



# An intellectual procurement innovation of smart grid power system with wireless communication networks based on machine learning

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## Abstract

The phased array antenna is one of the most significant applications in fifth-generation mobile networks. It is one of the most important applications in fifth-generation networks. An electric power source that powers the whole application, including the antenna's root, is required. Even with the most outstanding design, if the programme does not have a sound power supply system with minimal packet loss and cant Path find performance, it will be rendered ineffective. When seen from the perspective of the multiplex information, Machine Learning comprises a communication network based on the Internet that transmits information to the control centre via the objects (IOT). To put it another way, the proposed communication infrastructure, via the provision of, and the chance micro-grid state to collect, analyze, and two-way communication link control information, offers the chance to resolve the voltage regulation issues. This cutting-edge communication infrastructure, as well as a suggested state estimation filter focused on improving speed and performance in renewable energy production, are both examples of creative communication infrastructure. Current research is focused on analyzing and enumerating a range of energy abundances in the context of smart grids, which are now in their fifth generation. Rather than concentrating on the future development plan, which should be a problem of illusion, it should concentrate on the composition of the future potential of smart grid communications framework. An in-depth investigation to give evidence to the Machine learning will help intelligent networks in the future conduct a thorough evaluation.

*Keywords:* Internet of things (IoT), Machine learning, communication infrastructure provides, Smart grid power supply system

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## 1. Introduction

Nevertheless, the strategy for dealing with unpredictability and power management due to operational and dependency and the weather of the significant technological difficulties is shown. As a result, an undesirable voltage level at the point of standard coupling may occur regularly. To comply with this heuristic, the regulator should be placed at a specified location along with the feed line distribution system. It is interesting to note that two-way communication between the intelligent smart microgrid and the control centre may alleviate voltage regulation issues. One of the critical concepts of this intelligent energy management system is that those things (IoT) may be utilized in parallel to maintain the secrecy of acceptable security and information distribution while also providing smooth interoperability and wide-ranging capabilities. Yes, there is an Internet connection. Remote communication is increasingly common for various reasons, and wired interchange, which has a lower cost of interest rates, will consistently improve the quality of a specific application, for example. Even in distant locations, members of the Association are provided with prompt access to the upgrading framework.

