

“ARTIFICIAL INTELLIGENCE IN HOTEL MANAGEMENT & HOSPITALITY SECTOR IN INDIA”

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ABSTRACT: This paper attempts to study the implementation of Artificial intelligence in Hotel management & Hospitality sector. The purpose of this study is to know about the need and the impact of Artificial Intelligence in Hotel management sector in India. To know about customer satisfaction towards the service & its quality in hotels, to know how it is served & in what time and accordingly implementation of AI in the hotel management sector in India. Only 1% hotels are using AI in India. The paper focuses on the future use of AI in Indian hotels. The use of AI in hotel management sector, proves to be a game changer. The main aim of the study is to find out the ways of implementation of AI in hotel industry in India. For that the researcher proposed a software system to implement AI and want to draw the attention of the readers towards HCI to erect a competitive advantage for potency.

KEYWORDS: Artificial Intelligence, Hospitality, Hotel Management, Human Computer Interaction (HCI), Virtual Assistant.

1) INTRODUCTION

AI is no more a buzz word. Almost every sector of life is covered under it. AI is the most significant and commonly adopted technique in the world nowadays. Adoption of AI in daily life, makes the work easy and fast.

If a person asks Wikipedia; Artificial Intelligence (AI) is "The intelligence exhibited by machines or software. It is also the name of the academic field of study which studies how to create computers and computer software that are capable of intelligent behaviour". [1]

“Artificial Intelligence is the science & engineering of making intelligent machines” [2]

Terms like Machine learning, Natural language processing, Big Data, Cloud computing, robotics, deep learning etc. are related with broader concept AI. No wonder if in future almost all companies will go to rely on AI. They might produce extreme dependency on AI. Artificial Intelligence is having its own pros & cons but mankind is looking for its positive & innovative horizon.

1.1 Impact of AI on Business

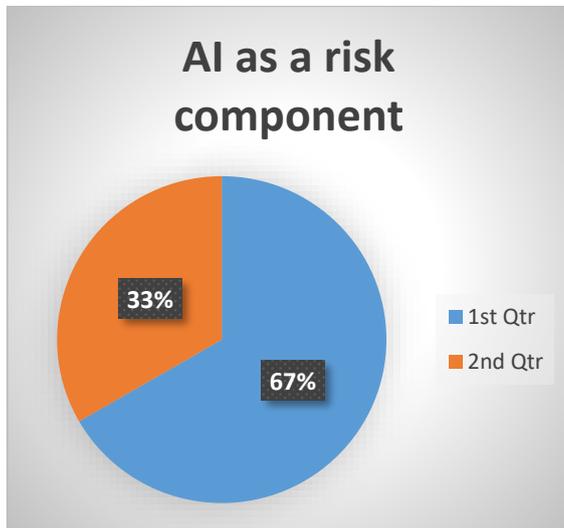
Nowadays AI is having great impact on business. AI has gained a foothold in the world of business, which is getting larger and larger day by day. Most of businesses have already adopted it and remaining are ready to adopt it and plan accordingly.

AI helps in to bring a positive change in much of the daily work environment. No one can ignore the great impact of AI in business. It not only gives profits but also saves time and energy of manpower as AI can eliminate certain manual or repetitive tasks. It has many uses in business like for demand forecasting, customer care etc. In almost every area of business AI shows its importance. Especially, if people talk about the businesses in India, it is clearly shown by the research report 2018 of PWC, the perceived impact of AI on business and individuals shows positive views among business decision makers and regular participants in terms of its potential to contribute towards socioeconomic causes in India like economic growth, health and well-being, and education.

AI may not always be a solution for every company, but failing to examine the possibility of utilizing AI could be serious for a company's competitiveness in the near future. [3]

Companies are using it for the most vital components like Customer Relationship Management (CRM). It is the coordination between sales, marketing, customer service, field support and other customer contact functions [4]. Indian government is also supporting it by giving a very positive sign for the use of AI to meet various goals.

