IJFEAT

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TITLE: THE RESTAURANT BOT

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Abstract

Daily life turning digital is fascinating all the way. Things are getting better in their level of accessibility on a technical mode. And here it is to present one bit of technicality on a learner's view. Chatbots! Running the digital market outside successfully and smoothly... A chatbot is program designed to simulate conversation with human users, especially over the World Wide Web. In reality, the purpose of a chatbot is to support and scale business teams in their relations with customers and redefined the existing guest experience. Till now restaurants have been using apps for all the work which are not user friendly. But with an increase in the use of Chabot many restaurants are thinking of using Chabot app instead off traditional apps. Restaurant chat bots are the modern-day equivalent to a concierge, and with one of the latest bots, your customers no longer have to make a call to reserve a table, wait for staff to attend them, or wait in a queue for tables to free up. Restaurants do not necessarily need to have an exclusive service executive for the customers either. Restaurant bot is a chat bot that will be used for faster interaction with the customers. For this purpose, a mobile app will be used. The mobile app will contain the chatbot. Using the restaurant bot will be very beneficial for restaurants as it will save the time of waiters. Also, it is much more user-friendly than other apps. The customer will order the dishes using the bot. For all the chat it will use NLP and separate the meaningful information from it. The final order item will go to the admin. Chatbots in restaurants need to be perfectly synchronized with the marketing and other customer-oriented efforts. Bots can parallely serve as an intelligence-gathering tool which assists a restaurant in understanding their customers.

Index Terms*: Chatbot, Apps, Restaurant, Customer, Interaction, Bot, NLP, Intelligence*

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1.   INTRODUCTION

Daily life turning digital is fascinating all the way. Things are getting better in their level of accessibility on a technical mode. And here it is to present one bit of technicality on a learner's view. Chat bots! Running the digital market outside successfully and smoothly. A chatbot is a computer program designed to simulate conversation with human users, especially over the World Wide Web. It's not at all a new fact to state that the chatbots have been garnering the entire buzz these days, especially in 2017-18. As a matter of fact, you see them in abundance in Face book Messenger and also, these bots are deployed on websites for better interaction with the guests or customers. . In reality, the purpose of a chatbot is to support and scale business teams in their relations with customers and redefine the existing guest experience. Till now restaurants have been using apps for all the work which are not user friendly. But with increase in use of chat bot many restaurants are thinking of using chat bot app instead off traditional apps. Restaurant chat bots are the modern-day equivalent to a concierge, and with one of the latest bots, your customers no longer have to make a call to reserve a table, wait for staff to attend them, or wait in a queue for tables to free up. Restaurants do not necessarily need to have an exclusive service executive for the customers either. In restaurants, the consumer desire for the speed and accuracy of information which is greater than ever! An entire generation (millennial) of guests prefer not to pick up the phone to reception or talk to a human being. And also, they're not accustomed to waiting for someone to answer a simple

question or to wait for something to be distributed.   In here, chatbots can provide a single product solution, which addresses this type of guest across multiple different scenarios better experience while saving on staff costs. Many popular hotel chains are also incorporating chatbots to redefine their customer experience by engaging the guest in a better and effective way. It promotes saving of time on a scale by engaging bots to the process and staff to their work as soon as possible. This leads in fast preparation of food material and on table serving as well. It proves to be advantageous for the humans in all the senses. Undoubtedly it gives a way to less human to human interactions, but quicker work done along with the system going digital with the customers or say eaters. This way it hikes up the impression of the business on the crowd by increasing in demand and sort of makes it profitable enormously likable to popularity. It fascinates people and grabs their attraction too on a real high level.

Restaurant bot is a chat bot that will be used for faster interaction with the customers. For this purpose, a mobile app will be used. The mobile app will contain the chat bot. Using the restaurant bot will be very beneficial for restaurants as it will save the time of waiters. Also, it is much more user-friendly than other apps. Customer will order the dishes using the bot. For all the chat it will use NLP and separate the meaningful information from it. The final order item will go to the admin. Chat bots in restaurants need to be perfectly synchronized with the marketing and other customer-oriented efforts. Bots can parallel serve as an intelligence-gathering tool which assists a restaurant in understanding their customers. Chatbots can effortlessly replace all the other existing mobile apps for hotels. Chatbots stay with the guest from pre-booking to post-stay and provide hyper-personalized recommendations and solves query real-time.

