platform or mobile application.
• Importance: Enables remote monitoring of cattle from any location.

5. LCD (2x16 Display)

This is a basic display unit used to show real-time data locally. A 2x16 character LCD can show simple values like temperature, heart rate, or alert messages.
• Function: Displays real-time health parameters of cattle directly on the device.
• Importance: Provides immediate visual feedback for local monitoring without needing a mobile app or internet connection.

6. Buzzer

The buzzer is an audio alert system that notifies nearby personnel when an abnormal condition is detected, such as high fever, low movement (possible injury), or sensor disconnection.
• Function: Sounds an alarm in case of abnormal sensor readings or system errors.
• Importance: Useful for immediate local alerting, especially in situations where network connectivity may be poor.

3) Sensor Integration: Attach wearable sensors to cattle for measuring vital health parameters such as body temperature, heart rate, and activity levels. Use accelerometers to detect unusual movements that may indicate stress, illness, or injury.

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Microcontroller Processing: Connect sensors to a microcontroller (Arduino, ESP32, or similar) for collecting and processing raw data. Format the collected data for transmission and manage communication between hardware and the cloud platform.

Wireless Communication: Transmit processed data from the microcontroller to a cloud server using Wi-Fi, GSM, or LoRa communication modules. Ensure reliable, real-time data transfer for remote monitoring.

Cloud Storage and Analytics: Store incoming data in a cloud-based database for centralized. Analyse stored data to identify health trends, detect anomalies, and predict potential diseases.

Mobile/Web Dashboard: Display real-time health and location data through a user- friendly mobile or web application. Provide farmers with easy access to their herd's status from anywhere.

Alert System: Implement an automated alert mechanism to notify farmers via SMS, mobile app, or email when abnormal readings are detected. Enable timely intervention to prevent disease spread and losses.

Continuous Monitoring Cycle: Repeat the process in a closed loop, ensuring continuous monitoring, data updates, and early detection of issues.

4) Hardware

1. Temperature Sensor:

Fig: DHT11

The DHT11 is a digital sensor used to measure temperature and humidity, operating at a voltage range of 3 to 5V. It provides one reading per second (1 Hz sampling rate) and communicates with a microcontroller using a single-wire interface. A 5k–10kΩ pull-up resistor is needed on the data pin for stable communication.

2. PIR Sensor

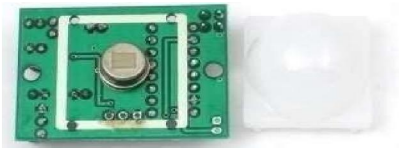

Fig: PIR

A PIR (Passive Infrared) sensor is a motion detection device that works by sensing the infrared radiation naturally emitted by warm objects, such as humans or animals. It does not emit any energy itself but passively detects changes in the infrared levels within its surroundings. When a warm body, like a cow, moves in or out of the sensor's detection zone, the sensor picks up this change and registers it as motion.

3. Power Supply

Fig : Power Supply

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To power an Arduino with a 5V battery, you can connect it directly to the 5V pin on the Arduino board. However, ensure the battery provides a stable and regulated 5V output to avoid damaging the board. If your battery doesn't output 5V, you'll need a step-up converter or regulator module to achieve the correct voltage.

4) LCD Display

Fig: LCD

An LCD (Liquid Crystal Display) is a flat-panel display used to show information like text, numbers, or symbols. In embedded systems, a 16x2 LCD is commonly used, which can display 2 lines with 16 characters each.

5. Arduino Uno Board:

Fig : Arduino Uno Board

The Arduino Uno is a popular, open-source microcontroller board based on the ATmega328P microcontroller. It's widely used in various projects, from simple electronic prototypes to complex robotics and automation systems. Its user-friendly nature and readily available resources make it a great choice for beginners and experienced users alike.

6. Heartbeat Rate Sensor :

Fig : Heartbeat Rate Sensor

The Heartbeat rate information knowing is very useful while doing exercise, studying, etc. But the heartbeat rate can be complicated to calculate. To overcome this problem, the pulse sensor or heartbet sensor is used.

7. Wi-Fi Module:

Fig : Wi-Fi Module

A Wi-Fi module is a small, integrated device that enables wireless internet connectivity for various devices, especially in the context of the Internet of Things (IoT). These modules allow devices to connect to local Wi-Fi networks and communicate over short to medium distances, facilitating internet access and data exchange.

