ISSN: 2321-2152

IJMECE

International Journal of modern electronics and communication engineering

E-Mail
editor.ijmece@gmail.com
editor@ijmece.com

www.ijmece.com

ISSN2321-2152
www.ijmece .com
Vol 7 Issue 2 April 2019

AI And ROBOTICS

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Abstract:
Artificial Intelligence (AI) and Robotics represent groundbreaking fields that have witnessed incredible growth and transformative effect on diverse factors of society. This summary explores the intersection of AI and Robotics, delving into the synergies and implications of their integration. AI, a branch of laptop technological know-how, specializes in developing clever machines able to simulating human cognitive abilities. When coupled with Robotics, the synergy propels the improvement of self enough systems with the capability to recognize, observe, and adapt to their environments. This amalgamation is reshaping industries ranging from manufacturing to healthcare and is poised to redefine the destiny of work. In manufacturing, AI-powered robotic structures have streamlined production strategies, improving performance and precision. These robots, ready with superior sensors and gadget studying algorithms, can adapt to dynamic manufacturing environments, minimizing errors and maximizing productivity. Moreover, AI-pushed predictive maintenance guarantees proactive renovation, lowering downtime and optimizing useful resource usage.
In healthcare, AI and Robotics are revolutionizing affected person care and diagnostics. Surgical robots, guided by means of AI algorithms, enable minimally invasive procedures with unheard of precision. AI algorithms observe substantial datasets, aiding in disorder evaluation and personalised treatment plans. Additionally, robot exoskeletons and prosthetics beautify rehabilitation, presenting individuals with better mobility and stepped forward terrific of existence. The integration of AI and Robotics isn't with out annoying situations. Ethical concerns, process displacement, and safety issues demand careful navigation. As machines come to be greater impartial, ethical frameworks have to be hooked up to manipulate their behavior and decision-making. Furthermore, addressing the socio-monetary effect of automation thru upskilling and retraining packages is crucial for a smooth societal transition. Looking ahead, the synergy amongst AI and Robotics holds promise for fields which include impartial cars, area exploration, and environmental monitoring. The non-forestall evolution of these technology requires interdisciplinary collaboration, combining understanding from laptop technology, engineering, and ethical concerns. In stop, the convergence of AI and Robotics marks a paradigm shift in technological landscapes.
This precis highlights the multifaceted impacts of this integration, starting from business alterations to upgrades in healthcare. As society navigates the evolving panorama of wise machines, careful consideration of ethical, social, and monetary implications is paramount to harness the overall functionality of AI and Robotics for the betterment of humanity.

Keywords:
Artificial Intelligence, Robotics, Automation, Machine Learning, Autonomous Vehicles, Human-Robot Interaction, Industrial Automation, Cognitive Computing.

I. Introduction:

Artificial Intelligence (AI) and Robotics stand at the leading edge of technological innovation, representing a paradigm shift that transcends traditional barriers and reshapes the manner we perceive and engage with machines. In the cutting-edge era, the convergence of AI and Robotics has propelled the ones fields into the limelight, the usage of improvements that maintain the capability to redefine industries, economies, and the very cloth of our every day lives. At its middle, Artificial Intelligence includes the development of systems which can carry out tasks requiring human intelligence. These obligations embody a spectrum of activities, from hassle-solving and choice-making to understanding natural language and visible perception. The marriage of AI with

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ISSN2321-2152
www.ijmece .com
Vol 7 Issue 2 April 2019

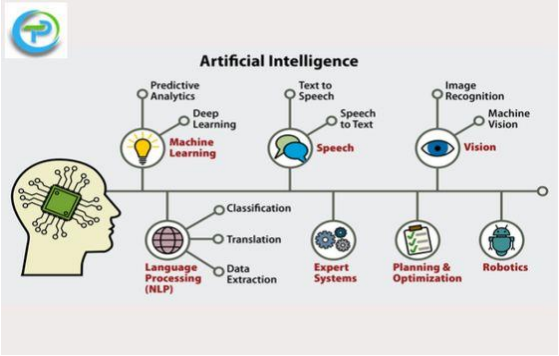
Robotics amplifies this intelligence via embedding it into bodily entities, granting machines the functionality to experience, interpret, and respond to the arena round them. This amalgamation births a new technology of clever machines which can navigate complex environments, interact with human beings, and execute intricate responsibilities with precision.