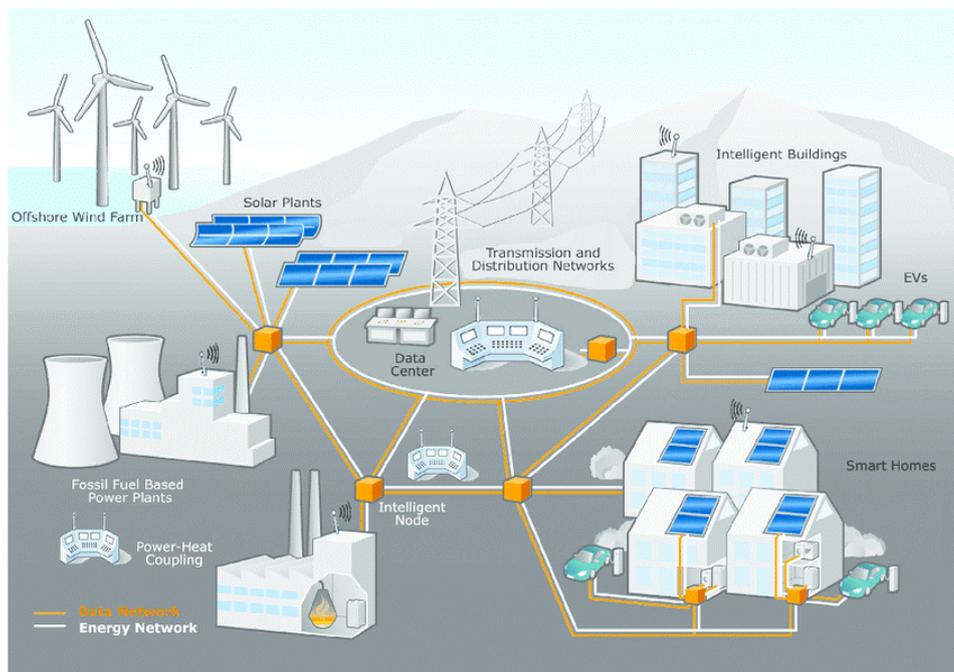


Figure 1: Smart grid power supply chain diagram

Above Figure 1: Things to Look At To build a seamless global communication platform, you may combine various devices and technologies into a single platform architecture. Intelligent sensors, an intelligent system, an intelligent processor, and the green of a smart sensing device, all of which are present in the digital world, are examples of this kind. Fifth-generation (5G) network infrastructure, which will serve as the vision of the future of possible help from things, will be required to accomplish this goal. It will be necessary to deploy Machine learning to support various features and capabilities that will enable intelligent nodes in a multi-tier architecture. The new facility, security, and high data rate services provided by technology make it possible to fulfil the dreams of each individual and gadget. It is feasible to correctly predict the state (SE) and conduct real-time monitoring of a significant renewable energy region using ICT infrastructure based on the smart grid, intermittent intelligent remote from the central unit in the distribution system's distant areas.

Lazy fall is followed by the integration limit information rate increase, followed by the quality of assistance. When questioned, According to a Navigant study, the 5G communication system, in addition to being fully compliant, is being recognized by an increasing number of individuals. For many of the primary concerns that need consideration, such as the many difficulties of cost and power

consumption of the survey application, it is necessary to offer a more prominent stage. To create a more important scale using Machine learning, you must first activate the fourth contemporary revolt. As the rest of the world keeps an eye on things, it provides the inevitable trade unions with an opportunity to monitor the firm's growth and growth of the communication system, starting from the very beginning and continuing to the fourth generation. Currently, there is much advancement far away from their original location, such as symmetrical relapse Division success. Most people are fresh out of the new leader's office and the box of re-use of recurrence. As a result of this growth, there has been a fast growth of smart devices in daily life, which has increased in parallel. Earlier this month, new apps and the promotion and distribution of new business innovation providers on a broader scale were made available to the public.

When deciding on a legal and solid framework for communications, there are many factors to consider, such as the availability of operational expenses, environmental issues, and assets. The present new and enhanced distant communication infrastructure can develop in a way that is beneficial to the intelligent grid over time. It's manageable from a strategic distance, and it offers a framework for promoting the necessity to incur an extra energy expenditure. This will determine the future of the framework intelligence communication framework, which will have the most significant new communications technology innovation in the future. Even though it has been 40 years since the onset of the new machine age, the advancement of communication, of which one is a part, has become inextricably linked to the improvement of how to employ inexorably. It is necessary to strive for specific criteria while solving an issue, such as correctly planting seeds in a new generation of mobile communication.

As a first step, the uncertainty of a discrete linear system with multiple distributed energy microgrids is modelled as a consideration. This is coupled with the anticipation of a discrete linear system. Flexible and intelligent sensors and cost-effective deployment of DER are used to gather status information. In the office and utility substations that serve customers, there is a data architecture that addresses the needs of each organization inside the business. It is a clever substantial structure of square lattice deceivability that provides a reliable communications framework that provides the essential framework for the crucial inquiry to be carried out. Depending on the cable and the location of the remote junction, the communication requirements and a unique and creative communication packet may be affected.

## 2. Related work

The Internet of Things (IoT) is a network of physical objects that communicate through the Internet. What is more, they are similar across the board when it comes to enterprise concepts in the Internet sector. The Internet of things in nature and industry are both functioning with industrial and business management [19] and opening production. Some domestic and international industrial companies have begun constructing Internet networks and things (IoT) buildings [6] at their facilities. Several information and telecommunications companies have proposed solutions from various perspectives in programmes related to the Internet of Things. Traditional industry has proposed solutions from multiple perspectives in programmes such as "after the great cloud of objects" [32] new Promote ICT technology Aerospace Cloud Networks is constructing the industry's biggest Internet services platform. Via the use of an open network resource sharing platform [9], the company will help accelerate industrial ecology development in the aerospace sector.

Baidu announced an update intelligent cloud at the summit, launched nine new products, including 2.0 and the Internet of Things smart edge hardware [2], and announced a partnership with Microsoft to develop intelligent things. Furthermore, Baid Du provides insights into freight route planning, scheduling ROS and innovative design industry speakers business solutions, data intelligence [14] sectors, as well as a mapping perspective of space-time space-based services. After more than a decade of research, we have achieved a network application [5] for the power company on a large-scale basis. Terminals, such as data collecting terminals, 5 million or more sets of service access

network, to support the present management and operations, have reached the day terabytes, needs [15]. Additionally, utility firms and other familiar companies progressively develop data and business operations to create an enterprise-centric system of things, including medium-term business based on data and intermediate phases. This presentation is made to the [18] State Grid Corporation. The discussion of network planning and analysis encourages the range and kind of sensor technology installations that are becoming more in demand nearly everywhere in the real world. Because of the characteristics of the new sensor (low power, cheap cost, compact size) and its high sensitivity and integration capabilities, it can now be used to incorporate the new node into intelligent remote sensor networks applications [28]. A small node, a sensor, control electronics, a transmission unit, and other electronic equipment all need power in various ways, posing significant difficulties that require the development of a power supply appropriate for application situations [29].