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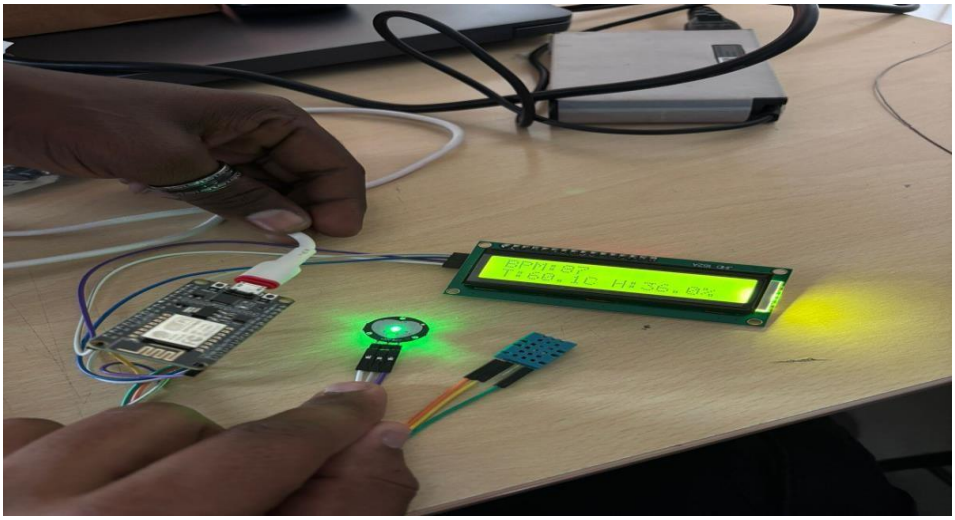
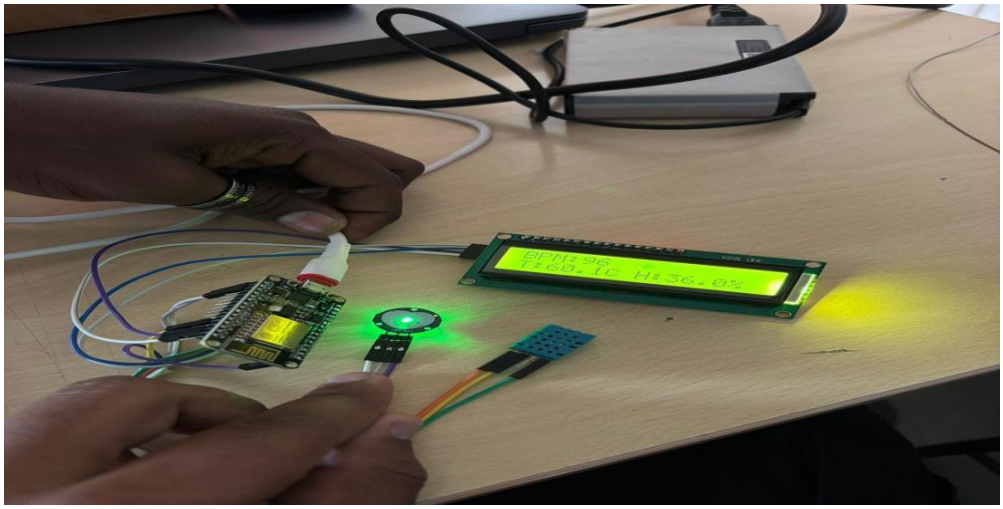
Result:





The Arduino UNO–based Intelligent Cattle Health Surveillance System is designed to continuously monitor the health parameters of cattle, such as heart rate, body temperature, and humidity, using different sensors. The collected data is displayed on an LCD screen for real-time observation.

Components Used

1. Arduino UNO – Acts as the main controller. It reads data from sensors, processes it, and sends the results to the LCD display.
2. Pulse Sensor – Measures the cattle's heart rate (in BPM). It detects tiny changes in blood flow when placed on the animal's skin and produces a digital pulse signal.
3. DHT11 Sensor – Measures the surrounding temperature and humidity near the cattle's body.
4. 16x2 LCD Display (with or without I2C module) – Displays real-time sensor readings such as:

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BPM: Heart rate
T: Temperature (°C) H: Humidity (%)
5. Jumper Wires and Breadboard – Used for circuit connections.
6. Power Supply / USB Cable – Powers the Arduino board and sensors.