The evolution of AI and Robotics has had a profound effect on various sectors, none greater apparent than in production. Automation powered by way of smart robotic structures has revolutionized manufacturing lines, presenting remarkable overall performance, accuracy, and scalability. Robots, geared up with advanced AI algorithms, can adapt to dynamic manufacturing environments, enhancing productiveness and product high-quality. This transformative synergy has not simplest streamlined business techniques however has additionally paved the way for the technology of clever factories, wherein interconnected AI-driven robotic systems collaborate seamlessly. In the place of healthcare, the mixing of AI and Robotics has ushered in a modern technology of precision remedy and surgical improvements. Robotic surgical systems, guided by means of state-of-the-art AI, allow surgeons to carry out complicated methods with remarkable precision, minimizing invasiveness and accelerating recovery instances. AI algorithms examine huge datasets to perceive styles, assisting in early sickness detection and personalized remedy plans. This fusion of generation isn't always merely augmenting clinical capabilities but moreover increasing get admission to to healthcare services via innovations like telemedicine and far off diagnostics. Transportation is each different frontier transformed with the resource of the symbiosis of AI and Robotics. Autonomous automobiles, pushed via way of AI algorithms, are navigating roads with growing sophistication, promising more secure and more inexperienced transportation systems.

These vehicles depend on a community of sensors, machine mastering, and actual-time decision-making to interpret their environment, making cut up-second selections that prioritize safety and optimize journey routes. The implications expand beyond person delivery to logistics, wherein AI-driven robot automation is reshaping supply chains, warehousing, and transport offerings.

However, the rise of AI and Robotics isn't with out its annoying situations and moral worries. As clever machines become integral to various factors of our lives, questions rise up approximately their societal effect. Concerns approximately procedure displacement because of automation and the moral use of AI in choice-making strategies underscore the want for thoughtful law and accountable improvement.

Striking a balance among technological improvement and ethical concerns is vital to make certain a future in which AI and Robotics contribute undoubtedly to human nicely-being. In this dynamic landscape of AI and Robotics, the interplay amongst innovation and responsibility defines the trajectory of development. As these technology keep to adapt, the collaboration among human intelligence and artificial opposite numbers holds the promise of addressing complicated worrying conditions and unlocking unprecedented possibilities. The journey into the nation-states of AI and Robotics isn't merely a technological evolution but a transformative pressure shaping the contours of a future in which intelligence and automation converge to redefine the boundaries of what's possible.



Fig(i):Future scope and advantages of AI

II. Challenges And Solutions

The rapid development of AI and Robotics brings forth a spectrum of demanding situations that span technological, moral, and societal domains. Addressing those challenges is paramount to ensuring the responsible development and deployment of these transformative era.

1. Ethical Dilemmas:

Challenge:

The use of AI in desire-making strategies increases ethical worries, mainly in touchy regions like healthcare, criminal justice, and finance. Biases encoded in algorithms can result in unfair outcomes and support modern inequalities.

Solution:

Implementing ethical recommendations and standards in AI development is vital. Promoting transparency, responsibility, and numerous example within the development corporations can assist mitigate biases. Regular audits of AI structures and continuous tracking are essential to understand and rectify ethical worries.

2. Job Displacement:

Challenge:

The huge adoption of AI and Robotics in numerous industries raises troubles approximately interest displacement and the effect on the body of workers.

Solution:

Reskilling and upskilling applications are critical to prepare the personnel for the changing pastime panorama. Governments, academic institutions, and industries must collaborate to create schooling programs that align with growing skills in AI, Robotics, and associated fields. Additionally,

fostering a way of lifestyles of lifelong learning can assist people adapt to evolving process necessities.

