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Scope and the Impact of IoT and AI on Mass Communication with Robot Journalism

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ABSTRACT: The process of emerging, transmitting, receiving, and analyzing messages for wide-ranging audiences through verbal and transcribed media is known as Mass Communication. It is a comprehensive field that considered two things how communication is formed and its planned audience. When used in conjunction with cloud platforms and big data analysis, Internet of things (IoT) significantly improves the use of both machine and human resources in the media and entertainment sector. Algorithms for Machine Learning (ML) and Artificial Intelligence (AI) are beneficial for data analysis and making informed judgments. Only a wide range of sensors connected to the pervasive part of supportive mass communications through the internet is capable of making this happen. A rising number of machines and gadgets are now linked through the Internet, and communication between them is now possible because of the engagement and integration of high-tech and various technologies using IoT and AI. In the current research paper, we provide the impact of IoT and AI terminologies in mass communication as well as their applications. Along with the advancement of Media houses (media agencies) or offices, Robot Journalism and Speech recognition applications will be the milestones not service and education sectors but have tremendous scope and impact on Mass Communication. Along with ML, IoT, and AI in computer vision, planning, scheduling, and optimization and opening the door to novel business models, new types of mainstream media, and much wider applications.

KEYWORDS: Mass Communication, Algorithms, Artificial Intelligence, Machine Learning, IoT, Automated Journalism.

I. INTRODUCTION

Along with coordinated efforts by the government, volunteer organizations, and other like-minded organizations and people, mass communication has played a crucial role in this respect as a mediator between the government and the populace. Mass communication is the means through which messages are conveyed to broad audiences. Because they are so widespread in modern life, many individuals are unaware of their influence [1]. The media's function in a liberal democracy is presumably to inform, amuse, and educate the populace. Liberal democracy generally accepts that when the media assists in putting information at the people's disposal, they will be capable of officially or unofficially controlling the state [1, 2].

Globally citizens' access to news and feature programs, as well as how we interact with one another and participate in the newly developing decentralized, many-to-many media system, are all expected to undergo significant changes as a result of new media technology. Mass Communication and advertising are two areas where Information and Communication Technology (ICT) is advancing quickly and significantly [3-6]. Given how nearly every aspect of Indian life is currently being digitalized, it is not surprising that mass communication has been fast to recognize the significance of Information and Communication Technology (ICT). Additionally, it has wasted little time in responding to the changing environment and is among the earliest and leading sectors of the Indian economy to have benefited from ICT [5, 6].

Satellites and the Internet are examples of more advanced communication and Information Technology (IT) that have expanded our world's possibilities. Through satellites, for example, the potential of the new technologies has enhanced the penetration of mass media, but it has also opened up new possibilities for improving local communication

with the use of tools like the Internet or mobile phones. A growing number of nations are establishing "telecenters" in rural areas to aid in the social and economic growth of the community. ICTs and media can undoubtedly be crucial to the development of communication, but they are not a magic bullet that can address all issues and close all knowledge and perception gaps. Even the life of the average person has been improved by ICT, becoming easier, more pleasant, and quick. It is a good idea for everyone who hasn't yet adapted to the rapidly evolving and impactful digital revolution to do so right away. ICT isn't going anywhere, and common sense dictates that the best way to live a happy life is to keep up with the times [7, 8].

A network of networked "things" or intelligent gadgets with integrated software, sensors, and other technologies is referred to as the Internet of Things (IoT). They are utilized to wirelessly connect, link, and track data between devices. IoT would aid businesses in better understanding customers and their needs as the world become more integrated, enabling them to offer customers a more seamless experience. By implementing IoT, various sectors are growing dramatically. The entertainment and media sector (Audio-visual (AV) media as well as Print media) is not an exception; the correct IoT connectivity management platform can open up a wide range of prospects. Blogs use various functions and uses of IoT Subscriber Identity Module (SIM) cards in the supply of information for the media and entertainment sectors. The IoT and Artificial Intelligence (AI) combination will be the most useful tool for analyzing complex problems, and at the same time, this combination helps to more precisely minimize the redundant data utilized in mass communication [8, 9]. The IoT can intelligently control and communicate with practically connected, disparate devices, but it also has connection, confidentiality, dependability, and safety challenges. In the world of technology, which is developing quickly and has exponential development in applications, people are connected to things. Satisfying their needs improves the ability to please and connect with customers [9, 10].

The idea of virtualization is enhanced by the clever communication between things, including people and machines through People to People (P2P), Device to Device (D2D), Device to Machine (D2M), Machine to Machine (M2M), and People to Machine (P2M) across the Internet. People, intelligent devices, data, and smart things are all part of the IoT and AI, which are advanced technologies. By 2025, the number of connected devices is predicted to reach more than 41 billion. IoT growth is still in its early stages, thus numerous problems need to be resolved. Safety and confidence are the keys to future success in this latest tech, which is extremely well-liked in the business world [11, 12].

