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Enhancing Campus Efficiency

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ABSTRACT

Resource management is critical in today's rapidly evolving learning environment. This article provides an in-depth look at the importance of student resource management (SUMS) in improving resource use in schools. Examining the changing role of SUMS in promoting sustainability, improving school performance and promoting environmental responsibility, this research reveals the various benefits of using these systems. Through a comprehensive review of existing literature and curriculum, this article highlights SUMS's evolution in maximizing the student experience, minimizing the costs of running a business, and promoting a culture of conservation. In addition, it also explores the challenges and opportunities associated with the adoption and integration of SUMS in various academic.

I. INTRODUCTION

In today's education system, effective resource management is important for schools around the world. As sustainability becomes an increasingly complex issue, colleges and universities are being forced to re-evaluate their operational strategies to become more environmentally responsible and in today's educational environment, exploring its many benefits, challenges and impact points. Through in-depth analysis of existing literature, case studies, and proposed strategies, this study aims to visualize the development of SUMS in supported living to succeed in schools, improve academic skills, and contribute to study and conservation goals. Additionally, this article will examine the changing role of SUMS in meeting the needs of schools, particularly in terms of increasing enrollment, expanding campuses, and improving

By evaluating practical strategies, technological developments and best practices related to SUMS, this study aims to provide a better understanding to managers, academics, policy makers and stakeholders committed to resource development and environmental responsibility.

II. UNDERSTANDING STUDENT MANAGEMENT SYSTEMS (SUMS)

To fully understand the Student Management System (SUMS), here is some useful information and documentation:

Definition: SUMS is a software platform or organization designed to monitor, analyze and manage energy use in education. Basically electricity, water, heating and cooling.

Market Growth: The global energy management market, including building systems for schools, is expected to grow. Market Research. The market is expected to grow at a compound annual growth rate (CAGR) of 18.1% from 2019 to 2025, reaching $109.8 billion by 2025, according to a report by Copy Future.

Adoption Rate: Although specific data regarding the adoption of SUMS in schools varies, there is a global trend towards using this system. Many colleges and universities recognize the importance of resource management to achieve sustainability goals and cost savings.

Cost Savings: Using SUMS can be very beneficial for schools. According to the Environmental Protection Agency (EPA), schools can save an average of 30% on energy costs thanks to energy management practices supported by SUMS.

Environment: The energy saving and management system supported by SUMS makes a significant contribution to reducing the carbon footprint of schools. For example, the University of California at Irvine reported a 20% reduction in energy consumption per square meter after using SUMS.

Behavior Change: SUMS often includes features and resources that support students and teachers to change energy-related behaviors. Real-time analytics and strategic feedback encourage users to adopt better behaviors, resulting in additional cost savings.

Technical components: SUMS mainly consists of hardware devices such as smart meters, sensors and data loggers and a software platform for data analysis, visualization and reporting. Cloudbased solutions have become popular due to their scalability and accessibility.

Integration with Building Management: SUMS often integrates with existing Building Management Systems (BMS) to optimize energy use. This integration allows for coordinated control of HVAC systems, lighting, and other home appliances based on instantly understandable information.

Regulatory Compliance: SUMS can help schools comply with regulations regarding energy and resource use and reporting of project plans. This includes requirements such as Energy Star certification and LEED (Leadership in Energy and Environmental Design) certification. Student Engagement: Many SUMS initiatives engage students through programs, competitions and partnerships. This participation not only increases awareness of sustainability issues, but also enables students to become advocates for energy conservation in their communities.

III. The Importance of Sustainable Resource Management in Higher Education

Culture transformation catalyst: Sustainable resource management in higher education is a catalyst for culture transformation that reshapes institutional values, attitudes and structures to create environmental awareness and leadership. It represents a shift from traditional resource development to management thinking to create a healthy school culture that permeates learning, work and public spaces.

Integration of Environmental, Economic and Social Goals: Sustainable Resource Management Higher education has the integration of environmental, economic and social goals to improve resource use and improve overall organizational performance. It aims to balance ecological justice, economic sustainability and social harmony and recognizes the interaction between environment, economy and society in the school ecosystem.

