

AI/ML Based new smart customer feedback system for hospitality Industry

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Abstract—Since the last many years customer satisfaction play a significant role to improve the hospitality industry. In this article we introduce a proposed technology based practical and theoretical framework for customer feedback management system to improve the hospitality services and to enhance the customer business era. Technology such as Artificial intelligence and machine learning has important role to develop scalable smart feedback system. AI solution support the responding process for online customer reviews and assist the using automatically collected data. Sometime this is difficult to interpret the collected data form the customer, so we apply machine learning to fetch the corresponding data. Our solution contributes the existing customer feedback application to provide the smart feedback system to improve smart and open platform the customer and hospitality industry.

Keywords— *Artificial Intelligence; Machine Learning; AI Enable feedback system.*

I. INTRODUCTION

In some past years there was a big challenge to collect the review form the customer and reflect for future to improve the services or product [1]. Hotel industry services, restaurant facilities, product, and future are fully dependent on the customer reviews. Traditional methods such as feedback diaries, newspaper, review papers were used to collect the customer review [2]. Nowadays customer use the digital way to provide the feedback that help to improve the hospitality industry services. A single click influences the feedback, services, customer opinion and future reviews. Facilitator now using the Artificial intelligence and machine learning technology to enhance the customer experience [3]. AI highly impact to gain the review form the customer and provide the suitable ways to improve the hospitality services. Automated system created by the AI technology for automation in the existing hospitality industry[4]. This article provides the proposed framework using artificial intelligence technology to transform the customer review using some technological methods. This will help to minimize the traditional method limitation and it will help to assume the sustainable and scalable development to improve the hospitality industry services.

II. ARTIFICIAL INTELLIGENCE TECHNOLOGY

Artificial Intelligence (AI) is referring as a technological system that act like the human brain [5]. It makes possible to learn from the machine input output and react accordingly. AI add the repetitive, progressive and intelligence to the machine for self-learning capabilities for further processing task [6]. AI is important because:

- AI Provide the automated system for learning through intelligence methods using neural network.
- AI analyzes the data in depth for processing to improve the quality of result using neural network.
- AI provides the accuracy du to neural network and depth analysis data.
- AI adept the effective, progressive, and repetitive algorithms for data using neural network.

Artificial intelligence considers the concept of Machine learning and Deep Learning because of neural network has significance of both the technology to process the data shown in Figure 1. It uses in customer services, computer vision and recommendations engines[7].

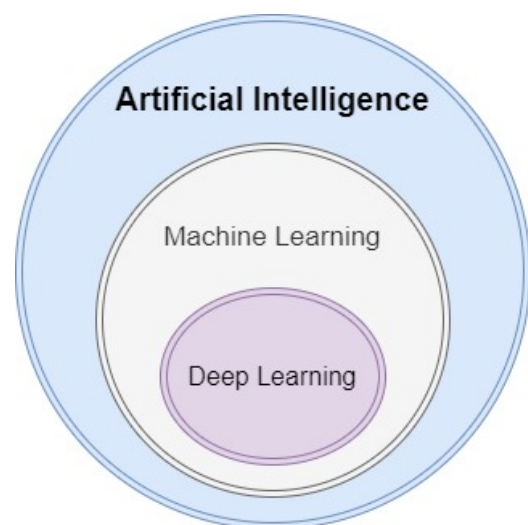


Fig.1. General representation of Artificial Intelligence with Machine Learning and Deep Learning

Computer based intelligence work on individuals conduct, feeling and things inside a climate to perceive the genuine trust of the information port[8]. Artificial intelligence empowered application can perceive the client conduct, movement and feeling as a contribution to appropriately figure the outcome[9].

III. MACHINE LEARNING IN FEEDBACK SYSTEM

Machine Learning is a part of Artificial Intelligence that provide the capability to learn the data to computer without having the predefine methods or the sections[10]. A strong result can be possible due to AI with ML to recognize, compute and communicate. Machine Learning is a significant part of the developing field of information science. Using measurable strategies, calculations are prepared to decide or forecasts, revealing key bits of knowledge inside information mining projects the formal working of the machine learning process shown in Figure 2. These experiences accordingly drive decision making inside applications and organizations, preferably affecting key development measurements[11].

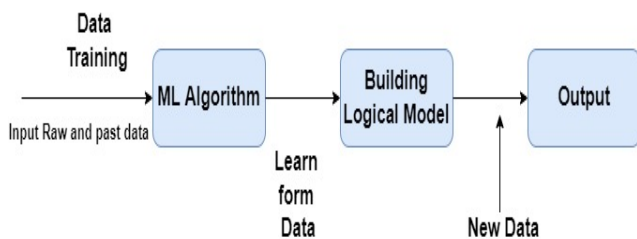


Fig.2. Overview of Machine learning Working Procedure

These days, poetic overstatement about AI and man-made reasoning is pervasive. This is maybe which is all well and good, given the potential for this field is gigantic [12]. Machine learning and AI work together so this has some limitations such as:

Machine Learning requires enormous informational indexes to prepare on, and this ought to be comprehensive/unprejudiced, and of good quality. There can likewise be times where they should trust that new information will be created[13]. ML needs enough time to let the algorithms learn and develop enough to fulfill their purpose with a considerable amount of accuracy and relevancy. It also needs massive resources to function. This can mean additional requirements of computer power for you.

One more significant test is the capacity to precisely decipher results created by the calculations. You should likewise cautiously pick the calculations for your motivation[14]. AI is independent however exceptionally powerless to mistakes. Assume you train a calculation with informational collections adequately little to not be comprehensive. You end up with one-sided expectations coming from a one-sided preparing set. These prompt insignificant ads being shown to clients.