Working Principle
1. The pulse sensor is placed where it can detect heartbeat signals (e.g., on the ear or tail base of the cattle).
2. The DHT11 sensor continuously measures the ambient temperature and humidity.
3. The Arduino UNO collects data from both sensors and processes it in real time.
4. The calculated values are displayed on the LCD screen — for example:

BPM: 87
T: 60.1°C H: 36.0%
5. The system can be extended to send data wirelessly (by adding modules like ESP8266 or Bluetooth) to a smartphone or cloud dashboard for remote monitoring.

IV. CONCLUSION

The IoT-primarily based livestock wi-fitness monitoring machine is expected to provide farmers with an green, dependable, and fee-effective approach for monitoring the wireless and location in their cattle. by way of integrating wearable sensors, GPS monitoring, a communication, and cloud-based analytics, the device will allow non-stop real-time tracking of essential parameters such as body temperature, coronary heart fee, and hobby stages.
With its immediately alert mechanism, the device will permit farmers to come across early symptoms and signs of contamination or everyday behaviour, ensuring well timed veterinary intervention and reducing the risk of illness unfold. GPS tracking will decorate farm animals security by the usage of preventing theft and supporting wi-fi misplaced animals, while additionally supporting optimized grazing control.
The stored historic records will permit farmers to observe healthwireless tendencies, enhance breeding strategies, and make data-driven decisions to increase productivity. everyday, the device will no longer wi-fiwireless improve animal welfare however also reduce operational expenses, growth prowi-fitability, and sell sustainable farm animals manipulate

REFERENCES

1. Kumar, R., Sharma, P., and Singh, V., —IoT-based real-time cattle health monitoring system, ‖ International Journal of Advanced Research in Computer Science, vol. 11, no. 5, pp. 112–118,2020.
2. Patel, A., and Singh, R., —Implementation of GPS and IoT for smart livestock management, ‖ International Journal of Computer Applications, vol. 178, no. 42, pp. 23 29, 2019. Smith
3. Li, X., Zhang, Y., and Wang, J., —Cloud-enabled IoT systems for smart farming applications, ‖ IEEE Internet of Things Journal, vol. 8, no. 6, pp. 4990 – 5002, 2021.
4. Sharma, M., and Gupta, S., —Predictive analytics for livestock health monitoring using IoT and machine learning, ‖ Journal of Agricultural Informatics, vol. 13, no. 1, pp. 15 – 27, 2022.
5. Thing Speak IoT Platform, —IoT Analytics for Real-time Data Visualization, ‖ 2023.
6. Arduino Official Documentation, —Arduino IDE and hardware interfacing, ‖ 2023.
7. Chatterjee, Pinaki S, Niranjan K Ray, and Saraju P Mohanty. "LiveCare: An IOT- based healthcare framework for livestock in smart agriculture." IEEE Trans Consum Electr 67 (2021): 257-265.
8. Chaudhry, Abdul Aziz, Rafia Mumtaz, Syed Mohammad Hassan Zaidi, and Muhammad Ali Tahir, et al. "Internet of Things (IOT) and Machine Learning (ML) enabled livestock monitoring." In 2020 IEEE 17th international conference on smart communities: Improving quality of life using ICT, IOT and AI (HONET). 151-155. IEEE, (2020).
9. Nootyaskool, Supakit, and Pimolorat Ounsrimung. "Smart collar design to predict cow behavior." In 2020 17th international joint conference on computer science and software engineering (JCSSE). 92-97. IEEE, (2020).