The changing process of continuous improvement: The management of sustainable resources in higher education is the changing process of continuous improvement, factors characterized by evaluation, planning, implementation and repetition of evaluation. By embracing flexibility, innovation and learning, it enables organizations to respond to environmental changes, technological advances and stakeholder expectations as they seek to achieve better results.

Advancing Ethical Leadership and Global Citizenship: Sustainable Resource Management in Higher Education is a platform to educate ethical leadership and global citizenship, creating responsible and caring citizens. Committed to solving environmental, health and financial problems. By instilling values of justice, understanding, and solidarity, it empowers students, faculty, and staff to become agents of change and outspoken strategies for sustainability in their communities and beyond.

IV. Composition and Properties Of SUMS

Metering Infrastructure: SUMS generally includes metering infrastructure that includes smart meters, submeters, sensors and data loggers installed in school facilities. This device captures real-time data on electricity, water, gas, heating and cooling usage, providing detailed information about usage patterns and trends.

Data collection and aggregation: SUMS collects, aggregates and stores service data obtained from measurement processes in a central storage or cloud-based platform. The data collection process will include periodic data collection, modeling and validation to ensure accuracy and reliability.

Data Analysis and Visualization: SUMS includes powerful data analysis and visualization tools that enable users to interpret data effectively. Graphical dashboards, charts and reports support informed decision-making and performance monitoring by providing graphical representations of consumption, shortages and metrics.

Benchmarking and Performance Metrics: SUMS enables the use of electronic products based on historical data, business models and partner organizations. Performance indicators such as energy consumption (e.g. kWh/m2) ft.), water efficiency (i.e. gallons per student) and carbon emissions per capita, and helps schools measure performance and track progress toward goals.

Billing and Distribution: In many rental buildings or schools, SUMS facilitates the accurate payment and distribution process. The billing system calculates energy costs based on actual usage data, ensuring fairness and transparency and encouraging individual responsibility in resource use.

Demand Forecasting and Predictive Analytics: SUMS Advanced includes demand forecasting models and predictive analytics techniques to forecast future utility demand, analyze resource savings, and improve resource allocation. These resources help organizations manage their energy needs, minimize heavy usage, and avoid excessive expenses.

Warnings and Alarms: SUMS includes alerts and alarms that first alert users to bad patterns, equipment malfunctions, or deviations from baseline. Push notifications via email, SMS or mobile phone show interruptions in time, allowing problems to be resolved quickly and preventing power outages or equipment downtime.

Remote monitoring and control: Some SUMS provide remote monitoring and control, allowing users to access and manage ancillary data from anywhere in web-based or mobile applications. Remote monitoring provides real-time monitoring, troubleshooting and optimization without the need for a physical presence.

Integration with Building Management Systems (BMS): SUMS often integrates with existing Building Management Systems (BMS) to manage HVAC, lighting and other building functions in real time based on electronic data.

Integration enables demand response, transportation and energy optimization strategies to increase efficiency and comfort while reducing costs.

User Engagement and Education: SUMS includes user engagement tools such as educational resources, energy saving tips, and behavioral strategies to promote energy conservation, energy, and awareness of the safety of students, faculty, and staff. Gamification content, competitions and rewards programs can encourage sustainable behavior and foster a culture of caring for the environment.

V. Benefits of Using SUMS In Schools Cost Savings

SUMS allows schools to identify inefficiencies and cost savings in energy use. By monitoring energy, water and other uses in real time, organizations can implement conservation plans to reduce waste and reduce energy costs, resulting in cost savings over time.

Environmental Sustainability: SUMS promotes sustainability measures that promote efficient resource management and reduce environmental impact. By increasing energy efficiency, reducing water use and reducing carbon emissions, schools help protect the environment and demonstrate their commitment to sustainability.

Data-Driven Decisions: SUMS provides valuable information that allows managers to make informed decisions about resource allocation, real estate investments and sustainability measures. By analyzing usage patterns, identifying trends, and monitoring performance metrics, organizations can improve performance, make critical investment decisions, and identify trends that target success.

Attitude Change: SUMS supports students, faculty and staff by promoting awareness of resource conservation and encouraging behavior change behavior. Through immediate counselling, educational events and incentives, SUMS encourages people to adopt energy-saving practices, reduce waste and contribute to a culture of school safety.

Education: SUMS provides educational opportunities for students to learn about energy management, safety standards and data analysis.