IV. AI ML IN NEW SMART FEEDBACK SYSTEM

In this section we discuss the role of Artificial Intelligence and Machine Learning that can be used to develop the

intelligent smart feedback system for the customer. This proposed innovation can be trans disciplinary in different ways to provide the services in different domain including hospitality management, restaurant, Management and service for the service providers [15]. The proposed architecture can consist of the knowledge of different variables and factors that help to develop the system. This system will take the input form the client to organize, manage and analyze the situational knowledge. It will work on the input data from the customer fetched through the direct input, activities of the client and emotion to make the sense about the customer reviews [16]. It will help to recognize the positive and negative input form the client and having the ability to rectify the data based on some facts. A general feedback loop system shown in figure 3 that represent the basic working of the AI enabled feedback system.

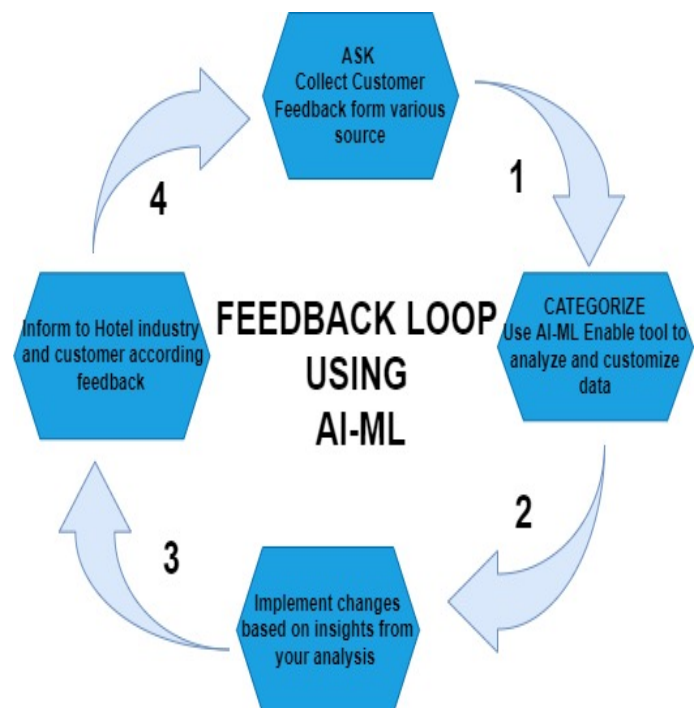


Fig.3. General Feedback Loop System using AI-ML

Based on the Customer data AL-ML based system collect the data using various sources and compare to other customer assessing in common trends. Customized data implemented the changes based on insights from the analysis data [17]. AI system also evaluates the customer data and compares that according to the data categorized. This result supports to the customer and existing hospitality industry to enhance the services and skills for better management. Customer and management can use the information from the AI system to customize the services based the current portfolio according to the feedback form the customer [18].

V. ADVANTAGES THE USE OF AIML IN NEW SMART FEEDBACK SYSTEM

AI-ML affect the technological era positively way to Achieve Compliance Adherence that reduce the cost of the services to improve the customer loyalty[19]. Client support across all channels with Conversational Artificial Intelligence allows you to offer a customized and complete help for every cooperation while remaining consistent with your organization's voice and tone. You can likewise add energy to your responses with supplements like recordings, merry go rounds, fastens or shapes, to make a cooler encounter[20]. Also, AI permits incorporating records about every client and their connections through various channels. With this data, conceivable is to give brilliant client assistance thinks about every one of the interchanges from the client [21].

A. TECHNOLOGY ANALYSIS FOR FEEDBACK SYSTEM

This Paper makes up a commitment to the top-of-the-line Artificial Intelligence and machine learning with other technologies for putting together and coordinating operational frameworks for hospitality industry. The main goal of this paper is to draw attention to the discrepancy between the theoretical and imaginary network of AI [22] for assembly and storage and their practical implementation from the standpoint of reenactment demonstration.

There are some analyses done by the author based on the current scenario where we can see the analysis chart based on artificial intelligence, digital twins, IoT and other technologies are using to develop the new smart feedback system.

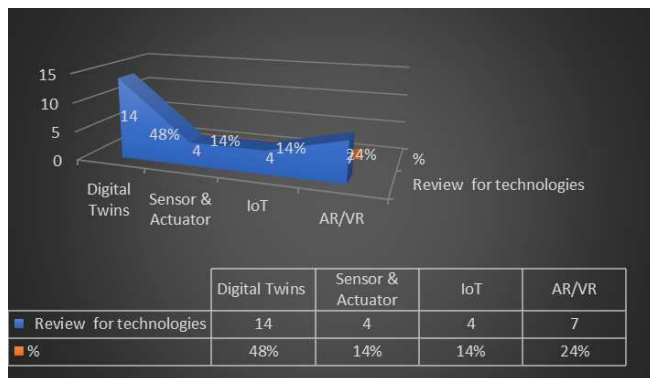


Fig. 4. Statistical analysis of technologies for feedback system

VI. CONCLUSION

Technological customer feedback experience determines the customer loyalty and experience that enhance the repetition in the hospitality industry and business. AI-ML provides the revolutionary and complementary carry to the hospitality industry for different management system that scores the customer satisfaction. This is specially used to minimize the effort for customer review to enhance the services. However, the problem is that the cost may be very to develop the system based on the capability sharing. In this manner, the monetary expense should be thought of.

Moreover, the AI-ML enabled system is much capable to provide the examined evaluated feedback to improve the customer experience and to improve the hospitality industry services.

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