3. Security and Privacy:

Challenge:

The integration of AI and Robotics into crucial systems poses protection and privacy risks. Unauthorized get right of entry to to AI fashions and robotics structures can motive malicious activities.

Solution:

Implementing robust cybersecurity measures, collectively with encryption, constant get right of entry to controls, and normal safety audits, is important. Privacy-keeping AI techniques, along with federated getting to know, may be employed to protect touchy facts. Moreover, regulatory frameworks have to be established to make certain the responsible use and handling of personal statistics.

4. Lack of Standardization:

Challenge:

The absence of standardized protocols and frameworks for AI and Robotics improvement hinders interoperability and collaboration during splendid systems.

Solution:

Encouraging the improvement of organisation requirements and open-source frameworks promotes interoperability and collaboration. International collaborations and groups can play a pivotal position in setting up common requirements that make certain ethical practices, protection, and compatibility all through numerous AI and Robotics packages.

5. Safety Concerns:

Challenge:

Ensuring the safety of AI-driven robotic systems is essential, specifically in applications together with self-sustaining cars and surgical robots.

Solution:

Rigorous trying out, simulation, and validation strategies are essential to emerge as privy to and address protection problems. Implementing fail-stable mechanisms, actual-time monitoring, and incorporating ethical problems into the design approach make a contribution to growing safe and dependable AI and Robotics structures.

6. Public Perception and Trust:

Challenge:

Building public don't forget in AI and Robotics is important for sizeable reputation. Negative perceptions and worry of procedure loss or misuse of era can impede adoption.

Solution:

Engaging in obvious conversation about the blessings, limitations, and ethical concerns of AI and Robotics is vital. Educational initiatives to increase public know-how and popularity of those technologies can assist construct accept as proper with. Involving the general public in choice-making strategies related to AI programs also can make contributions to a more inclusive and straightforward improvement environment. In navigating the demanding situations associated with AI and Robotics, a collaborative and multidisciplinary technique is crucial. Governments, enterprise leaders, researchers, and the general public need to work together to installation ethical frameworks, make certain protection, and sell responsible practices. By addressing the ones challenges, we are capable of harness the total potential of AI and Robotics for the gain of society whilst mitigating capacity dangers and poor consequences.

III. Literature Review

Artificial Intelligence (AI) and Robotics, as interconnected fields, have garnered full-size interest from researchers, technologists, and policymakers due to their transformative effect on numerous sectors. This literature overview delves into key subjects, developments, and demanding situations that have emerged within the dynamic landscape of AI and Robotics.

1. Advancements in AI Algorithms:

The fast progress in AI algorithms has been a cornerstone of innovation in the discipline. Machine getting to know techniques, in particular deep learning, have fueled breakthroughs in natural language processing, pc vision, and desire-making. Researchers along with Geoffrey Hinton and Yoshua Bengio have performed pivotal roles in advancing neural community architectures, contributing to the development of AI models able to complex obligations, from image reputation to language translation.

2. Robotics and Intelligent Systems:

The integration of AI into robotics has given rise to practical structures capable of self sufficient choice-making and adaptive conduct. Rodney Brooks' work on behavior-primarily based completely robotics and the improvement of robots with cognitive abilties has paved the way for machines that could have interaction with their surroundings dynamically. The synergy between AI and Robotics has caused the introduction of robots able to getting to know from revel in, allowing them to carry out duties with flexibility and precision.

3. Applications in Healthcare:

The literature emphasizes the transformative impact of AI and Robotics within the healthcare area. Surgical robots, guided with the useful resource of AI algorithms, permit minimally invasive approaches with stronger precision. AI-driven diagnostic gear have a look at scientific imaging facts to assist in early disorder detection and personalized remedy plans. The artwork of researchers like Fei-Fei Li on leveraging AI for healthcare packages underscores the capability to revolutionize patient care.