The AI Task Force, formed under the Ministry of Commerce and Industry, Government of India, has brought together experts from diverse fields to shape the AI roadmap for the nation and has recently released its findings and recommendations to the government. [4]



But although many see AI as a risk component. Many believes that increase use of AI will affect many jobs in various sectors. It effects employment. This may be consider as dark side of AI. More than 67% of organizations see AI as a strategic opportunity, while almost 33% also see strategic risks. [5]This is shown in fig. 1

Fig. 1 AI as a risk component

According to a report of AI, Global executive story, most respondents do not expect that AI will lead to a reduction of jobs at their organization within the next five years. Nearly 70% also said they are not fearful that AI will automate their own jobs. While AI may create value within an industry, it is far from clear exactly which organizations will see their fortunes rise and which will see decline. Managers expect significant improvement in performance of current processes or products from AI. [5]

Apart from this part, the researchers believes that AI will be helpful in every area of business, specially focused on hotel industry. Use if AI will convert into helping hands for hotel industries. The Hotel & Hospitality industry have seen a keen interest towards the application of Artificial Intelligence in their services& other major influences. Artificial Intelligence in Hotel Management has been preferably use for all kinds of time conserving methods including kitchen, the restaurant, the deliveries, the cleaning process etc.

In this paper, researcher focused on the automatic use of AI in hotel industry from check in point to check out point.

1.2 Need of AI in hotel management sector in India:-

AI has not been using by hotel management sector in India. Only one or two big brands are using it. As all are aware about it that AI has been proven as game changer and known as helping hand for hotel management sector.

The most recent trend and example of this is Robotic kitchen SPYCE which is designed to cook, serve and clean up. It is inspired by the experiences as hungry college students. The fast casual restaurant was created by 4 MIT graduates. It serves salad and grain bowls and take orders from electronic kiosk. It also provide screen displayed order. It offers vegetarian and gluten free bowl. Each bowl costs \$ 7.50. It serves 7 customizable options. It has only one location at Boston. According to Michael Farid, SPYCE co-founder and CEO, "As robotics-obsessed engineers, we set out to create a new & efficient way of cooking food". [6] US-based start-up Creator has unveiled a robot-run restaurant which makes burgers priced at \$ 6 each. The machine which makes the burgers contains 350 sensors and 50 actuator mechanisms to prepare the bun, add toppings and cook the patties in under 5 minutes without any human intervention. Formerly known as Momentum Machines, Creator was founded by Alex Vardakostas in 2009.

It left us with the most vibrant question that are robots the future of the food industry? And if yes, then it should be install with some values and ethical limitation along with the purpose of providing ease of business, it should be prove as bliss for us not as curse. [6]

If this kind of things can happen in other countries, India can also adopt this and can excel in every sector especially in hotel management sector. A country like India, with huge manpower and vast opportunities, if will going to adopt right strategy at right time, it will win the market.

It shows the importance of AI in the particular sector in India. The use of AI saves time, human efforts and manpower. It increases customer satisfaction towards services, it also increase quality of service and most vital component it saves time duration. As time is consider as money, so saving time is like saving money. It increases sales. It is helpful in marketing, advertisement, demand forecasting etc.

1.3 Current scenario of hotels in India:

Artificial Intelligence is gaining excess knowledge by itself through expanding itself into various fields. Applying Artificial Intelligence in anything is now the exclusive motto for any company for its growth in their particular work & business. Any appliance has been introduced to Artificial Intelligence works faster & better. With excelling in all fields, Artificial Intelligence is entering the Hotel Management sector.

In the field of hotel management, when it comes to Artificial Intelligence, the use of AI is very limited.

One of few famous hotels, Hyatt, uses artificial intelligence through chat bots. One of the most futuristic hotels in the world is undoubtedly Hyatt! They began using Facebook Messenger in November 2015 to answer guests' queries, let them make

reservations and check availability, uses its customer relations staff to help guests on the platform. Hyatt told in a seminar, “creating and deploying a Facebook Messenger bot is something that people will explore in the future.” [7]

1.4 Impact of AI in hotel management sector in India:-

By adopting AI in hotel management sector in India, it will create the tremendous impact. By the use of AI hotel management sector will reach new height of comfort and prompt services.

This whole new wave of artificial intelligence research and technology really hinges on this “emergence-view” of intelligence being a useful way to analyse intelligent systems. [1]

AI potential has no limits towards the service & hospitality aspect. Examples of such services are AI at front desk - while check in, there will be no formal identification needed. AI could instantly sync through the Smartphone & the Smartphone will be the key to the room. Room service - the waitlist will be excluded as the application will allow the guest to pre-order the service. Also with the use of automated car parking feature, the hotel could built an architecture with guidelines in the parking so that the car would itself park in the garage. AI will also be beneficiary when it comes to cleaning schedules & maintaining standards before the arrival of guest. Smart appliances will keep the note when the guest are not in the room by tracking the syncing device.

Hence there will be a huge impact of AI. Although these kinds of things are not in action in India in hotel sector but as it is having an unavoidable impact on the industry, the use of AI should be increase in Indian hotel sector. The researchers want to drag the attention of the readers towards the same.