2. LITERATURE REVIEW

The first-ever chatbot was developed by an MIT professor Joseph Weizenbaum in the 1960s. It was called ELIZA. We get to read more about ELIZA and other popular chatbots that were developed in the second half of the 20th century. A company named WeChat in China, created a more advanced Chatbot in the year 2009. The time when it got launched, it conquered the hearts of many users who demonstrated unwavering loyalty to it. It is a highly thriving social media platform. Through that platform, it turned out to be easier to create very simple chatbots. It has grown to be an example of the most favored ways for marketers and employers to reduce the work they do as they interact with customers online. In 2018 after bots for messenger started the use of chatbot in a business platform which is growing rapidly.

Today, 27% of consumers are interested in artificial intelligence support tools. The idea of using human language in communication with machines arose in the early '50s. However, at that time, people could not yet imagine the machines that could actually react or work like humans. In the past few decades, though, things have changed significantly. People still have unrealistic expectations about artificial intelligence, but we can say that humanity has moved a step

in multiple languages with very finite number of resource required from the hotel's point of view, therefore, delivering a

closer to interacting with machines. Today, AI technology is used to provide virtual assistance in a range of different industries, including healthcare, business, education, and finance.

1.4 billion people are using chatbots. The advancement of AI has provided humanity with a stack of useful tools and resources. Chatbot growth has been prominent across a number of industries, to the point where 1.4 billion people now use them on a fairly regular basis. So, we might have a new answer to the question: What are chatbots? More than ever, they're the way companies help customers ask questions or resolve problems quickly and easily.

Chatbots can answer 80% of the standard questions. Chatbot market statistics show that one of the reasons this technology is becoming more and more popular is that chatbots can answer most questions users might throw at them. It's still important to have some trained customer support professionals for more complicated questions. But for everyday issues, a chatbot service reduces costs and speeds up response time. This allows customer service agents to work on more challenging tasks and take a big-picture approach.

In 2017, 34% of consumers preferred to communicate with artificial intelligence in an online retail situation. Why? Because consumers like to get the information they're asking for immediately. Bots are the best at providing fast and reliable service; they're always on and they're programmed to answer the most common questions immediately, which gives them an advantage over email or social media.

67% of customers used chatbots in the past year. With two-thirds of customers having used chatbots in the past year, this technology has become mainstream. We live fast, online lives that are dominated by our phones and tablets. For the most part, that works in our favor. But sometimes we need help, and we need it as quickly as possible. This is when chatbot customer support steps in. Chatbot statistics for 2019 show that people are adjusting well to automated support.

64% of internet users have the opinion that 24-hours of the service is the best feature of chatbots. Why do we love chatbots? First, we like their quick response and prompt service. Second, we need answers at any time of the day and we enjoy the accessibility they provide. This is why chatbots are so popular. As many as 64% of the internet users experience round-the-clock support as the biggest benefit, according to the newest chatbot industry statistics provided. 37% of people use a customer service bot to get a quick answer in emergencies. 37% of customers amongst those who use chatbots, utilize them for getting answers in case of an emergency. It's also interesting to know that 35% of customers use chatbots to resolve the problem and the same percentage does so to get detailed answers or explanations.

55% of people who use chatbots would expect it to provide quick responses and answers to simple questions. Customer service trends show that customers are aware of chatbot's

numerous. Indeed, using a customer support chatbot gets you instant answers and asks you shortly, direct follow-up questions that are easy to understand. For speed and convenience, chatbots provide the perfect solution.

Till now restaurants have been using apps for all the work which are not user friendly. But with an increase in the use of chatbot many restaurants are thinking of using chatbot apps instead off traditional apps.

3. SYSTEM ANALYSIS & DESIGN

System Analysis is referred to as the process of collecting and interpreting facts, diagnosing problems and the information to recommended improvements on the system. It is a problem-solving activity that requires intensive communication between system users and developers. System analysis or study is an important phase of the any system development process. The system is studied to the detail and analyzed. The system plays the role of the interrogator and dwells deep into the working of the present system. The system is viewed as a whole and the input to the system are identified. The results from the organizations are traced to the various processes. The conclusion is nothing but an understanding of how the system functions.