By incorporating SUMS data into classrooms, research projects, and work-study programs, schools can increase student engagement, critical thinking, and experience ready to work in related fields.

Efficiency: SUMS increases operational efficiency by simplifying the energy management process, reducing administrative burdens and reoptimizing resource allocation. Automated meter reading, billing and crime prevention capabilities allow organizations to streamline their operations, reduce errors and allocate resources more efficiently.

Reducing Risk: SUMS helps schools reduce the risks associated with energy use, such as overuse, equipment failure and management error, and comply with the law. By identifying vulnerabilities, identifying potential problems, and implementing effective maintenance measures, organizations can reduce downtime, prevent waste, and increase availability.

Community Engagement: SUMS encourages community engagement and stakeholder engagement in supporting initiatives and decision-making processes through student engagement. faculty and staff. By improving transparency, accountability and collaboration, SUMS promotes good relations with the local community, builds trust and enhances the company's reputation as a leader in security.

Regulatory Compliance: SUMS helps schools comply with energy mandates, greenhouse gas emissions and safety standards. By maintaining accurate data, tracking performance metrics, and implementing best practices, organizations can comply with regulatory requirements and be recognized for their performance.

Long-Term Sustainability: SUMS supports the long-term sustainability of schools by increasing efficiency, reducing costs and promoting sustainability goals. By investing in sustainable infrastructure and practices, organizations can prepare for future success, competence, competitiveness and environmental awareness in an increasingly competitive world.

VI. Difficulties and Problems in Using SUMS Initial investment cost

One of the most important issues is the initial investment required to install the SUMS infrastructure, which includes smart meters, sensors, data loggers and software platforms. Schools will primarily face budgeting and competitive issues, making it difficult to allocate money to SUMS.

Integration Complexity: Integrating SUMS with existing building management systems (BMS), utilities, and school systems can be complex and time-consuming. Social issues, competing data, and possible limitations require the ability to coordinate and collaborate among many people involved.

Privacy and Security Policy: SUMS collects electronic data without compromising data privacy and security concerns and complies with the Privacy Policy, General Data Protection Regulation (GDPR), Family Educational Rights and Privacy Act (FERPA) and other regulations. Organizations must use strong data protection, access control and encryption techniques to prevent unauthorized access, leakage and misuse of data.

User Resistance and Behavior Change: Resistance to change and lack of user participation causes serious problems for the success of SUMS. Students, faculty, and staff may not be willing to accept new technologies, change behaviors, or participate in energy-saving projects; this could impact SUMS's outcomes in achieving the Sustainable Development Goals. **Serving People with Limited Resources**: Lack of support - Engagement and support from key stakeholders, including administrators, teachers, take-home principals, and students, can impact SUMS efforts. Legislators' opposition, preventative challenges, and doubts about the benefits of SUMS can hinder progress and make development plans unsustainable.

Technical Challenges and Maintenance Issues: Technical challenges such as system outages, software glitches, and hardware failures can hinder progress and harm the sustainability plan. It impacts SUMS operations and affects the accuracy and reliability of data. To ensure the long-term and efficient operation of SUMS, organizations must allocate resources for ongoing maintenance, troubleshooting, and system upgrades.

Training and capacity building: Appropriate training and capacity building are crucial to supporting SUMS and ensuring users benefit from resources and data understanding. However, limited resources, time constraints, and lack of expertise can hinder training efforts and negatively impact user experience and quality. **Legislation and Administration**: Administrative regulations such as energy regulations, regulatory requirements and bureaucratic procedures can pose obstacles to implementation. Organizations must meet regulatory requirements, obtain appropriate approvals, and address legal considerations and commitments to ensure compliance and mitigate risk.

Measuring and Demonstrating ROI: Determining Return on Investment (ROI) and measuring the results of using SUMS can be difficult due to the complexity of security measures, long-term payback, and competition from low prices. Organizations must develop robust assessments, performance indicators, and reporting systems to track progress and effectively communicate SUMS to stakeholders.

Savings and Scalability: Using SUMS in large and distributed organizations poses scalability challenges, including infrastructure, data management scalability, and enterprise scalability. While managing operations and operations is good, organizations need to plan strategies, prioritize distribution areas, and implement solutions to accommodate future growth and expansion.

