A Review on Importance of Artificial Intelligence in Hotel Industry

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Abstract-At a time technology is disrupting businesses on a regular basis, it is vital to amalgamate those which are integral to build an 'intelligent business' than playing a wait and watch game. In a service industry like hospitality, it is all the more critical to adopt consumer facing technology with shortest of delays so that the first-mover advantage can be reaped. Artificial Intelligence (AI) and Machine Learning (ML) are such compelling technological innovations which help hotel operators to be really intelligent to stay ahead of the competition. Artificial intelligence is playing very important role in hospitality industry, initially because of its ability to carry out work by tradition of human functions at any time of the day. Due to which property owners can save sufficient revenue generation, remove human error and deliver superior service. In this particular hospitality industry customer service is a essential part of the travel industry, with hotels these industries are always keep on to provide guest services up to the mark. With artificial intelligence, the possibilities for improving this aspect are almost huge and have no end. One of the major aspects which can be considered as a challenge is to respond the customer or guests questions quickly which is very easily solved by the artificial intelligence. This artificial robot is able to provide tourist information to the guests or the customers who talk with it. Most remarkably, it is able to learn from human speech and adapt to individuals. Ultimately, this means the more customers speak to it, the better it will get. So now at present scenario artificial intelligence is helping a lot and also contributing in guest satisfaction level in this hospitality industry.

Index Terms- Hotels, Human Error, Technology, Artificial Intelligence.

1. INTRODUCTION

Artificial intelligence systems require four basic elements to work: data, programs, hardware, and interconnectivity between the different systems. We will not analyze hardware in detail because the motto is that the more powerful hardware is, the better. Artificial intelligence applications usually require large hardware capacities (processing and storage) to run adequately, although there are certain hardware architectures that are more well suited for AI. In the present stage of the advance technology AI performed in different ways of this service sector i.e gathering of customer data, combined with the improvements to technology, providing personalised services, more advanced problem-solving, and even for sales processes and direct messaging.

Objective of the Research

This study aims to identify the role of artificial intelligence used in hotel industry. The purpose of using this AI in hotel sector is expected to be one of the fastest-growing technologies in the coming years. This AI how it is going to be more beneficial for the guest & to the hotel to earn more & more revenue. So following are the objectives-

1. To Study concept of artificial intelligence and its applications in hotel industry .

2. To over look Internet of Things (IoT) technology used in hotel industry.

3. To study applications of robotics & Sensors used in Hotel Industry.

4. To study impact of Artificial Intelligence on Hotel Industry.

5. To study the real time implementation of Chat boots.

1.1. *Artificial Intelligence & Its applications*

Artificial intelligence (AI) refers to the recreation of human intelligence in machines which integrates with mechanical and electronic components and programmed with programming languages to think & work like humans actions. In Today's era Artificial Intelligence is used to solve very complex problems.

Artificial Intelligence having many branches such as Robotics, Bid data, Expert System, Machine learning, Neural networks , speech reorganization, Cognitive Computing and so on. By integrating all these technology , Artificial Intelligence act as an human behaviour .

In current scenario multiple professionals are using AI for searching and researching within the field industry. In this modern era the best hotels

who are successful in fulfilling the expectation of guest AI is definitely helpful to them in using different tricks. There are many important factors of AI that make hotels intelligent. Some of them are:

- Concierge robots

- Digital assistance

- Voice-activated services

- Travel experience enhancers

- Automatic data processing

AI robots not only remove the human involvement with its sound assistants but also impress the way hotel guest service which is delivered for customer's satisfaction. From customer's own choices to their needs, and careful assistance to the guest.

Apple's Siri who has started providing voice-activated assistance to its mobile users to an extentthat it's become almost common now.

2. How Artificial Intelligence is important in Hotel Industry

Day by day Artificial intelligence is playing an important role in hospitality industry, initially due to its capability to hold out conventional human functions at any time of the day. This potentially means hotel owners can save sufficient amount of money, remove human error and deliver high quality of service. With the help of AI hospitality sector can definitely upgrade the services and their will be more scope to improve the error if mistaken. One of the major key of AI in this hospitality sector is to quick response to the guests.

Artificial Intelligence used in some Hotel Industry as a :

In-Person Customer Service:- Giving in person services is the most common factor in the hospitality industry and it is the simplest one so far with the help of AI it becomes very easy to provide by taking the help of an AI robot called 'Connie', which is adopted by Hilton brand of the hotel. It provides information to the guest. Speciality of robot is that it adopt human speech and recommendthe answers to the guest or to the customer.