3.1 Existing System

The traditional method which has been commonly followed at the hotels is by taking the customer's orders. The food ordering system was entirely a manual process that involved waiters, pen, and paper. The waiter had to note down orders from customers, take these orders, update them in records, and again make bill. Even though this system seems quite simple but it may involve human errors in noting down the orders. There are several reasons leading to the feeling of dissatisfaction which includes being entertained late in terms of order taking by the waiter also meals serving.
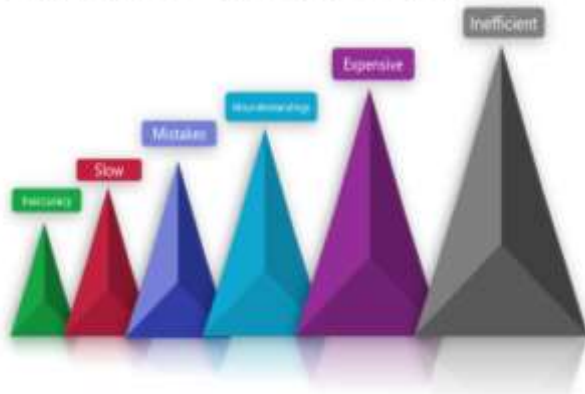

Fig 3.1 Graph of Problems with Traditional System

As these system involves manual work the process becomes slow. Also customers may need to wait for waiters to take their orders. Even if the number of waiters are more it increases human cost. Also waiters may need to wait if customers order is not decided. This affects the overall working of the system making it work slow and inefficient.

3.2 Proposed System

Fig 3.2 Features of Restaurant Bot

The food restaurant with an automated food ordering system will be equipped with a user-friendly Chabot, and software for completing the process at the backend. For this system, there will be a system administrator who will have all the rights to enter the menu with their current preferred prices. The system administrator can enter anytime in the system using a secured password to change the menu contents by adding or deleting an item or changing its price. Now when the customer enters the restaurant, the customer will place his/her order with the help of the restaurant bot app, right from the selection of menu items, confirming the order and viewing offers. The customer will select from the food options according to his/her choice and the system will display the payment amount to the customer which has to be made once finished with the order. This system increases the quality and speed of service. This system also raises the attraction of place for a heavy range of customers. To bring about this system gives a cost-efficient opportunity to give your customers a personalized service experience where they are in control choosing what they want when they want it – from dining to the ordering, and payment to feedback.

This system is restaurant independent. Any restaurant can use its service. Food ordering could increase efficiency for restaurants and caterers by saving their time, reducing human efforts, and by providing high-quality customer service. With the combination of simple design and readily available communication technologies, it can be concluded that this system is an attractive and efficient solution.
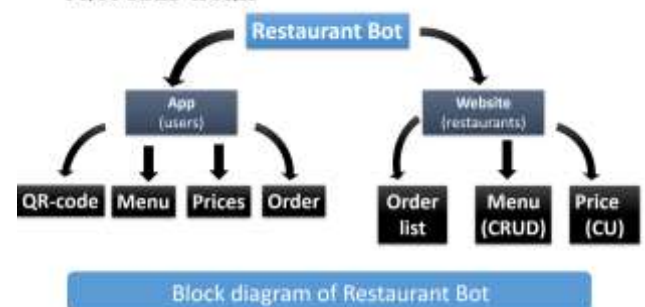

Fig 3.2.1 Block Diagram of Restaurant Bot

3.3 System Design

The two design objectives continuously sought by developers are reliability and maintenance.

3.3.1 Reliable System

The two design objectives constantly sought by developers are reliability and maintenance.

Reliable system analysis we are concerned with the construction of a model (life distribution) that represents the times-to-failure of the entire system based on the life distributions of the components. There are two levels of reliability. The first is to meet the right requirements. A careful and systems study is needed to satisfy the aspect of reliability. The second level of the system's reliability includes the actual working delivered to the user. At this level, the system's reliability is interworking with software engineering and development. There are three approaches to reliability:

1. Error avoidance: Prevents errors from occurring in software.
2. Error detection and correction: In this approach errors are recognized whenever they are encountered and correcting the error by the effect of error, by the system does not fail.
3. Error tolerance: In this, the errors are recognized whenever they come up, but make the system able to keep running through degraded performance or by applying the values that instruct the system to continue the process.