II) LITERATURE REVIEW:-

Hospitality Technology’s own research indicates as much. According the 2018 Lodging and Restaurant Technology Studies, AI was named a top technology with future-impact for both hotels (70%) and restaurants (38%). [8]

Thanks to recent advances in artificial intelligence, hotels have begun to equip their rooms with smart devices that have voice recognition system. One such hotel that has equipped as many as 5000 hotel rooms with Amazon’s Echo speaker is Wynn Las Vegas. The guests at Wynn would be able to control many features in the room with Amazon’s Alexa, a Voice-Controlled Virtual Assistant (VCVA). This may not be the only hotel to see Alexa in hospitality. [9]

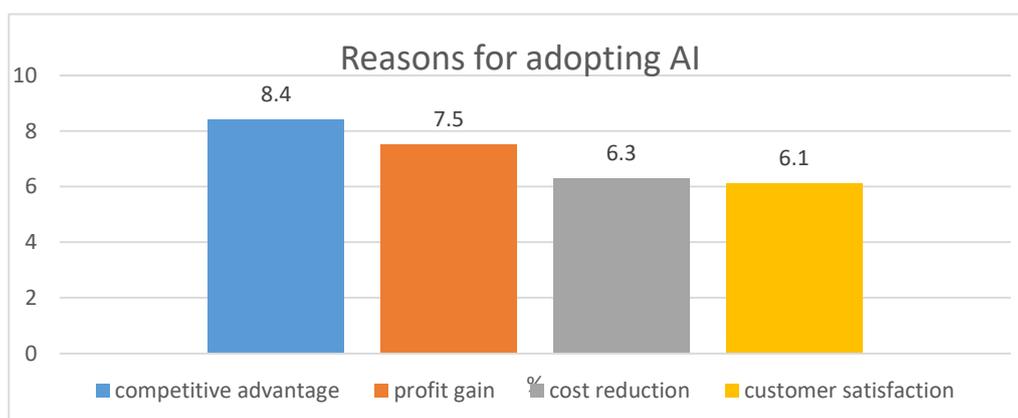
Similar AI used around the world are Connie- the concierge, Ivy - the direct messenger, Rose - the personal assistant etc.

A company named Kohler Made a smart AI based sanitary need toilet for ultimate comfort. Which is totally based on automation. Its intelligent seat cover detect the need of sanitation and supply water automatically. It is having many more features like automatic warm air-dryer, automatic deodorizer which keeps you fresh etc. It intelligently detect the comfort and sanitation need of the customer and act accordingly. [10]

This kinds of things on AI will be helpful in hotel management sector, as it is known for its comfort quality as shows in fig. 2

Fig. 2. Bar graph showing reasons for adoption of AI

Source; [2]



III) RESEARCH METHODOLOGY

3.1 Research Objectives:-

- To study the need of Artificial Intelligence in Hotel management sector in India.
- To study the impact of Artificial Intelligence in Hotel management sector in India.
- To find out the ways which will be helpful to implement Artificial Intelligence in hotel management & hospitality in India.
- To propose the plan of a software system for implementing AI in Indian hotel management sector.

3.2 Research Method:-

This paper is a survey based paper. Data has been collected through various sources like email, telephone, personal visits to hotels, personal interviews, telephonic interview etc.

Based on that researchers drawn a conclusion that only one or two big brands are using AI in India. Researchers realised the importance and use of AI in hotel sector in India, so they prepare a proposed plan to apply AI in Indian hotels, as follows.

IV) PROPOSED SYSTEM:

With an indirect approach of implementing AI in hotel management & hospitality, the simple notion is to develop a software in place of intercom or bell used in room service or for ordering any service. The software will let the guest order for any service through their smartphone consuming less energy, time, work effort of both: employee & guest. The order place will be redirected through the software to the particular service place in the hotel, directly. Also it would allow the guest to personalize their user experience & needs from time-to-time when needed. The agenda here is to give the customer or guest a satisfactory stay by providing the one-click service or hands-free service by speech or gestures using the software. This application can be a helping hands when suffering through different language discussion, also relief for the deaf or mute personalities, quick & spontaneous reply for the customer satisfaction, etc.

The implementation of this software could be expanded throughout any kind of hotel chain in India. This could also be consider as an financial opportunity for the hotels and investors as well. It will be only one time investment. Only maintenance cost will be there, no other cost will implement on it. So, it will be a low cost product. It will also be helpful in the form of utilisation of this software could help the hotel industry to reach the required competitive ranking & position in the sector.