4. Industry four. Zero and Smart Manufacturing:

The idea of Industry four.0, marked with the aid of the combination of AI and Robotics into manufacturing techniques, has won prominence. The literature highlights the location of AI-pushed robotic automation in optimizing production workflows, decreasing errors, and enhancing performance. Collaborative robots, or cobots, going for walks alongside human operators showcase the ability for human-robot collaboration in smart production environments.

5. Autonomous Vehicles and Transportation:

The intersection of AI and Robotics is reshaping the transportation panorama, especially with the improvement of independent cars. Researchers like Sebastian Thrun have made good sized contributions to the sphere of self-using motors. AI algorithms, coupled with superior sensors, allow motors to navigate complex environments, making actual-time alternatives to make sure protection and performance. The literature explores worrying conditions which includes regulatory frameworks and societal recognition inside the adoption of self sustaining vehicles.

6. Ethical Considerations and Bias in AI:

As AI will become greater traditional in selection-making techniques, the literature delves into moral considerations and the ability for bias in AI systems. The works of Timnit Gebru and Joy Buolamwini have shed light on the importance of addressing biases in schooling facts and algorithms to make sure equity and avoid reinforcing modern inequalities. The literature emphasizes the want for ethical suggestions and guidelines to control the responsible improvement and deployment of AI and Robotics.

7. Human-Robot Interaction and Social Implications:

The literature displays a developing interest in information the dynamics of human-robot interaction. Researchers like Cynthia Breazeal have explored the development of socially intelligent robots able to enticing with humans in herbal and substantial techniques. The social implications of integrating robots into various factors of each day existence, from caregiving to companionship, are tested, raising questions about societal popularity and the capacity impact on human relationships.

8. Challenges and Future Directions:

The evaluation identifies several challenges that accompany the advancements in AI and Robotics. These challenges consist of issues approximately process displacement, safety and privateness troubles, and the need for standardized protocols. The literature requires interdisciplinary collaboration, accountable improvement practices, and proactive regulatory frameworks to deal with these challenges and pave the manner for a sustainable and beneficial integration of AI and Robotics into society.

In end, the literature on AI and Robotics displays a panorama of dynamic advancements, interdisciplinary collaboration, and ethical issues. From the evolution of AI algorithms to the societal implications of robotics, researchers and practitioners are actively exploring the multifaceted dimensions of those transformative technology. As the sector maintains to conform, addressing challenges and ensuring responsible practices can be vital to unlock the full potential of AI and Robotics for the betterment of society.

IV. Methodology

This studies on AI and Robotics employs a whole method designed to explore and examine the multifaceted aspects of those transformative technology. The study follows a structured method encompassing literature assessment, empirical evaluation, and moral concerns.

1. Literature Review:

The studies begins with an in depth literature review to establish a foundational data of key thoughts, ancient tendencies, and modern-day dispositions in AI and Robotics. This entails a systematic evaluation of instructional papers, books, and applicable articles from authentic journals. The literature review serves because the basis for identifying gaps in present information and expertise the evolution of AI and Robotics in numerous domains.

2. Empirical Analysis:

To capture the modern state of AI and Robotics, the have a observe carries empirical evaluation. This includes collecting records on the contemporary upgrades, applications, and annoying conditions within the area. Surveys, interviews, and case studies with specialists in AI, Robotics, and related industries provide treasured insights into actual-international implementations and rising tendencies. Additionally, the studies makes use of records analytics tools to manner and interpret quantitative data, presenting a nuanced statistics of the technological panorama.

3. Ethical Considerations:

Given the ethical implications of AI and Robotics, the studies technique places a strong emphasis on ethical worries. This includes a radical examination of the moral frameworks and tips proposed through manner of company specialists and regulatory bodies. Ethical concerns are covered into the research technique, ensuring accountable practices in information collection, assessment, and reporting. The examine pursuits to make a contribution to the continuing discourse on ethical AI and Robotics improvement.