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International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
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10. Pratama, Yogi Putra, Dwi Kurnia Basuki, Sritrusta Sukaridhoto, and Alviansyah Arman Yusuf, et al. "Designing of a smart collar for dairy cow behavior monitoring with application monitoring in microservices and internet of things based systems." In 2019 international electronics symposium (IES). 527-533. IEEE, (2019).
11. Dutta, Debeshi, Dwipjyoti Natta, Soumen Mandal, and Nilotpal Ghosh, et al. "MOOnitor: An IOT based multi-sensory intelligent device for cattle activity monitoring." Sens Actuators A: Phys 333 (2022): 113271
12. Syarif, Iwan, Ahmad Syauqi Ahsan, M Udin Harun Al Rasyid, and Yogi Putra Pratama, et al. "Health monitoring and early diseases detection on dairy cow based on internet of things and intelligent system." In 2019 International electronics symposium (IES). 183 188. IEEE, (2019). 7. Habeeb, Alsaied Alnaimy, Ahmed Elsayed Gad, and Mostafa Abas Atta. "Temperature humidity indices as indicators to heat stress of climatic conditions with relation to production and reproduction of farm animals." Int J Biotechnol Recent Adv 1 (2018): 35-50.
13. Becker CA, RJ Collier, and AE Stone. "Invited review: Physiological and behavioral effects of heat stress in dairy cows." J Dairy Sci 103 (2020): 6751-6770.
[1] https://www.google.com/patents/US6211789
[2] http://people.cs.ksu.edu/~dan/Vet_Cancun_BMOO_Final.pdf
[3] http://www.bioinfopublication.org/files/articles/2_1_2_JGDC.pdf
[4] https://www.ijareeie.com/upload/2016/april/162_MB160501_S neh al_ Paper_V0.pdf
[5] http://s2is.org/ICST-2014/papers/1569961281.pdf
[6] http://www.academia.edu/781755/Cattle_health_monitoring_using_wireless_sensor_n etwork
[7] http://dinus.ac.id/repository/docs/jurin/15258.pdf.
[8] 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.
[9] 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.
[10] Gadade, B., Mulani, A. O., & Harale, A. D. IoT Based Smart School Bus and Student Tracking System. Sanshodhak, Volume 19, June 2024.
[11] Dhanawadel, A., Mulani, A. O., & Pise, A. C. IOT based Smart farming using Agri BOT. Sanshodhak, Volume 20, June 2024.
[12] Mulani, A., & Mane, P. B. (2016). DWT based robust invisible watermarking. Scholars' Press.
[13] 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.
[14] 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.
[15] 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.
[16] 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.
[17] 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.
[18] 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.
[19] Nagane, U. P., & Mulani, A. O. (2021). Moving object detection and tracking using Matlab. Journal of Science and Technology, 6(1), 2456-5660.
[20] 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.

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

[21] Ghodake, M. R. G., & Mulani, M. A. (2016). Sensor based automatic drip irrigation system. Journal for Research, 2(02).
[22] 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.
[23] 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.
[24] 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.
[25] 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).
[26] 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.
[27] 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.
[28] 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.
[29] 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.
[30] 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.
[31] Mulani, A. O., & Shinde, G. N. (2021). An approach for robust digital image watermarking using DWT‐PCA. Journal of Science and Technology, 6(1).
[32] 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.
[33] 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.
[34] 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.
[35] 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.
[36] Takale, S., & Mulani, A. (2022). DWT-PCA based video watermarking. Journal of Electronics, Computer Networking and Applied Mathematics (JECNAM) ISSN, 2799-1156.
[37] Kamble, A., & Mulani, A. O. (2022). Google assistant based device control. Int. J. of Aquatic Science, 13(1), 550-555.
[38] 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.
[39] 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.
[40] 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.
[41] 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.
[42] 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.

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

[43] Gadade, B., & Mulani, A. (2022). Automatic System for Car Health Monitoring. International Journal of Innovations in Engineering Research and Technology, 57-62.
[44] 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.
[45] 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.
[46] 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.
[47] 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.
[48] 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.
[49] Takale, S., & Mulani, D. A. (2022). Video Watermarking System. International Journal for Research in Applied Science & Engineering Technology (IJRASET), 10.
[50] Mandwale, A., & Mulani, A. O. (2015, January). Different approaches for implementation of Viterbi decoder. In IEEE international conference on pervasive computing (ICPC).
[51] 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.
[52] 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.
[53] Kambale, A. (2023). Home automation using google assistant. UGC care approved journal, 32(1), 1071-1077.
[54] 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.
[55] 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.
[56] Mandwale, A., & Mulani, A. O. (2016). Implementation of High Speed Viterbi Decoder using FPGA. International Journal of Engineering Research & Technology, IJERT.
[57] 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.
[58] Shinde, R., & Mulani, A. O. (2015). Analysis of Biomedical Image ‖ . International Journal on Recent & Innovative trend in technology (IJRITT).
[59] Sawant, R. A., & Mulani, A. O. (2022). Automatic PCB Track Design Machine. International Journal of Innovative Science and Research Technology, 7(9).
[60] 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).
[61] Gadade, B., Mulani, A. O., & Harale, A. D. (2024). Iot based smart school bus and student monitoring system. Naturalista Campano, 28(1), 730-737.
[62] 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.
[63] Salunkhe, D. S. S., & Mulani, D. A. O. (2024). Solar Mount Design Using High-Density Polyethylene. NATURALISTA CAMPANO, 28(1).
[64] 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.