As a result, this issue becomes significant. High levels of electromagnetic interference (EMI) noise, such as that caused by sparks and fire [8], pose a danger of explosion in other severe environments with high levels of electromagnetic radiation, such as those described above. They must preserve their economic and social worth, essential infrastructure in these regions on the need to enhance the security and resilience, and those they pay more attention if they do. This is true in the case of the power grid infrastructure. The presence of strong magnetic field local sources on the effect of the population on the health of the human potential's electromagnetic field is found near the city's centre [1]. Since deterioration of insulating frame is important in this hot climate, it is important to monitor the radiation level from the high voltage line to detect or generate a significant spark or short circuit, through the use of fibre optic technology power, which was first reported (safely), and which feeds the remote optical node [3] to improve the reliability of any IoT solution. As opposed to electrical counterparts, this technology makes use of fibre as a power supply line, which provides an electromagnetic field around an inherent immunity to avoid any conventional reducing EMI remote sensing node located on a different spatial power distribution technology used in the network, resulting in cost savings and [4].

Optical fibre for remote power supply makes the weight distribution of this remote sensor lower. The dielectric characteristics of the yarn make it safer to use since it prevents any sparks from forming. In addition, it enables any notion of a remote power alternative route configuration with the advantages mentioned above [7] programmes to be used in conjunction with them. As well as charging the battery, providing non-traditional hazards, ensuring service continuity and the elastic case, an autonomous operation of the sensor, or monitoring and providing Check the remote control node status for feedback channel [34], the remote node in the system may also charge the battery. These characteristics need consistency in today's Internet of Things solutions. In any scenario, additional electronic devices such as power sensors, processors, and innovative Internet of Things distant nodes [10] may be used to drive the photoelectric converter. It is used to cover a wide range of applications, including high-end adhering to the needs of IoT delivery while also offering optical power technology. [20] EMI environment for monitoring the temperature of fibre optic pyrometers using an antenna unit with high voltage and remote optical power is provided by the antenna unit. A single remote sensor was used in specific hazard protection applications or feeds, although most video surveillance systems applied to a single remote sensor. As well as serving as a location service for turbidity measurements in passive optical networks. It may also be utilized to monitor and manage the visual fibre connection in subsea acoustic power networks. According to specific designs, an assortment of feeds is provided by any sensor capable of giving feedback capabilities or a data communication connection to the transmitter. However, it does not solve the many issues [24] associated with the integrated method.

### 3. Materials and methods

Intelligent remote node monitoring and power management capabilities and autonomous operation of the system are being developed in parallel to enhance the overall efficiency of power trans-

mission in the system. Feeding a proof of concept node and power management and monitoring by an optical, which includes an integrated temperature sensor, a presence sensor, and an array of spark/fire detector development, as well as an integrated temperature sensor. Aside from that, we may infer from the experimental findings that the centralized system suggested by our analysis of the topological assumptions is scalable and that the power needs of various nodes are asymmetric.