3.3.2 Maintenance

The key to reducing need for maintenance, while working to do essential tasks:

1. Much precisely defining user requirements during system development.
2. Assembling better systems documentation.
3. Using more effective methods for designing, processing, login, and communicating information with project team members.
4. Making proper and good use of existing tools and techniques.
5. Managing the system-engineering process effectively.

3.3.3 Diagrams with the flow of data
Data Flow Diagram:
This technique uses graphical tools called Data flow Diagram (DFD) to depict the information flow through the system and the transformation that are applied to it between the input and output stages.

A DFD may be used to represent a system or software at any level of abstraction; the lowest level of abstraction is presented by the source code. DFD may be divided into levels that represent an increase in information flow and functional details. Level 0 DFD is called a functional system model or context model and depicts the entire software elements as a single-bubble with input and output data betoken by incoming and outgoing arrows respectively.

The level is then partitioned to reveal more details up on exploding the context diagram with TOP LEVEL DFD, which is nothing but the representation of the major function in the form of bubbles. In this DFD the external and data stores being used are also shown.

Lower level DFD do not show the external entities. The diagram does not explicitly indicate the sequence of processing rather it depicts the information flow. Initially the functions' that the system was required to perform are identified. Concentrating on each function the subtasks to be performed are further identified.

Following figures shows the data flows in our system:

Data Flow Diagram For Application:
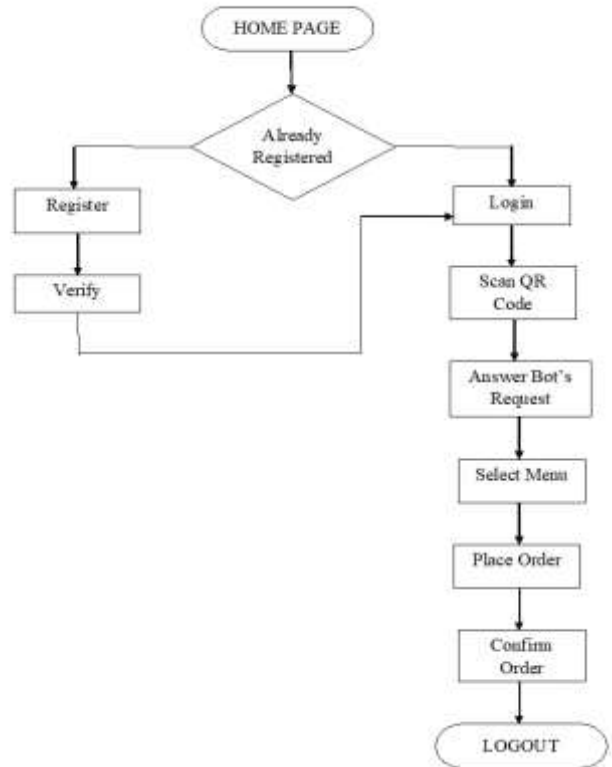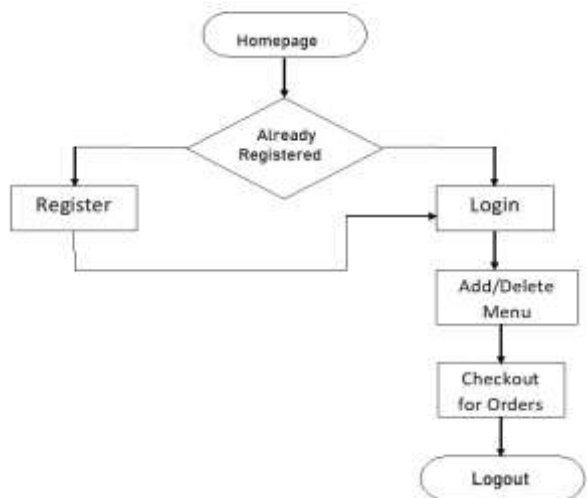

Data Flow Diagram For Website:

Fig 3.3.3 (a&b) Data Flow Diagram for Restaurant Bot Application & Website respectively.