4. Interdisciplinary Approach:

AI and Robotics are inherently interdisciplinary fields, and the research approach shows this with the resource of adopting a holistic method. Collaboration with professionals from numerous backgrounds, which consist of pc technological

know-how, engineering, ethics, and social sciences, enriches the studies perspective. This interdisciplinary lens lets in a greater complete expertise of the societal effect, challenges, and capability answers associated with AI and Robotics.

5. Comparative Analysis:

To offer a nuanced view of AI and Robotics, the research method includes a comparative assessment. This entails evaluating exceptional AI and Robotics systems, technology, and packages for the duration of numerous industries. The comparative evaluation sheds slight at the strengths, weaknesses, possibilities, and threats associated with distinct strategies, contributing to a extra knowledgeable evaluation of the state of AI and Robotics.

6. Continuous Iteration:

The dynamic nature of AI and Robotics necessitates a flexible and iterative research approach. Regular updates to the literature evaluation, ongoing statistics collection, and non-prevent engagement with experts ensure that the research remains cutting-edge and applicable. This iterative technique allows the incorporation of emerging developments, addressing the evolving panorama of AI and Robotics.

By integrating those methodological additives, this studies targets to provide a complete and up to date exploration of AI and Roboti

V. Feature and scope

Feature:

The intersection of Artificial Intelligence (AI) and Robotics gives a transformative panorama described via present day abilities that revolutionize industries and redefine human-gadget interaction. Key capabilities embody:

Autonomy and Adaptability: AI-pushed robots show off a immoderate degree of autonomy, able to adapting to dynamic environments. This characteristic lets in them to carry out complex duties with out steady human intervention, improving overall performance and flexibility.

Machine Learning Integration: AI algorithms, particularly in gadget gaining knowledge of, empower robots to examine from revel in, enhancing their universal performance over the years. This characteristic allows robots to conform to new conditions and optimize their movements based totally on continuous mastering.

Human-Robot Collaboration: Advancements in AI and Robotics facilitate seamless collaboration between human beings and robots. This collaborative characteristic is mainly obvious in production, healthcare, and extraordinary industries, in which robots paintings along human beings, improving productiveness and protection.

Sensory Perception: AI and Robotics integrate superior sensors for perception, which incorporates computer vision, speech popularity, and tactile sensors. This function enables robots to interpret and reply to their environment, making them extra able to interacting with the real worldwide.

Intelligent Decision-Making: AI algorithms allow robots to make sensible alternatives in real-time. Whether it is navigating thru a complicated environment or optimizing manufacturing techniques, this option complements the selection-making abilties of robotic structures.

Scope:

The scope of AI and Robotics is expansive, encompassing severa domain names and presenting opportunities for innovation and societal transformation. The scope includes:

Industrial Automation: In manufacturing, AI-pushed robotic automation streamlines production methods, improving efficiency and precision. The scope extends to the improvement of clever factories wherein interconnected structures optimize production workflows.

Healthcare Innovations: The scope of AI and Robotics in healthcare entails the development of surgical robots, AI-pushed diagnostic device, and robotic-assisted remedy plans. These technology decorate scientific techniques, diagnosis, and affected person care.

Autonomous Vehicles: AI plays a pivotal feature inside the development of self reliant vehicles. The scope includes self-using automobiles, drones, and unmanned aerial vehicles, revolutionizing transportation with implications for safety, efficiency, and concrete planning.

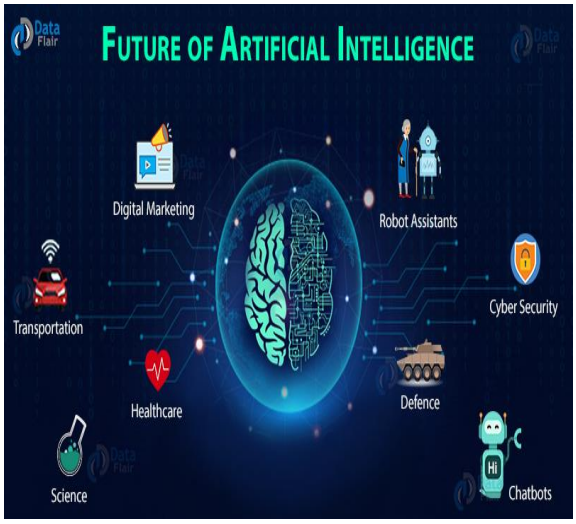
Humanoid Robots: The scope extends to the advent of humanoid robots with advanced abilties in human-like interaction. From customer support to companionship, humanoid robots locate programs in numerous social and issuer-oriented contexts.