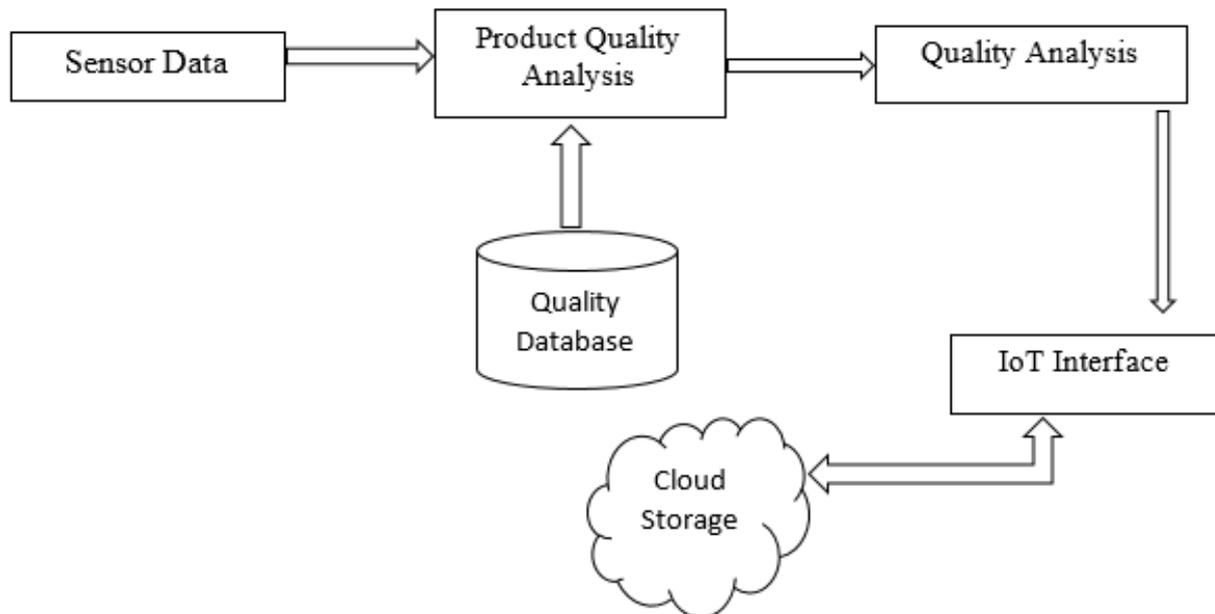


Figure 2: Intelligent procurement innovation diagram

Figure 2 illustrates a control transfer from a distant source via the energy in the energy collecting gadgets. It necessitates the use of hardware devices such as solar energy. So there is a greater need for information to manage the area of data communications and sustainable growth; yet, there is no such thing as "green communication." Scientists and businesses are putting up a tremendous effort to discover arrangements and techniques to allow for the most efficient use of green communications. 4G and 5G networks, as compared to the comparable Green Communications network, are operational only because of the transaction completed here. It is described in this article how the four most important strategies employed in the communication sector of Machine learning were audited. The following is mentioned throughout the remainder of the paper: green provides a short introduction to the first part of the message.

### 3.1. Product quality analysis

A large amount of genuine boot is required to transfer information between the interface area, which has two transmission routes, and the information provider's office. Security is the most important factor to consider, and smart metres and other resources have become more popular. Things that are physical objects and connected to a network for the sharing of technology and embedded intelligence interact with an external environment or internal state. Instead of emphasizing human communication, networking places a strong focus on machine-to-machine interaction.

### 3.2. Internet of things (IoT)

As each element of the Internet's speed and capacity continues to improve, the IoT (Internet of Things) opens the door to new possibilities in the market for new nodes, innovation, and innovation. This article discusses the importance of preserving items on which an electrical equipment monitoring system is built. An intelligent framework is now considered the most fundamental structure of many standard vitality methods in the worldwide fast growth of various nations. In this way, a suitable scholarly communications matrix of all power transmission frames is a vital region of the connection, and a generalized administration of the conveyance frame is used.

**Algorithm steps**

**Step1:** Initialize the input sensor node.

$$p_{ab} = ab_v + pb_r \dots \quad (1)$$

Here input source Packet and ab is every Path.

**Step2:** a Routing Path Analysis.

$$I_{rw} = r_{s0}, P_{c-} = -P_{s-1} \dots \quad (2)$$

**Step3:** find Sensor reaction.

$$I_{rw} = I_{s0}, P_c = 0, P_{c-} = P_{s-1} \dots \quad (3)$$

**Step4:** the Path finds Activity.

**Step5:** every Node segmentation in a module.

**Step6:** using IoT system in 5G technique in the output of Packet Transfer.

**3.3. Quality database**

When dealing with a particular situation, such as health and safety concerns combined with high dependability of the power transmission line, An Internet of Things device that does not have energy management but is capable of providing electronic proposals outside of the battery while simultaneously charging an intelligent sensor in the distant node is described. At long last, there is a shortage of solutions for doing a comprehensive analysis of remote nodes with various power needs for a variety of data formats. Machine learning in IoT accessible sites and distant nodes via an optical fibre to provide complex and noisy settings discussed expanding the Intelligent Electronic Design centralized system.

**4. Result and discussion**

For example, by fundamentally altering how electricity is generated, transmitted, and consumed, the smart grid allows for two-way power and information flow between the smart grid and the end-user.