Sequence Diagram:
UML Sequence Diagrams are interactive diagrams that explain how operations are carried out. They capture the interaction between the objects in the context of a collaboration. Sequence Diagrams are time focus and they show the order of the interaction visually by using the

vertical axis of the diagram to depict the time at which messages are sent and when.

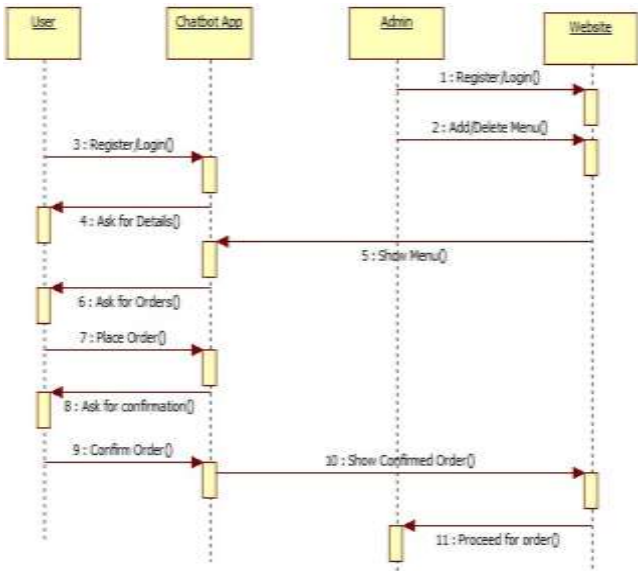Following figure shows the sequence diagram for our system.

Fig 3.3.3(c) Sequence diagram for interaction between bot, website, user and restaurant.

Use Case Diagram:

A use case diagram in simple terms is an actual depiction of a user's interaction with the system that shows the relationship between the user and the different use cases in which the user is rolled.

Following figure shows use case diagram for our app and website:
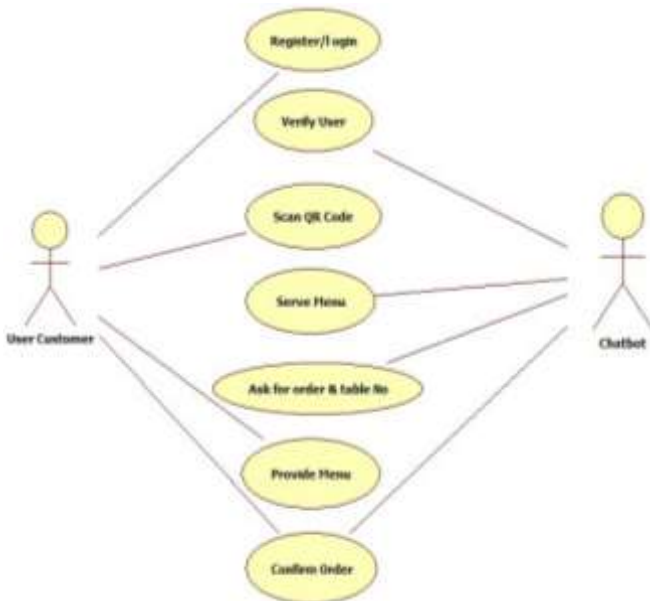
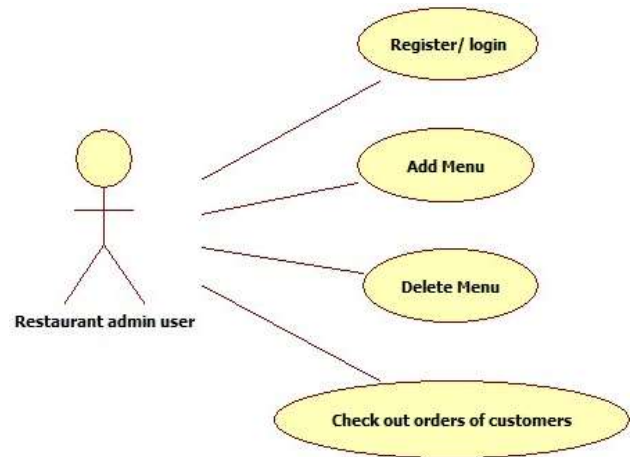Fig 3.3.3(d) Use case diagram for The Restaurant Bot App

Fig 3.3.3(e) Use Case diagram for Restaurant's Admin User

3.3.4. Modules:

1. Welcome Screen
2. Phone Authentication
3. QR Code Scan
4. Menu
5. Order
6. Chat bot

Welcome Screen: Welcome Screen welcomes the customer with a message and request for sign up.