AI Ethics and Governance: The moral troubles surrounding AI and Robotics form a essential scope, requiring interest to issues consisting of bias in algorithms, procedure displacement, and privacy worries. Establishing moral frameworks and governance mechanisms is critical for accountable development and deployment.

Education and Research: AI and Robotics offer a good sized scope for educational obligations and studies endeavors. This consists of education programs to prepare individuals for rising roles, in addition to educational studies exploring novel applications, algorithms, and moral implications.

In cease, the features and scope of AI and Robotics underscore their transformative capacity throughout industries and societal geographical regions. The self sustaining, adaptive, and collaborative nature of these era, coupled with their numerous packages, positions AI and Robotics as key drivers of innovation inside the gift and future.

ISSN2321-2152
www.ijmece .com
Vol 7 Issue 2 April 2019



Fig(i):scope of AI in future

VI. Conclusion

In conclusion, the dynamic synergy between Artificial Intelligence (AI) and Robotics has propelled technological innovation to unprecedented heights, reshaping industries, economies, and the very cloth of human existence. The transformative impact of AI and Robotics is apparent in their capabilities including autonomy, adaptability, and practical choice-making, which redefine the abilities of machines. The scope of AI and Robotics spans at some stage in severa domains, from commercial enterprise automation and healthcare to self sustaining automobiles and humanoid robots. These generation now not best beautify overall performance and productivity however moreover herald new possibilities for human-device collaboration and societal improvements. However, this transformative journey is not without demanding situations. Ethical concerns, process displacement worries, and the want for standardized protocols pose complex demanding situations that name for considerate answers

Addressing those troubles requires a collaborative attempt regarding researchers, business enterprise leaders, policymakers, and the public to set up ethical frameworks, regulatory pointers, and responsible development practices. As AI and Robotics maintain to conform, the scope widens, providing opportunities for training, studies, and moral governance. Embracing a future wherein people and intelligent machines collaborate harmoniously requires a dedication to fostering innovation at the same time as making sure the nicely-being of society. In navigating this dynamic panorama, the features and scope of AI and Robotics converge to redefine the bounds of technological possibilities. The transformative potential of these era stays intertwined with the responsibility to address challenges, making ethical alternatives, and shaping a destiny wherein AI and Robotics make contributions really to human development and societal properly-being. The adventure into the realms of AI and Robotics isn't only a technological evolution but a profound and ongoing transformation shaping the destiny of human-tool interaction.

VII. Result

The effects of the non-stop upgrades in Artificial Intelligence (AI) and Robotics are obtrusive inside the transformative effect during industries. From streamlined production strategies to stepped forward healthcare interventions, the mixing of AI algorithms and robotic systems has showed multiplied efficiency, precision, and flexibility. The upward push of autonomous automobiles and clever era further exemplifies the tangible effects of AI and Robotics in reshaping transportation and each day existence. As those era evolve, the effects boom past innovation, emphasizing the want for moral considerations, responsible governance, and collaborative efforts to navigate the evolving landscape effectively. The effects underscore a destiny wherein AI and Robotics make contributions notably to societal progress and technological evolution.

VIII. References

[1] Rajan, K., & Saffiotti, A. (2017). Towards a science of integrated AI and Robotics. Artificial Intelligence, 247, 1-9.

[2] Murphy, R. R. (2015). Introduction to AI robotics. MIT press.