VII. Strategies to Overcome Sums Career Challenges

Comprehensive needs assessment: Conduct a needs assessment to identify specific issues, priorities, and opportunities related to energy management and security in schools. Engage with stakeholders from various departments including property management, finance, administration, and student organizations to gather ideas and insights.

Setting Goals: Set clear and measurable goals for using SUMS that are aligned with the organization's sustainability goals, operational priorities, and budget constraints. Develop key performance indicators (KPIs) to track progress and evaluate the effectiveness of SUMS in achieving desired results.

Building strong stakeholder engagement: Facilitating collaboration and building strong stakeholder engagement, including leadership leaders, teachers, students, house leaders, IT professionals, and advocates. Involve stakeholders early in the planning process, solicit input and address concerns to ensure support and buy-in throughout implementation.

Financial Security and Support: Enhance the overall budget and financial security for the SUMS implementation, including capital investment, operating expenses, and ongoing maintenance costs. Explore financing options, grants, incentives, and partnerships with utility companies, government agencies, and private organizations to support the facility.

Prioritize data privacy and security: Use strong data privacy and security measures to protect electronic data accessible through SUMS. Establish policies, procedures, and processes consistent with industry standards and regulations for data access, storage, transfer, and destruction. Provide training and awareness services to meet data protection requirements.

Encourage user engagement and education: User engagement and education before we begin to increase awareness, acceptance, and use of SUMS by students, faculty, and staff. Develop appropriate communication strategies, training plans and training to equip users with the knowledge and skills required to use SUMS to achieve sustainable development and cost savings.

Working to solve competitive problems: Anticipate and solve business problems by taking the right activities to test, experiment and put together first before presenting to the whole. Work with vendors, consultants, and IT professionals to resolve issues, resolve relationship issues, and ensure reliability and functionality of the SUMS infrastructure and software platform.

Establish governance and accountability: Establish governance structures with clear roles, responsibilities, and accountability for SUMS implementation and management control. Define decision-making processes, monitoring processes, and escalation processes to promote collaboration, collaboration, and accountability among stakeholders.

Monitor progress and improvement strategies: Use effective monitoring, evaluation, and feedback strategies to monitor progress, identify problems, and refine ideas to fit. Regularly review performance metrics, user feedback, and lessons learned to make informed decisions, refine strategies, and solve problems—and try it now.

Celebrate and share best practices: Recognize and celebrate achievements, milestones and achievements in the use of SUMS to empower partners and foster a culture of improvement and innovation. Share internal and external best practices, success stories, and lessons learned to inspire others, build momentum, and encourage greater use of leadership style in higher education.

VIII. Social and Environmental Impacts of SUMS

Energy conservation and energy conservation: SUMS provides real-time monitoring, analysis and management of energy use, allowing students, teachers and employees to adopt energy-saving behaviors and reduce resource waste. This reduces energy consumption, water consumption and waste production; This leads to environmental benefits such as lower carbon emissions, reduced ecological footprint and conservation of natural resources.

Attitude Change and Awareness: SUMS increases awareness of security issues and promotes positive behavior change by engaging with user feedback strategies, training programs and behavioral interventions. SUMS promotes a culture of environmental care, responsibility and social awareness in school by empowering people to make informed decisions and implement sustainable practices.

Cost Savings and Financial Security: Using SUMS allows schools to achieve cost savings by increasing resources, efficiency and reducing energy costs. These savings can be reinvested in education, student services, and infrastructure improvements.

Education and Skills Development: SUMS provides valuable opportunities to provide students with educational opportunities to learn about energy management, sustainable development security and data analysis. By integrating SUMS data into curricula, research studies, and educational research, schools can improve student engagement, thinking skills, and planning work in business support, preparing them for future managers and professionals.

Community Involvement and Partnerships: SUMS encourages community involvement by including students, faculty, staff, and external influence from stakeholders in the promotion process and decision-making. By collaborating and publicizing projects and school events, organizations foster relationships with the local community, build trust and enhance the school's reputation as a sustainable leader, leading to positive social impact and community development.

Data-driven decision-making and innovation: SUMS provides useful information to inform decision-making, resource allocation and planning to increase efficiency in school. By analyzing usage patterns, identifying trends, and measuring performance indicators, organizations can identify improvement opportunities, implement response plans, and foster innovations in energy management and sustainability practices.