Table 1: Lean image detection

Parameters	Value
Simulation Tool	NS 2
Transferring data	250
Data size	100mb
Network	5G

Table 1 shows the smart grid, in particular, will need to expand the traditional control and communications infrastructure to support the vast majority of the generation and transmission systems and all of the distribution networks and end-user locations to connect the entire supply chain of the industry. For this reason, bridges are being constructed across the globe to bridge the gap between two-way communication links between utilities and end customers.

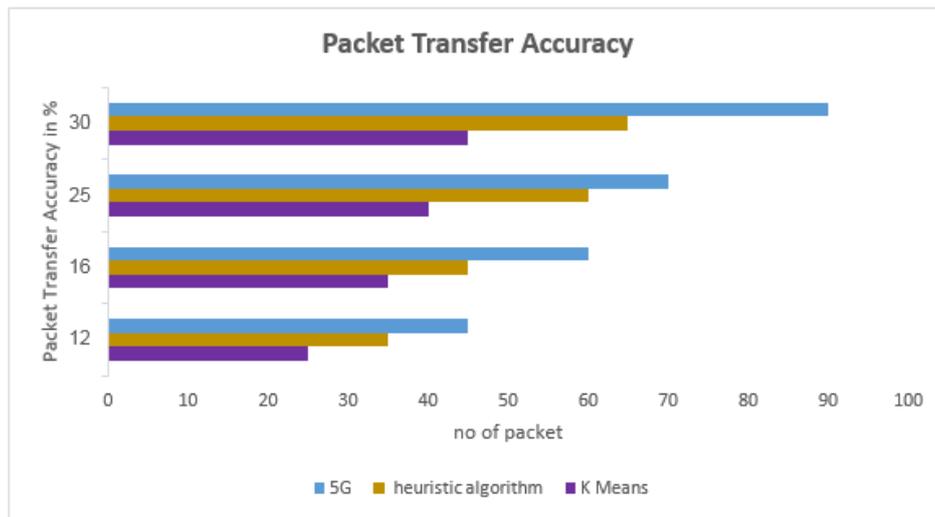


Figure 3: Packet Transfer Accuracy

#### 4.1. Packet transfer accuracy

Statistical methods and IOT are progressively being used to relieve these issues, collecting training data used to train the learning algorithm. A well-trained statistical way to determine if any given characteristic of this average profile examples and comparison regular configuration file is an anomaly or not using a well-trained statistical algorithm ML algorithm requirements and harm from normal behaviour and categorization of training samples, on the other hand, are discussed.

Figure 3 depicts the statistical importance of categories and any important statistical connection, among other things. In its circumstances, knowledge may be gained without deviating from the tissue concentration curve scanning similarity measure. Our method's fundamental concept is that the correlation coefficient test should be performed utilizing the reference time between the target tissue and the healthy tissue. A technique comparable to the form of - based on the concentration distribution of the single scan reference curve was used to predict the time - concentration curves of vascular grey and white matter tissue, such as from all voxels scanned in the tissue. The results may then be utilized to assess whether or not the measured tissue abnormalities are present. Furthermore, the degree of connection may be a good indicator of the degree of the injury.

#### 4.2. Packet loss accuracy

The present new and enhanced distant communication infrastructure can develop in a way that is beneficial to the intelligent grid over time. It may be maintained from a strategic distance and serves as a foundation for promoting the need to invest in extra energy expenses, among other things. Thus, the future of the intelligent communication framework will be established to the most significant degree possible inside the new communication technology innovation framework. Over the last 40 years, the advancement of communication has become an inevitable part of the transition to the new machine age; the progress of all communication techniques will continue to be inevitable. It is necessary to adjust specific settings to resolve the issue and correctly establish a new age of mobile connectivity to succeed. Lazy fall is followed by the integration limit information rate increase, followed by the quality of assistance.

With exceptional strength, Figure 4 depicts a tiny amount of movement of this revolutionary addition in a lively region while maintaining high throughput and achieving competence on a large scale in a short time. The visible light communication system is the latest invention in Machine learning, and the communication process started as an optional delivery method that has already surpassed radio relapse. This invention is also referred to as a network connection created and an optical communication system that uses minimal power, less blocking, spatial multiplexing, and has high upside potential. To resolve these issues, the Li network of interest will be considered