Chatbots and Messaging:- for case in point , AI chatbots are useful on social media platforms,and it allows customers to ask questions and provides almost instant answers 24*7. This is very much helpful to the hotels as many of the times it cannot be possible by human.

Data Analysis:- In this type of example we can definitely state that Métis podium which can show how the data is collected & used by the technology. And after sorting the data which provides all performances for the betterment.

2.1. Blockchain Technology and Its Uses within the Hotel Industry.

Blockchain is a continuously growing ledger that keeps all transactions a permanently. In this technology all transactions will takes place which are sequential, protected and unchangeable. This technology is used to transfer property, money and contracts securely without using third -party mediator. This technology is a software protocol, work on Internet Technology.

1. Integration of databases are implemented in this technology hence data shared by using cryptography concepts.

2. Supply chain management concept is used on Blockchain technology therefore paying oftaxes and accounting perform accurately.

2.2. Internet of Things (IoT)

It is a technology, in that system many physical devices / vehicles are internetworking to each other using wired network , Wi-Fi network and Bluetooth technology. These connected devices are referred as smart devices . All these smart devices are embedded with sensor, actuators, electronics devices, network connectivity , computer software , programming languages that enable that these devices can collect and exchange data from one device to another device.

2.3. IoT in the Hotel Industry:

Hyper-Personalised Hotel Rooms : This is an example of implementation of IoT in hospitality industry. Inthis concept, visitors having the facility to control air conditioning system, heating system, and ventilation from one location automatically.

Location-Based Information: This is another example of IoT that already used in Hospitality Industry. This technology having GPS, beacon technology and Bluetooth facility which help to get & deliver the location based information about customer and send to recipient desk of an industry. This system having a facility to get information about menu items available at restaurant on request. This helps optimize the requirement of staffs.

Predictive Repairs & Maintenance: This is a different perspective of IoT used within Hospitability industry which having the facility to maintain the record of maintenance of valuable devices. The

system providing the information about operating status of appliances / devices and sending the warning signals to concerned staff that might be pinpointing of failure of performance and deterioration.

- *Electronic Key Cards* : This system of IoT helps to implement internet communication technology that help to create electronic key for the guests. In this technology electronic key will configure in guest's smart phone and customer can access the lock using same mart phone. This system is synchronizes with check-in desk. when customer check-out the hotel, automatically electronic key will disable from customer's phone.

- *Voice-Controlled Customer Service* : Some hospitability industry already adopted this system which help to automate the functionality of industry, improve the customers experience and save maintenance cost & energy cost.

2.4. Further implementations of IoT in Hospitality Industry : .

There are following solutions or implementations of IoT:

1. Amazon Alexa : It is like empowerment to the customer. Customer can handle appliances using voice
2. Mount Kelvin : It is a device managed by apps used to control lighting, curtain, heating and AC. In this system all appliances are work on wireless switches concept but manages using mobile apps and voice control.
3. Flic : It works on Bluetooth concept, instead of calling to front desk for particular things, customer having an facility by pressing a button to notify the housekeeping of service that customer demand for requirement.
4. Nest thermostats & Valpas : Nest is a google product used as smart thermostat in the rooms of hotel. It helps to save time and cost too. It manages room temperature. Valpas is IoT solution to maintain the bed bugs
5. Hotel-specific intelligence for creating a brand reputation:- With voice technology in hotels and IoT devices linking virtual assistants, hotel guests tend to enjoy smart space and even smarter services, leading to fewer interactions with hotel staff. This is the reason why hotels have already started allowing hotel guests to check-in and check-out via mobile apps. The concept of virtual keys enabled with mobile apps also allows them to control air conditioners, light intensity, and other controls.
6. Marketing develops more impactful and emotional sense: - Marketers are increasingly using the term contextual marketing to add effectiveness in their advertising campaigns. Human sensation and its emotional impact are forming the foundation of marketing strategies that contain personalized messages to target individual customers. Artificial intelligence and predictive analytics in hospitality fuel the personalized marketing campaigns that best suit customers.
7. Smart Guest Rooms becoming more Smarter:- The world inside and outside our domestic premise is growing smarter every day.

2.5. *Robotic and Sensors used in Hotel Industry Robotics:*

Robotics is a on branch of Artificial Intelligence which build with electronics & mechanical components and work on some logic using computer science. It is an integration computer science, mechanical, electronic , nanotechnology and bioengineering .