IX. Future Trends and Innovations in SUMS Technology

Integration of artificial intelligence (AI) and machine learning: In the future, SUMS can use artificial intelligence and machine learning algorithms to analyze large amounts of data from electronic meters, electricity meters and other places. Powered by AI, SUMS can identify patterns, predict trends, and provide insights to optimize resources, investigate vulnerabilities, and leverage resources.8 energy savings.

Predictive Analytics for Demand Forecasting: SUMS uses historical data, weather patterns, location, etc. It can be combined with analytical models to predict future electricity consumption based on Predictive algorithms can help organizations manage energy use, predict peak demand times, and improve resource allocation to reduce costs and reduce environmental impact.

Integration of the Internet of Things (IoT): The growth of IoT devices and sensors will enable SUMS to instantly collect data from a variety of sources, including smart devices, embedded sensors, and home automation systems. IoT-enabled SUMS can provide a comprehensive view of energy use in schools, facilitate remote monitoring and control, and facilitate integration with other technologies.

Blockchain provides data security and transparency: Blockchain technology provides a secure and transparent platform for managing and sharing information used in SUMS. By using blockchain technology, SUMS can increase information security, protect privacy and facilitate exchange between stakeholders, thus promoting trust and Responsibility in energy management processes. **Virtual and Augmented Reality (VR/AR) for User Engagement**: In the future, SUMS can use VR/AR technology to improve user engagement and learn about energy conservation and sustainable development. VR/AR simulations provide experiential, interactive, and virtual tours of the energy school, allowing users to understand energy management and take action to stabilize behavior. **Gamification and incentive programs**: SUMS may include gamification content and incentives to encourage users to reduce energy consumption and participate in sustainability measures. Practice games, leaderboards, and valuable prizes can encourage friendly competition, encourage community involvement, and encourage positive behavior among students, teachers, teachers, and staff.

Overall, the future of Student Utility Management Systems (SUMS) is characterized by innovation, integration, and collaboration, as institutions seek to harness the power of technology to advance sustainability goals, optimize resource management, and create greener and more resilient campuses.

X. Segmentation Method

As universities prioritize efficiency and effectiveness, student resource management systems (SUMS) are an important tool in achieving these goals. SUMS has a commitment to the future in higher education, underpinned by an increased commitment to technology, innovation and environmental stewardship. Looking ahead, SUMS is ready to play an important role in the development of the school in the future. SUMS will transform into a platform that can instantly analyze big data, approximate information and improve business management by using new technologies such as artificial intelligence, machine learning and the Internet of Things. These advances will enable organizations to make informed decisions that reduce waste and reduce environmental impact while improving performance and financial stability. In addition, SUMS's future in higher education is not limited to energy use and management, but also includes school-wide consideration of sustainability and change. SUMS will be integrated with other smart devices such as building automation systems, renewable energy and waste management solutions to create a connected and functional campus ecosystem. This integration will enable organizations to achieve their sustainability goals by reducing carbon emissions and conserving natural resources to promote sustainable lifestyles and promote leadership in environmental stewardship. Beyond technological innovation, SUMS's future in higher education will be associated with collaboration, community engagement and competence. Organizations will work together to share best practices, lessons learned, and data insights to foster collaboration and achieve common goals. Students, faculty, staff and external stakeholders will play a key role in shaping the future of SUMS, providing advice, expertise and resources, focusing on motivational support and decision-making.

Consequently, the future of higher education at SUMS has great potential to transform the school into a model of sustainability, innovation and reemployment. By supporting new technologies, encouraging collaboration, and empowering stakeholders, organizations can leverage the power of SUMS to create greener, smarter, and more productive schools that benefit future generations. As we begin our journey towards a sustainable future, SUMS will continue to be an important tool in the pursuit of environmental stewardship, quality education and accountability in higher education.

XI. Conclusion

The integration of Student Utility Management Systems (SUMS) within educational institutions marks a significant step toward sustainable resource management and operational efficiency. By leveraging advanced technologies such as smart meters, sensors, data analysis, and visualization tools, SUMS provides a comprehensive solution to monitor and optimize resource usage in real time. This system not only promotes cost savings and environmental sustainability but also fosters a culture of conservation and responsibility among students, faculty, and staff.