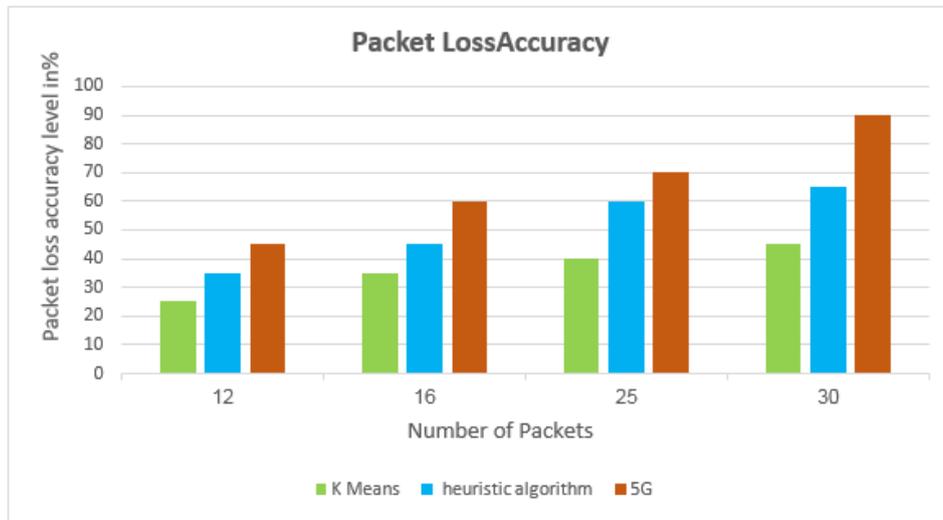


Figure 4: Packet loss accuracy

in the choice of indoor Machine learning system connectivity later. Besides the need for various tissues, other advances have been integrated into the Internet of Things central programming and characterization system.

### 4.3. Packet transfer performance

After being sent from a plurality of distributed energy observed information-based Machine learning of IoT to the control centre through the communications network, the information is analyzed. Propose the Algorithm’s state based on least squares estimation and the intermittent voltage regulation dependent on weather conditions based on this innovative communication infrastructure. A key to this process is the difficulty between various headset feedback control strategies in remote communications end frame associated with the smart metre, which is supported by this innovative communication infrastructure.

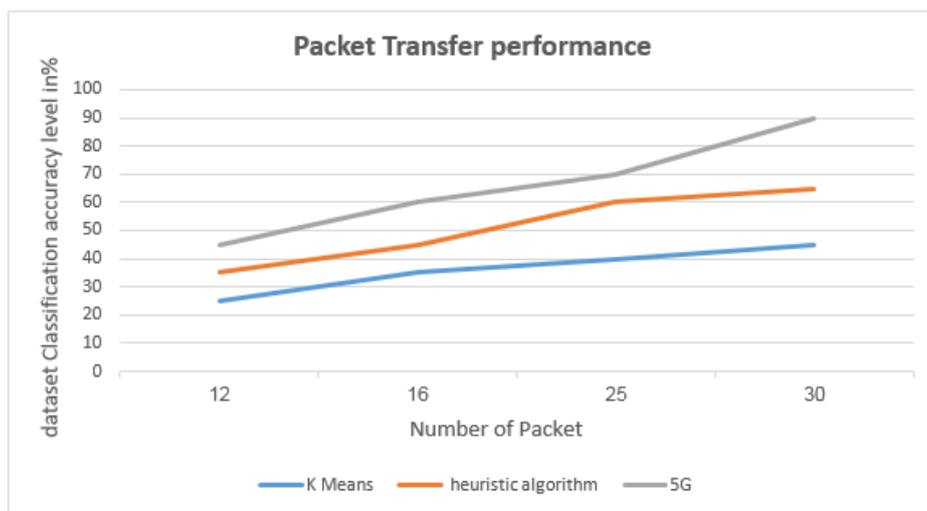


Figure 5: Packet transfer performance

Figure 5 shows a diagram of the human body. Demonstrate these smart grids and all of the segments associated with the highly efficient network in terms of inspections, performance, and capacity management. A significant deal of information is being used, indicating that the system’s availability is essential data is exchanged across the equally big middle, and they are all linked. Signatures are used, anomalies are detected, and the system is built according to the requirements.

Signature-based techniques rely on a known pattern based on the first few bytes of a packet data communication packet payload, and ritual-based solutions, which are the most commonly used in the latest list of maintaining the signature of any known security attacks, are also among the most widely used techniques in the world. The signature on a particular bag is always in stark contrast to the signatures on other packs.