The IoT environment is ready to go along with the websites platforms which are connected to smart equipment that custom embedded systems, like microprocessors, several types of sensors, data exchanging hardware, and cloud-based data storage and analysis systems with software and having facility of human interventions or using AI decision making and self-learning ability without human interference [12-14]. Figure 1 reveals the IoT enables AI and its important parameters.

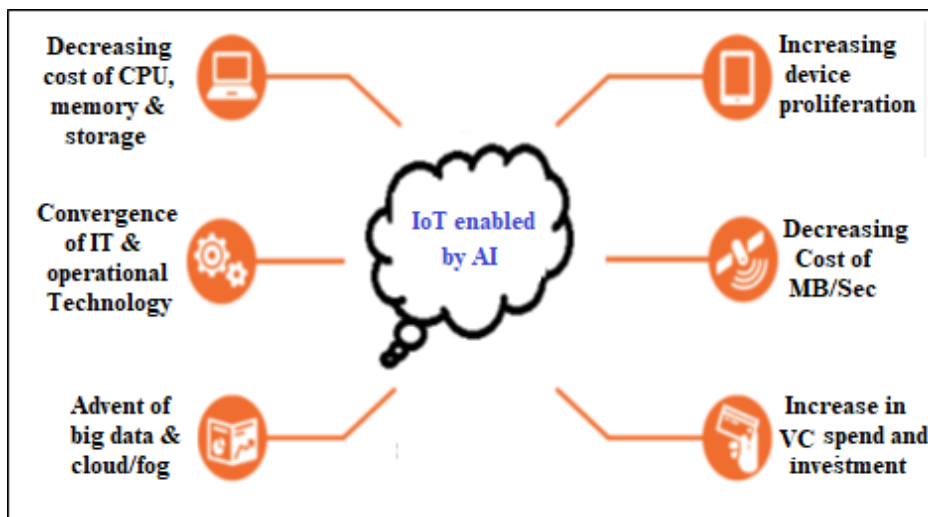


Figure 1: IoT enables AI with parameters

1. New Trend: AI in Robotic News Anchoring

As we all know that robots perform mostly a task that performing by human beings. Robotics always improving and adding more and more tasks as replacements for humans for increasing speed and accuracy in task performance by robotic systems.



Figure 2: Robotics News Anchoring

In several sectors, robots use very effectively for working and performing tasks successfully. This is the solution for the shortage of skilled manpower and also time-consuming human Anchoring tasks as humans are needed to script that news with some time to deliver anchoring in front of the camera and also required a halt between sometimes. For that technological advantage, we can provide technical solutions to this anchoring problem with robotic systems. Robot Journalism is revolutionary with the performance of anchoring tasks with feed news data in real-time with IoT and AI. Figure 2 is a representation of the new trend of Robot Journalism with Robotics as news anchoring with IoT and AI features.

Robotic systems perform news anchoring which is also called Robot Journalism is the new trend in Media. China's Xinhua state News agency owned the technology and on 9th November 2018 launched an AI Male newscaster, a move it claims to be a world first. On 3rd March 2019, China's Xinhua state News agency use a robot news anchor that mimics a woman's facial expressions and movements to present a news story about representatives appearing at a yearly parliament meeting arriving in Beijing.



Figure 3: Actual use of Robot News Anchors in China

II. IMPACT OF IOT AND AI IN MASS COMMUNICATION

With the help of digital technologies, the entertainment and media sector already uses digital devices to communicate with customers. By enhancing content distribution, the IoT and AI can support the media sector [15-17].

A) Accuracy in data acquisition:

IoT and AI provided accuracy in data transmission as well as streaming. Data acquisition is a very important task in the telecommunication, electronics media, and entertainment industry. The media and entertainment sector can collect much more than just audio/video information with the help of gadgets with embedded sensors and IoT

Subscriber Identity Module (SIM) cards. These IoT devices with SIM cards can also gather Global Positioning System (GPS), light, temperature, moisture, and acceleration data. After processing, this data can be used to produce a feasible customer experience. IoT and AI-based systems provide accuracy as well as speed for data acquisition in mass communication systems.

B) Human-Machine Interaction:

Nowadays many devices are available in the market, those are based on AI for interacting with human beings and machines. A customized user experience is always desired, especially in the entertainment industry. The data caption with IoT can be used by the upcoming immersive interaction devices to produce this desired experience. Combining M2M technologies can help create an atmosphere that encourages more user engagement.

C) Cloud-based data accumulation:

One of those industries where information is gathered from numerous teams and sources around the world is the entertainment and media sector. Through a handled IoT connectivity framework for multiple international SIM cards, these data can be combined, stored, and processed in single database architecture.

D) Decision-making and understanding:

Companies in the entertainment industry must create engaging content for their audience. Improved knowledge and understanding of user patterns and preferences can be very helpful in this situation. Companies may be able to make choices that will lead to concepts that will be profitable.