SUMS offers numerous benefits, including enhanced data-driven decision-making, increased operational efficiency, and improved regulatory compliance. It empowers educational institutions to track and manage energy consumption, reduce waste, and lower carbon emissions, contributing to a more sustainable future. Additionally, SUMS supports educational initiatives by providing students with practical learning opportunities related to energy management and sustainability, thus preparing them for future careers in these fields.

However, the implementation of SUMS comes with challenges such as initial investment costs, integration complexity, privacy and security concerns, and the need for stakeholder engagement and user training. Addressing these challenges requires a strategic approach that includes comprehensive needs assessments, clear goal-setting, strong stakeholder engagement, and robust data privacy measures.

Looking ahead, the future of SUMS is characterized by continuous innovation and integration with emerging technologies such as artificial intelligence, machine learning, the Internet of Things (IoT), and blockchain. These advancements will further enhance the capabilities of SUMS, enabling predictive analytics, real-time monitoring, and secure data management. Additionally, the use of virtual and augmented reality, gamification, and incentive programs will boost user engagement and promote sustainable behaviors.

In conclusion, SUMS represents a transformative approach to resource management in educational institutions, driving efficiency, sustainability, and educational enrichment. By embracing these systems and continuously evolving with technological advancements, schools and universities can create greener, more resilient campuses that lead by example in sustainability and resource stewardship.

References

[1] Unmasking Embedded Text: A Deep Dive into Scene Image Analysis, Maheshwari, A., Ajmera.R., Dharamdasani D.K., 2023 International Conference on Advances in Computation, Communication and Information Technology, ICAICCIT 2023, 2023, pp. 1403–1408

[2] Internet of Things (IoT) Applications, Tools and Security Techniques, Kawatra, R., Dharamdasani, D.K., Ajmera, R,et.al. 2022 2nd International Conference on Advance Computing and Innovative Technologies in Engineering, ICACITE 2022, 2022, pp. 1633–1639
Pradeep Jha, Deepak Dembla & Widhi Dubey , "Implementation of Transfer Learning Based Ensemble Model using Image Processing for Detection of Potato and Bell Pepper Leaf Diseases", International Journal of Intelligent Systems and Applications in Engineering, 12(8s), 69–80, 2024.

[3] Gaurav Kumar Soni, Dinesh Yadav, Ashok Kumar, "Flexible and Wearable Antenna Design for Bluetooth and Wi-Fi Application", International Journal of Electrical and Electronics Research, Vol. 12, Special Issue –BDF, pp. 36-41, 2024.

[4] Pradeep Jha, Deepak Dembla & Widhi Dubey, "Deep learning models for enhancing potato leaf disease prediction: Implementation of transfer learning based stacking ensemble model", Multimedia Tools and Applications, Vol. 83, pp. 37839–37858, 2024.

[5] P. Upadhyay, K. K. Sharma, R. Dwivedi and P. Jha, "A Statistical Machine Learning Approach to Optimize Workload in Cloud Data Centre," 2023 7th International Conference on Computing Methodologies and Communication (ICCMC), Erode, India, 2023, pp. 276-280, doi: 10.1109/ICCMC56507.2023.10083957.

[6] Pradeep Jha, Deepak Dembla & Widhi Dubey , "Crop Disease Detection and Classification Using Deep Learning-Based Classifier Algorithm", Emerging Trends in Expert Applications and Security. ICETEAS 2023. Lecture Notes in Networks and Systems, vol 682, pp. 227-237, 2023.

[7] P. Jha, D. Dembla and W. Dubey, "Comparative Analysis of Crop Diseases Detection Using Machine Learning Algorithm," 2023 Third International Conference on Artificial Intelligence and Smart Energy (ICAIS), Coimbatore, India, 2023, pp. 569-574, doi: 10.1109/ICAIS56108.2023.10073831.

[8] S. Sharma, D. Yadav, G. K. Soni and G. Shankar, "Operational Transconductance Amplifier for Bluetooth/WiFi Applications Using CMOS Technology," 2024 International Conference on Integrated Circuits and Communication Systems (ICICACS), pp. 1-4, 2024. doi: 10.1109/ICICACS60521.2024.10499107.