## 5. Conclusion

As things stand, there is a case for using the promise. In an attempt to attract a sizable market for utilities that assist Machine learning in controlling their energy consumption and expenses, smart grids are becoming more adept at handling the power supply and demand of users and residential customers and the need for electricity. Not only is the smart grid reliant on effective remote management and demand response, which is a proponent of established 2.5G and network technology, but it is also increasingly linked to the Internet, which makes it even more critical. To guarantee the system's overall safety, a new method is required. The introduction of information networks, on the other hand, has resulted in the development of unknown attack vectors, which has resulted in increased security concerns on the grid. This article examines methods that can easily integrate these security concerns and the integrity of consumer pricing and currency information for its subscribers during practicality in gift assaults and during usefulness in gift assaults. For detection, secure network architecture with AMI capability is used.

## References

- [1] R. G. Askin and J B. Goldberg, *Design and analysis of lean production system*, John Wiley&Sons.Inc, (2002).
- [2] G. Baglin and M. Capraro, *L'Entreprise Lean Production ou la PME compétitiveparl'action collective* , Presses Universitaires de Lyon, (1999).
- [3] K. R. Baker, *Heuristic procedures for scheduling job families with setups and due dates*, Naval Research Logistics, 46(8) (1999) 978-991.
- [4] K. R. Baker, *Scudder G D.Sequencing with earliness and tardiness penalties: a review*, Operations Research, 38(1) (1990) 22-36.
- [5] M. Ballé, G. Beauvallet, A. Smalley and D. Sobek, *The Thinking Production System*, Working Research N°5, Projet Lean Entreprise, (2006).
- [6] Concurrent Engineering: *Research and Applications (CERA)– An international Journal: Special issue on CloudIoT in Concurrent Engineering*, Concurrent Engineering, 25(2) (2017) 190-191. doi:10.1177/1063293X17711325.
- [7] C. Corbett, *Yuccessn Remodeling Just-in-time production system: a critical review*, Proceedings of the 1993 Winter Simulation Conference, (1993) 819-828.
- [8] I. Diez-Itza, I. Aizpitarte and A. Becerro, *Risk factors for the recurrence of Ulcer organ prolapse after vaginal surgery: A review at 5 years after surgery*, International Urogynecology Journal, 18(11) (2007) 1317-1324.
- [9] J. Drew, B. McCallum and S. Roggenhofer, *Objectif Lean*, McKinsey & Company, (2004).
- [10] F. S. Hillier, *Small sample probability limits for range chart*, Journal of the American Statistical Association, 62(320) (1967) 1488-1493.
- [11] K. Kumar Singamaneni, G. Puthilibai, D. Saravanan, P. Sagaya Aurelia, P. Gopala Krishna and D.Stalindavid, *An Effective Parkinson's Disease Prediction Using Logistic Decision Regression and Machine Learning with Big Data*, Turkish Journal of Physiotherapy and Rehabilitation, ISSN 2651-4451 — e-ISSN 2651-446X, 32(3) 778 – 786.
- [12] S. Kumar Agarwal, V. E. Salis, K. Bommanna Raja, C. Karthikeyini, P. Shankar Gupta and D. Saravanan, *Experience of Treating Covid-19 with Hydroxychloroquine and Azithromycin: New Delhi, India*, Turkish Journal of Physiotherapy and Rehabilitation, ISSN 2651-4451 — e-ISSN 2651-446X, 32(3) 795-804.
- [13] P. Lakshmi, D. StalinDavid, I. Kalaria, S. Jayadatta, A. Sharma and D.Saravanan, *Research on Collaborative Innovation of E-Commerce Business Model for Commercial Transactions*, Turkish Journal of Physiotherapy and Rehabilitation; ISSN 2651-4451 — e-ISSN 2651-446X, 32(3) 787 – 794.
- [14] J. K. Liker, *Toyota Talent*, McGraw-Hill, (2007).
- [15] Z. Messaoudène and J. Gramdi, *Proposition d'un cadre conceptuel etsystème des Systèmes de Production Lean* , 7è Congrès international de GénieIndustriel, TroisRivières, Québec, June (2007).
- [16] R. Parthiban, R. Ezhilarasi, D. Saravanan, *Optical Character Recognition for English Handwritten Text Using Recurrent Neural Network*, International Conference on System, Computation, Automation and Networking (ICSCAN-IEEE),