E) Quality of Life Improvement:

AI and IoT together could lead to major innovation. This has nothing to do with making financial savings, doing clever things, using less human labor, or following any buzz. It is far more than that; it is improving people's Quality of life. IoT will continue to face several severe problems, such as security risks and ethical dilemmas. Machine Learning (ML) and Data Science (DS) technologies are contributing to the improvement of the Quality of Life of the overall Human Civilization.

- **Machine Learning (ML):** It is a platform that enables future decisions to be well-informed without the need for manual oversight by teaching the system's tendencies from data gathered in the past.
- **Data Science (DS):** To improve the system, all the data obtained by the vast, interconnected system will eventually be processed and analyzed, creating a significant amount of information. To address the "Big Data" issue, machine learning algorithms are typically tweaked and customized.

III. APPLICATION OF AI AND IOT IN MASS COMMUNICATION

Nowadays modernization in the global area, technology is an effective magic weapon in today's society, which is dominated and influenced by digital technology. There are now many mass communication platforms, such as TV, magazines, or news media. IoT enables Artificial Intelligence (AI) is considered by the repetition of human intellect for its usage in robots and for training them to think in terms of humans and to duplicate their actions, giving these platforms a completely new shape and identity [16-18]. Technological concepts such as AI, DS, ML or Deep Learning (DL), Internet of Things (IoT), and robotics has had a noteworthy constructive impact on the overall Global Construction Industry. Progression in digital technology, sensors, appropriate protocols, and Advanced Embedded System Platforms (AESP) also support the advancement of offices similar to Smart home Automation Systems (SHAS). System on Chip (SoC) and several data transportation criteria with a single board are useful with Internet of Things (IoT) and Artificial Intelligence (AI) [19-22]. Some applications of IoT, ML, and AI in mass communication are listed below:

i) Automated Journalism (Robot Journalism) based on AI:

Automated journalism is also known as Robot Journalism. Using AI-powered natural language production algorithms to automatically transform data into different news pieces, photographs, videos, and data visualizations, which are then spread over automated journalism podiums. Automated journalism included creating multimedia, writing articles, generating subtitles, content personalization, distributing interactive data visualizations, and reporting articles in this terminology of mass communication.

ii) Network operation monitoring and management

The implementation of techniques like Software-defined Wide Area Network (SD-WAN) is nothing but a computer-generated architecture that gives various permissions to organizations for control, monitoring, and execution of tasks and handles various complexities of communications systems, which are typically complicated and challenging to administer. The use of enhanced automation in network operations, made possible by AI and ML technologies, can help network operators optimize their network architecture and enhance control and administration.

iii) Predictive maintenance using AI applications

Telecom firms may use data, complex algorithms, and powerful machine learning capabilities to predict potential results by building on existing data thanks to predictive analytics, which is powered by AI. AI algorithms track the state of the equipment at any given time and forecast failure based on the study of historical patterns. Telecom clients can develop a highly-scalable, trustworthy, and cost-effective solution by utilizing AI, ML, and IoT with the aid of machine learning and AI services.

AI has revolutionized many aspects of our lives and given businesses access to a higher level of productivity. The IoT and the growing number of connected devices are the primary drivers of this market expansion. The entertainment and media industry is being overtaken by artificial intelligence, which is constantly developing and working behind the scenes to boost productivity and elevate personalization to a whole new level. Media outlets must adopt and use AI tools in the cutthroat environment of today.

iv) Speech recognition applications

Technology for speech recognition is increasingly being used in the mass media communication industry. Additionally, several vendors are starting to create software for auto-recording physical meetings and conference calls for compliance reasons or to better record the judgment process. Automated speech recognition can also be used to monitor call center activity to make sure staff members are adhering to the proper protocols and save managers from having to listen to every call. Additionally, automated verbal interpretations for travelers are provided by speech recognition software.

IV. DISCUSSION AND CONCLUSIONS

Ultimately, this study makes the case that there are various ways AI can be used in the media sector (Audio-visual (AV) media as well as Print media) along with the news sector. Our research identifies three key subfields as added prevalent in Media Communication. Different stages of the news production workflow employ machine learning. However, in most of our cases, we discovered two applications. The first application is the use of ML to increase public involvement as per their interest and the second is the use of ML, AI, IoT self-adaptable, and self-learning facilities to increase the revenue of Media houses.

Media can strengthen their control over ICTs and strengthen it by keeping an eye on and following rapidly evolving innovation trends. According to analysis, ICTs are going to take over the world. Traditional lifestyles are also changing with the advancement of digital technology. Enhanced news media and their insights on public democracy in a wide range of current contexts are highlighted by IoT technological advancements and developments. Simple to automate IoT devices, opening the door to novel business models, new types of mainstream media, and much wider applications of wireless connections across a range of IoT applications. To provide the best automation in mass communication, IoT devices are coupled with AI and ML systems. Along with the advancement of Media houses (media agencies) or offices, Robot Journalism and Speech recognition applications will be the milestones not service and education sectors but have tremendous scope and impact on Mass Communication.

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