The proposed software will be as follow as shown in fig. 3:-

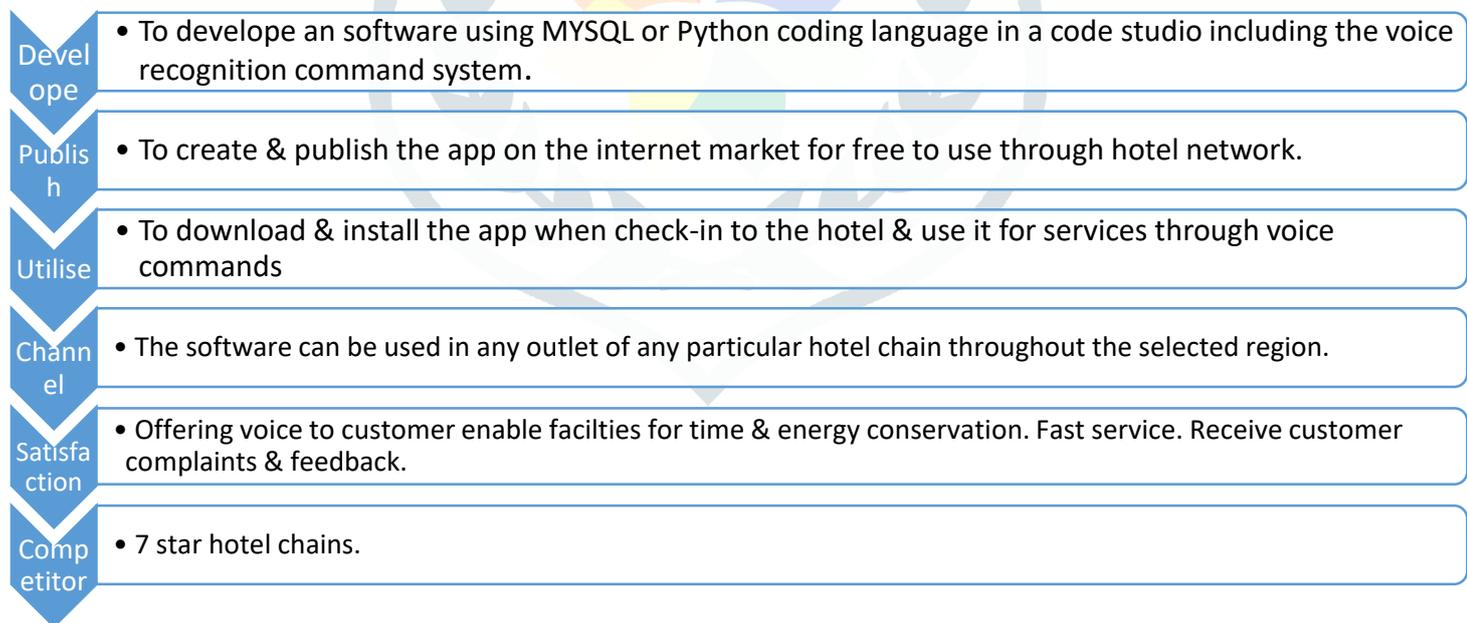


Figure: 3. Proposed Software of AI in hotels.