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

[65] 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.
[66] 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.
[67] 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.
[68] Godse, A. P. A.O. Mulani (2009). Embedded Systems (First Edition).
[69] 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.
[70] 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.
[71] 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.
[72] 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.
[73] 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).
[74] 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.
[75] Pol, D. R. S. (2021). Cloud Based Memory Efficient Biometric Attendance System Using Face Recognition. Stochastic Modeling & Applications, 25(2).
[76] Nagtilak, M. A. G., Ulegaddi, M. S. N., Adat, M. A. S., & Mulani, A. O. (2021). Breast Cancer Prediction using Machine Learning.
[77] Rahul, G. G., & Mulani, A. O. (2016). Microcontroller Based Drip Irrigation System.
[78] 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.
[79] Mulani, A., & Mane, P. B. (2016). DWT based robust invisible watermarking. Scholars' Press.
[80] 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).
[81] 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).
[82] Altaf Osman Mulani, Electric Vehicle Parameters Estimation Using Web Portal, Recent Trends in Electronics & Communication Systems, Volume 10, Issue 3, 2023.
[83] 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.
[84] 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.
[85] 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.
[86] 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.

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

[87] 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.

[88] 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.

[89] 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.

[90] 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.

[91] 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.

[92] 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.

[93] 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.

[94] 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.

[95] 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.

[96] 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.

[97] 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.

[98] 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.

[99] 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.

[100] 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.

[101] 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.

[102] Karande, K. J., & Talbar, S. N. (2014). Independent component analysis of edge information for face recognition. Springer India.

[103] Karande, K. J., & Talbar, S. N. (2008). Face recognition under variation of pose and illumination using independent component analysis. ICGST-GVIP, ISSN.

[104] 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.

[105] 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.

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

[106] 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.
[107] 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
[108] 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.
[109] https://doi.org/10.15680/IJIRCCE.2018.0604036
[110] 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
[111] 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).
[112] 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
[113] 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
[114] 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.
[115] 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.
[116] 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.
[117] 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.
[118] 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.
[119] 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.
[120] 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.

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

[121] 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.
[122] Siddheshwar Gangonda and Prachi Mukherji, "Speech Processing for Marathi Numeral Recognition", International Conference on Recent Trends, Feb 2012, IOK COE, Pune.
[123] 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.
[124] 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.
[125] 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.
[126] Siddheshwar Gangonda and Prachi Mukherji, "Speech Processing for Marathi Numeral Recognition", ePGCON 2011, 26th April 2011 organized by MAEER's MIT, Kothrud, Pune-38.
[127] Siddheshwar Gangonda, "Medical Image Processing", Aavishkar-2K7, 17th and 18th March 2007 organized by Department of Electronics and Telecommunication Engineering, SVERI's COE, Pandharpur.
[128] Siddheshwar Gangonda, "Image enhancement & Denoising", VISION 2k7, 28th Feb-2nd March 2007 organized by M.T.E. Society's Walchand College of Engineering, Sangli.
[129] Siddheshwar Gangonda, "Electromagnetic interference & compatibility" KSHITIJ 2k6, 23rd and 24th Sept. 2006 organized by Department of Mechanical Engineering, SVERI's COE, Pandharpur.
[130] 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
[131] 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.
[132] 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.
[133] 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.
[134] 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.
[135] 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.
[136] 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.
[137] A. C. Pise, et. al., "Python Algorithm to Estimate Range of Electrical Vehicle", Web of Science, Vol 21, No 1 (2022) December 2022
[138] 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).
[139] 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.
[140] 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

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

[141] 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.
[142] 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.
[143] 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.
[144] 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
[145] A. C. Pise, et. al., "Adaptive Noise Cancellation in Speech Signal", International Journal of Innovative Engg and Technology, 2017
[146] 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
[147] A. C. Pise, et. al.,"Review on Agricultural Plant Diseases Detection by Image Processing", ISSN 2278-62IX, IJLTET, Vol 7, Issue 1 May 2016
[148] A. C. Pise, et. al. "Segmentation of Retinal Images for Glaucoma Detection", International Journal of Engineering Research and Technology (06, June-2015).
[149] A. C. Pise, et. al. "Color Local Texture Features Based Face Recognition", International Journal of Innovations in Engineering and Technology(IJIET) , Dec. 2014
[150] 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.
[151] 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.
[152] 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
[153] 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.
[154] 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.
[155] 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.
[156] 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.
[157] A. C. Pise, et. al., "Facial Expression Recognition Using Facial Features," IEEE International Conference on Communication and Electronics Systems (ICCES 2018), October 2018.
[158] 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.
[159] 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.
[160] 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.