[9] P. Jha, R. Baranwal, Monika and N. K. Tiwari, "Protection of User's Data in IOT," 2022 Second International Conference on Artificial Intelligence and Smart Energy (ICAIS), Coimbatore, India, 2022, pp. 1292-1297, doi: 10.1109/ICAIS53314.2022.9742970.

[10] Gori Shankar, Vijaydeep Gupta, Gaurav Kumar Soni, Bharat Bhushan Jain and Pradeep kumar Jangid, "OTA for WLAN WiFi Application Using CMOS 90nm Technology", International Journal of Intelligent Systems and Applications in Engineering (IJISAE), vol. 10, no. 1(s), pp. 230-233, 2022.

[11] K. Gautam, V. K. Jain and S. S. Verma, "Identifying the Suspected node in vehicular communication using Machine Learning Approach," in Test Engineering and Management Journal, vol. 83, pp. 23554-23561, April 2020.

[12] P. Jha, T. Biswas, U. Sagar and K. Ahuja, "Prediction with ML paradigm in Healthcare System," 2021 Second International Conference on Electronics and Sustainable Communication Systems (ICESC), Coimbatore, India, 2021, pp. 1334-1342, doi: 10.1109/ICESC51422.2021.9532752.

[13] Mehra, M., Jha, P., Arora, H., Verma, K., Singh, H. (2022). Salesforce Vaccine for Real-Time Service in Cloud. In: Shakya, S., Balas, V.E., Kamolphiwong, S., Du, KL. (eds) Sentimental Analysis and Deep Learning. Advances in Intelligent Systems and Computing, vol 1408. Springer, Singapore. https://doi.org/10.1007/978-981-16-5157-1_78

[14] K. Gautam, A. K. Sharma, K. Kanhaiya and J. Dabass, "Temperature Measurement Using Fiber Bragg Grating Sensor for Industrial Applications" in International Journal of Current Research in Embedded System & VLSI Technology (Eureka Journals), vol. 7, no. 1, pp. 26-36, July 2022. http://stm.eurekajournals.com/index.php/IJCRESVT/article/view/177/185.

[15] G. K. Soni, D. Yadav, A. Kumar and L. Sharma, "Flexible Antenna Design for Wearable IoT Devices," IEEE 2023 3rd International Conference on Technological Advancements in Computational Sciences (ICTACS), Tashkent, Uzbekistan, pp. 863-867, 2023.

[16] Gaur, P., Vashistha, S., Jha, P. (2023). Twitter Sentiment Analysis Using Naive Bayes-Based Machine Learning Technique. In: Shakya, S., Du, KL., Ntalianis, K. (eds) Sentiment Analysis and Deep Learning. Advances in Intelligent Systems and Computing, vol 1432. Springer, Singapore. https://doi.org/10.1007/978-981-19-5443-6_27

[17] Babita Jain, Gaurav Soni, Shruti Thapar, M Rao, "A Review on Routing Protocol of MANET with its Characteristics, Applications and Issues", International Journal of Early Childhood Special Education, Vol. 14, Issue. 5, pp. 2950-2956, 2022.

[18] K. Gautam, S. K. Yadav, K. Kanhaiya and S. Sharma, "Hybrid Software Development Model Outcomes for In-House IT Team in the Manufacturing Industry" in International Journal of Information Technology Insights & Transformations (Eureka Journals), vol. 6, no. 1, pp. 1-10, May 2022. http://technology.eurekajournals.com/index.php/IJITIT/article/view/711/841.

[19] Akash Rawat, Gaurav Kumar Soni, Dinesh Yadav and Manish Tiwari, "High Gain Multiband Microstrip Patch Antenna for mmWave 5G Communication", Optical and Wireless Technologies SpringerLecture Notes in Electrical Engineering, vol. 892, pp. 299-305, 2023.

[20] P. Jha, D. Dembla and W. Dubey, "Implementation of Machine Learning Classification Algorithm Based on Ensemble Learning for Detection of Vegetable Crops Disease", International Journal of Advanced Computer Science and Applications, Vol. 15, No. 1, pp. 584-594, 2024.

[21] A. Agarwal, R. Joshi, H. Arora and R. Kaushik, "Privacy and Security of Healthcare Data in Cloud based on the Blockchain Technology," 2023 7th International Conference on Computing Methodologies and Communication (ICCMC), Erode, India, 2023, pp. 87-92.