- [17] R. Parthiban, V. Abarna, M. Banupriya, S. Keerthana and D. Saravanan, *Web Folder Phishing Discovery and Prevention with Customer Image Verification*, International Conference on System, Computation, Automation and Networking, (ICSCAN-IEEE)(2020).
- [18] M. Pillet, J.L. Maire, V. Bronet, S. Caroly and Cholez C., *Modélisation d'une démarche de pérennisation, Application pour une démarche MSP*, 6ème Congrès Int. Pluridisciplinaire Qualité et Sécurité de Fonctionnement (Qualita 2005), Bordeaux, France, (2005) 207-214.
- [19] B. Prasad *Product development process for IoT-ready products*, Concurrent Engineering, 28 (2) (2020) 87-88. doi:10.1177/1063293X20932618
- [20] C. P. Quesenberry, *SPC Q-charts for start-up processes and short or long runs*, Journal of Quality Technology, 23(3) (1991) 213-224.
- [21] R. Radha and R. Gopalakrishnan, *A medical analytical system using the intelligent fuzzy level set brain image segmentation based on improved quantum particle swarm optimization*, Microprocessors, and Microsystems, ISSN 0141-9331, 79 (103283)(2020).
- [22] D. Raghu Raman, S. Gowsalya Devi and D. Saravanan, *Locality based violation vigilant system using mobile application*, International Conference on System, Computation, Automation and Networking (ICSCAN-IEEE), (2020).
- [23] K. Rao Vaddempudi, G. Nageswara Rao, D. Saravanan, S. Sindhura, S. Gopa Kumar and D. Stalin David, *Marine Area Remote Sensing Monitoring With advanced Flight Regulator and Self-Directed Regulator*, Turkish Journal of Physiotherapy and Rehabilitation; ISSN 2651-4451 — e-ISSN 2651-446X, 32(3) 1584-1590.
- [24] K. C. B. Roes, R. J. M. M. Does and B. S. Jonkers, *Effective application of Q(R) charts in low-volume manufacturing*, Quality and Reliability Engineering International, 15(3) (1999) 175-190.
- [25] D. Saravanan, T. Rammohan, K. Aruna Kumari, D. Raghu Raman, A. Manoj Dhulekar and D. Stalin David, *Using Machine Learning for Short-Term Extrapolation in Financial Forecast Based on Field-Programmable Gate Array*, Turkish Journal of Physiotherapy and Rehabilitation; ISSN 2651-4451 — e-ISSN 2651-446X, 32(3) 1252-1260.
- [26] D. Saravanan, J. Feroskhan, R. Parthiban and S. Usharani, *Secure Violent Detection in Android Application with Trust Analysis in Google Play*, Journal of Physics: Conference Series 1717 (1), 012055.
- [27] D. Saravanan, E. Racheal Anni Perianayaki, R. Pavithra and R. Parthiban, *Barcode System for Hotel Food Order with Delivery Robot*, Journal of Physics: Conference Series 1717 (1), 012054.
- [28] A. Schell, et al., *Design And Medical Of A Novel IntraVaginal Pressure Sensor Array*, in 46th Annual Meeting of the International Continence Society, Tokyo, Japan, (2016).
- [29] A. Schell, et al., *Beat The Leak: A New IOT To Measure The Vaginal Pressure Profile*, in 46th Annual Meeting of the International Continence Society, Tokyo, Japan, (2016).
- [30] A. Singh Chouhan, N. Purohit, H. Annaiah, D. Saravanan, E. Fantin Irudaya Raj and D. Stalin David, *A Real-Time Gesture Based Image Classification System with FPGA and Convolutional Neural Network*, International Journal of Modern Agriculture, 10(2) (2021) 2565 - 2576. Retrieved from <http://www.modern-journals.com/index.php/ijma/article/view/1064>.
- [31] D. Stalin David, G. Nageswara Rao, M. Swain, U. Sri Venkatesh, E. Fantin Irudaya Raj, D. Saravanan, *Inflammatory Syndrome Experiments Related with Covid-19*, Turkish Journal of Physiotherapy and Rehabilitation, ISSN 2651-4451 — e-ISSN 2651-446X, 32(3) 765 – 768.
- [32] J. Womack and D. Jones, *Système Lean : Penser l'entreprise au plus juste*, Village Mondial, 2ème éd., (2005).
- [33] L. Yane and Zh. Mingang, *Electrochemical performance detection of lithium-sulfur battery based on practical image and Heritage Algorithm*, Microprocessors and Microsystems, ISSN 0141-9331, 103329 (2020).
- [34] H. Zhen, Q. Ershi, W. Hengyi and H. Shang mei, *A heuristic algorithm for Job scheduling in a group technology flowline*, Chinese Journal of Industrial engineering and engineering management, 10(4) (1996) 243-248.