In today's era Robotics are also installed in Hotel industry. There are multiple advantages of using robots in hotel industry as robots can work 24*7 more faster than human beings. Also it doesn't need salary for all the month as only requires some of the maintenance periodically. It never deny for any work. Due to automation in hotel industry indirectly people may loose their jobs due to automation, but for establishment of particular automation hotel have to invest large amount of money which can be one time investment. The first robot hotel was established in Nagasaki who was replaced with the task of informationist, receptionist and also doing check in procedures of the guest. Later on the changes were made and robots were able to perform the wwork of conceierge (bell boy). Also were able to interact with the guest. As there are many hotel properties those who have adopted robots. Some of the robots were able to handle the luggage of the guest also it was more capable of taking care of the guest baggage along with the help of pin no. After words robots were became very prominent to be a part of front office and were delivering services in the rooms as well. Some of the Robots now capable to call the lift for the guest, also can deliver some guest room supplies in guest rooms which looks very attractive. Now a day's robots are very efficient to work in providing any of the service which is asked by the guest such as towels at pool side... these type of robots are called as robotic butler. And also it provides the service in the time frame 15min only which is the speciality of these types of robots.

2.6. *Sensors :*

A sensor is equipment which is used to detect and responds to some type of input from the physical environment. The input may light, heat, motion, moisture, pressure, or any one of a great number of other environmental fact. Senor will give an in a form of signals that can be converted to human-readable language. Below are some of the examples of the major sensors which are used in hotel sector.

1. Photo Sensors – These type of sensors are used to save the consumption of the electricity of the property,. As the sensor work on the basis of supply/amount of the daylight is available it varies from the same. According to the light/bulb which is used in the area it automatically switches on & off the electricity consumption which reflects in energy conservation.

2. Smoke Detector – A smoke detector is a tool that senses smoke, which indicates of fire. When there is a smoke these devices issue a signal to a fire alarm control panel as part of a fire alarm system which helps the employees to identify the area where the smoke is raised.

3. Occupancy detector – This type of sensors are also called as motion detectors which are devices that turn on the lights when there is moment of the people. In the similar way it is used in opening or closing of the door with the help of this type of sensor.

4. Close-circuit TV or CCTV- CCTV is nothing but an electronic eyes which keeps an eye on every things which is happening the hotel except guest rooms and rest rooms. Its main objective is to protect the guest from any miss happening.

5. Humidity sensors- These are the type of sensors which are used to have proper temperature whichis requires to be maintained at a particular place. By majoring humidity it is considered or can be ensured that the all operating systems are working smoothly, if any spontaneous change happens it detects immediately.

6. Gas Leak Detectors – In hotel sector it has a great importance as hotel industry is majorly dealingwith the preparation of food in bulk way. While preparing food it is very important to work safe with the gas and if any kind of leakage happens this type of gas detector indicates spontaneously which helps to avoid accidents.

2.7. *Closed Circuit Television(CCTV) in Hotels*

CCTV is also called as Video Surveillance used to capture the image from limited area and send the send the signals to specified locations. By this technology, it can be possible to maintain all records of visitors & staff which helps to improve quality of business.

Most of Hotel Industries have installed the CCTV as it having numerous advantages as follows :

• To monitor, manage and control overall activities of hotel management.

• To protect the guests/ visitors from any offender.

• To protect assets from pilferage and theft, such as in a liquor storage room

• To prevent loss by way of legal compensation by identifying false claims by customers.

• To help get insurance claims in case of property damage due to fire etc.

2.8. FINDINGD AND CONCLUSIONS

Findings

1. AI provides guest get easiest mode of services in hospitality sector.

2. IoT perform very important role in Hospitability Industry.

3. IoT implementation in industry reduces the expenses and increases the quality.

4. Artificial intelligence gives more comfort zone to the guest.

5. Due to AI hospitality industry can give more luxurious life to the guest.

6. Sensors implementation /installation helps to detect entity or things which are harmful for hotel industry.

7. Robot performing well job as an human being.

8. Blockchain technology allows making the financial transactions with transparency and lot ofsecurity is maintained.

Conclusions

By this research definitely we can consider that this type of artificial intelligence is helpful for hotel industry and also making our guest more comfortable & comfortable to avail the service from hotel sector. Due to IoT implementation in Hotel Industry maintenance cost is reduced. As far as we hospitality industry is concern we provide maximum comfort zone to the customer and due to this AI customer will become more comfortable .Technology has launched varieties of Smart Phone which provides to connect to globe and start the various businesses from Home that affecting on Globalisation. With so much pressure to tackle the competition and capture wide customer base in tight deadlines, hotels across the globe will require substantial technological innovations to survive increasing demands. In the world that is more interconnected than ever, hoteliers must adopt the innovative fusion of IoT,

AI and consolidated service devices to transform their space and redefine current service standards.

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