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

[161] 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.
[162] 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.
[163] 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.
[164] 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
[165] A. C. Pise, et. al. "Single Chip Solution For Multimode Robotic Control", Ist IEEE International Conferene on Computing Communication and Automation, 26-27 Feb2015.
[166] 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
[167] A. C. Pise, P. Bankar, "Face Recognition using Color Local Texture Features", International Conference on Electronics and Telecommunication, Electrical and Computer Engineering, Apr.2014.
[168] 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.
[169] 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.
[170] 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.
[171] 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.
[172] 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.
[173] 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.
[174] A. C. Pise, et. al. "Segmentation of Optic Disk and Optic Cup from retinal Images", ICEECMPE – Chennai, June 2015
[175] A. C. Pise, et. al. "Diseases Detection of Pomegranate Plant", IEEE Sponsored International conference on Computation of Power, Energy , April 2015.
[176] A. C. Pise, et. al. "Compensation Techniques for I/Q Imbalance in Direct-Conversion Receivers", Conference at SCOE, Pune 2010.
[177] 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
[178] A. C. Pise, et. al. "Compensation Techniques for I/Q Imbalance in Direct Conversion Receiver", Conference at PICT, Pune 2008.
[179] A. C. Pise, et. al. "I/Q Imbalance compensation Techniques in Direct Conversion Receiver ", Conference at DYCOE, Pune 2008.
[180] A. C. Pise, et. al. "DUCHA: A New Dual channel MAC protocol for Multihop Ad-Hoc Networks", Conference at SVCP, Pune 2007.
[181] Godase, V., Pawar, P., Nagane, S., & Kumbhar, S. (2024). Automatic railway horn system using node MCU. Journal of Control & Instrumentation, 15(1).
[182] 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.

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

[183] 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.
[184] 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.
[185] 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.
[186] Dange, R., Attar, E., Ghodake, P., & Godase, V. (2023). Smart agriculture automation using ESP8266 NodeMCU. J. Electron. Comput. Netw. Appl. Math, (35), 1-9.
[187] Godase, V. (2025). Optimized Algorithm for Face Recognition using Deepface and Multi-task Cascaded Convolutional Network (MTCNN). Optimum Science Journal.
[188] Mane, V. G. A. L. K., & Gangonda, K. D. S. Pipeline Survey Robot.
[189] 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.
[190] Godase, V., & Jagadale, A. (2019). Three element control using PLC, PID & SCADA interface. International Journal for Scientific Research & Development, 7(2), 1105-1109.
[191] 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.
[192] 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.
[193] Godase, V. (2025). Comparative study of ladder logic and structured text programming for PLC. Available at SSRN 5383802.
[194] 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.
[195] Godase, V. (2025). Smart energy management in manufacturing plants using PLC and SCADA. Advance Research in Power Electronics and Devices, 2(2), 14-24.
[196] 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.
[197] Godase, V. (2025). Graphene-Based Nano-Antennas for Terahertz Communication. International Journal of Digital Electronics and Microprocessor Technology, 1(2), 1-14.
[198] 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.
[199] 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.
[200] 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.
[201] 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.
[202] 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.
[203] 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.
[204] 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.

[205] 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.
[206] Nagane, M.S., Pawar, M.P., & Godase, P.V. (2022). Cinematica Sentiment Analysis. Journal of Image Processing and Intelligent Remote Sensing.
[207] Godase, V.V. (2025). Tools of Research. SSRN Electronic Journal.
[208] Godase, V. (n.d.). EDUCATION AS EMPOWERMENT: THE KEY TO WOMEN'S SOCIO ECONOMIC DEVELOPMENT. Women Empowerment and Development, 174–179.
[209] 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).
[210] 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).
[211] Dhope, V. (2024). SMART PLANT MONITORING SYSTEM. In International Journal of Creative Research Thoughts (IJCRT). https://www.ijcrt.org
[212] 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
[213] 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
[214] 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
[215] 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.
[216] 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.
[217] 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
[218] 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
[219] 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
[220] 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
[221] 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
[222] 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
[223] 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.

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

[224] 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.
[225] 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.
[226] 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.
[227] 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