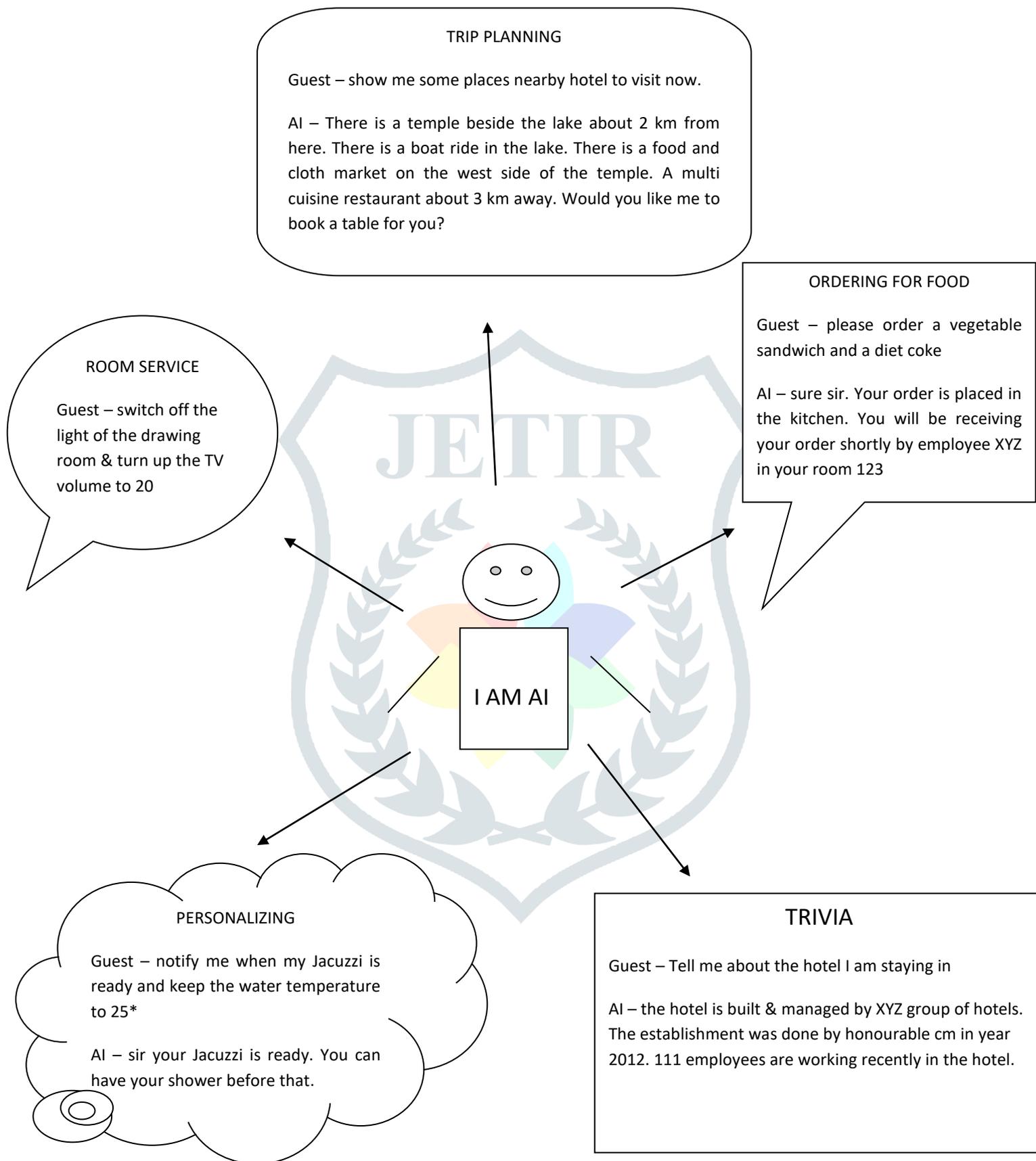


Figure: 4. Diagram for the use of AI in hotels.

As shown in figure 4, the virtual assistant will possibly answer to any question. It will provide the facilities to operate the room services by single voice command or by typing in the app connected to the hotel. The AI will help the guest to find out any misplaced thing. Also it will let the guest personalize through their own terms. It will show and discuss the history of hotel and the place. The virtual assistant could show the nearby places to visit and will manage the trip from time to time.

V) Conclusion and Future scope:-

The use of Big Data [11], Cloud Computing [12], NLP [13] are no more new words for business. In this paper, researchers focuses on the need and importance of AI in business, especially in Hotel management sector in India. Researcher also found out the customer satisfaction towards the service & its quality in hotels and accordingly implementation of AI in the hotel management sector in India. Researcher found out that only few hotels like Hyatt are using AI in India. So, the researchers will focus on the use of AI in Indian hotels. For that, the researchers have found out the ways of implementation of AI in hotel industry in India in form of a proposed a software system to implement AI, which the researchers believe will reach new heights of competitive advantage and comfort. Through diagram the researchers want to justify and try to prove it.

The findings are as follows-

- i. The software will show its impact through a unique way. Guests order for any service through their smartphone consuming less energy, time, work effort of both: employee & guest.
- ii. There will be no need to call for someone as guest can directly place an order through the software for the room service in hotel.
- iii. Also it would allow the guest to personalize their user experience when needed. It is clearly shown in section IV of this paper.

For AI to become a prominent feature in future strategies, companies must figure out how humans and computers can build off each other's strengths to create competitive advantage [5]. With the increasing use of AI and Human Computer Interaction (HCI) [14] in a comfort based industry, will going to reach and erect a competitive vantage for potency for upcoming opportunities in India. As India is growing with rapid speed towards global competitiveness, these kind of advanced techniques will be prove as privilege for Indian hotel and hospitality sector.

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