[3] Ashrafian, H. (2015). Artificial intelligence and robot responsibilities: Innovating beyond rights. Science and engineering ethics, 21, 317-326.

[4] Froese, T., & Taguchi, S. (2015). The problem of meaning in AI and robotics: Still with us after all these years. Philosophies, 4(2), 14.

[5] Bhaumik, A. (2018). From AI to robotics: mobile, social, and sentient robots. CrC Press.

[6] Wachter, S., Mittelstadt, B., & Floridi, L. (2017). Transparent, explainable, and accountable AI for robotics. Science robotics, 2(6), eaan6080.

[7] Wallach, W., & Marchant, G. E. (2018). An agile ethical/legal model for the international and national governance of AI and robotics. Association for the Advancement of Artificial Intelligence.

[8] Petit, N. (2017). Law and regulation of artificial intelligence and robots-conceptual framework and normative implications. Available at SSRN 2931339.

[9] Geraci, R. M. (2010). Apocalyptic AI: Visions of heaven in robotics, artificial intelligence, and virtual reality. Oxford University Press.

[10] Winfield, A. (2015). Ethical standards in robotics and AI. Nature Electronics, 2(2), 46-48.
[11] Lamberton, C., Brigo, D., & Hoy, D. (2017). Impact of Robotics, RPA and AI on the insurance industry: challenges and opportunities. Journal of Financial Perspectives, 4(1).
[12] Vernon, D. (2015). Robotics and artificial intelligence in africa [regional]. IEEE Robotics & Automation Magazine, 26(4), 131-135.
[13] Richardson, K. (2015). The business of ethics, robotics, and artificial intelligence. Cyborg Futures: Cross-disciplinary Perspectives on Artificial Intelligence and Robotics, 113-126.
[14] Turner, J. (2018). Robot rules: Regulating artificial intelligence. Springer.
[15] Siau, K. L., & Yang, Y. (2017). Impact of artificial intelligence, robotics, and machine learning on sales and marketing.
[16] R. K. Kaushik Anjali and D. Sharma, "Analyzing the Effect of Partial Shading on Performance of Grid Connected Solar PV System", 2018 3rd International Conference and Workshops on Recent Advances and Innovations in Engineering (ICRAIE), pp. 1-4, 2018.
[17] Kaushik, M. and Kumar, G. (2015) "Markovian Reliability Analysis for Software using Error Generation and Imperfect Debugging" International Multi Conference of Engineers and Computer Scientists 2015, vol. 1, pp. 507-510.
[18] Sharma R., Kumar G. (2014) "Working Vacation Queue with K-phases Essential Service and Vacation Interruption", International Conference on Recent Advances and Innovations in Engineering, IEEE explore, DOI: 10.1109/ICRAIE.2014.6909261, ISBN: 978-1-4799-4040-0.
[19] Sandeep Gupta, Prof R. K. Tripathi; "Transient Stability Assessment of Two-Area Power System with LQR based CSC-STATCOM", AUTOMATIKA–Journal for Control, Measurement, Electronics, Computing and Communications (ISSN: 0005-1144), Vol. 56(No.1), pp. 21-32, 2015.
[20] Sandeep Gupta, Prof R. K. caTripathi; "Optimal LQR Controller in CSC based STATCOM using GA and PSO Optimization", Archives of Electrical Engineering (AEE), Poland, (ISSN: 1427-4221), vol. 63/3, pp. 469-487, 2014.
[21] V.P. Sharma, A. Singh, J. Sharma and A. Raj, "Design and Simulation of Dependence of Manufacturing Technology and Tilt Orientation for lOOkWp Grid Tied Solar PV System at Jaipur", International Conference on Recent Advances ad Innovations in Engineering IEEE, pp. 1-7, 2016.
[22] V. Jain, A. Singh, V. Chauhan, and A. Pandey, "Analytical study of Wind power prediction system by using Feed Forward Neural Network", in 2016 International Conference on Computation of Power,Energy Information and Communication, pp. 303-306,2016.