Phone Authentication: Customer sign up need to add his/her mobile number for the authentication or the verification of the user.

QR Code Scan: This is use for scanning your native Restaurant QR Code from the scanning camera of your device.

Menu: Menu consists of list of Items with respectively prices.

Order: The restaurant will display message with your authenticated name and ask you for which table allocated you.

Chat bot: All these above modules are embedded in Chatbot.

A Chatbot is a computer program created to replicate conversation with human users. Basically, it is use for the interaction between Customer and restaurants.

4. TECHNOLOGIES USED FOR APP:
4.1 Flutter

Flutter is Google's UI toolkit for creating good-looking, deeply compiled applications for mobile, web, and desktop from a single codebase. Flutter is an open-source UI software development kit formed by Google. Flutter is Google's mobile UI framework used for manufacturing excellent quality original interfaces on iOS and Android in record time. Flutter works with extant code which is used by the developers and organizations around the world and is free and open source. Flutter can be widely used in the development of applications for Android, iOS, Windows, Mac, Linux, Google Fuchsia, and the web.

Flutter is a cross-platform development framework built by Google using the Dart programming language (which is also built by Google). This tends to mean that a programmer could make use of Flutter to develop applications on iOS, Android, desktop, and the web (currently in beta) using a

single codebase. Flutter is not the first to create a cross-platform solution. There are quite a few out there, with the most popular being react Native, PhoneGap, Ionic, and Xamarin. Flutter is distinct because it uses Dart, which compiles ahead of time (AoT). This means it compiles to native code without a bridge. Instead, Flutter uses its own rendering engine which makes it run faster.

4.2 Dart

Dart is an open-source, flawlessly object-oriented, optionally typed, and a class-based language which has high support for functional as well as reactive programming. Dart has an enhanced programming language as per client's interest for applications on multiple platforms. It is developed by Google and is used to frame and create a mobile, desktop, server, and web applications. Dart tends to be object-oriented, class-based, garbage-collected language with C-style syntax. Dart can compile to either native code or JS. Dart programming language is very flexible, in that you can write the code and then run it anywhere without any limitations whatsoever. Mobile apps written in Dart with Flutter are cross-platform native apps; so they can run on both Android, iOS (like React Native, Tamarind, etc.). You can even edit web apps and that code can run on any browser.

Learning a language takes time, effort, and patience. It's not just about learning the language, but also about its ecosystem, the terminologies in relation to it, getting the required tools and SDKs for the language, and then moving ahead to the trending frameworks and libraries available for that language. Type inference is nothing but the automatic detection of the data type of an expression in a programming language. The potential to deduce types automatically makes many programming tasks simple, leaving the programmer free to exclude type annotations while still permitting type checking. This makes it uncomplicated for developers to transition to Dart regardless of their programming background. The Dart syntax seems magnificently close even at the first shot. Even if you haven't come along to a Dart code before then too it can be easily understood without forcing. The Dart language is very well structured, so if you already know C, Java, or C# then Dart is going to be super easy. Dart as a language, is very robust. Having been created by Google, its primary purpose was to use C-based Object Oriented Programming languages like C#, and Java to its maximum advantage. As it is also a general-purpose programming language, it compiles fast and is concise.

4.3 Dialogflow

An end to end developer platform for construction of natural and rich conversational adventure. Built-in natural-language processing (NLP) features relate artificial intelligence (AI) to the chatbot, thereby enabling it to process the natural language (received through chat or voice) and forge ahead of the conversation in a natural way. It's this cognitive power that sets apart the AI chatbot from the normal chatbot that operates on simple pre-defined rules as coded into it. A chatbot developer merges this natural language processing capabilities to applications, services, and devices. The output data can be in the voice or chat format as per the needs.

Machine learning turns Dialogflow intelligent enough to foresee the hidden intention showed in the natural input language. A Dialogflow chatbot can figure out a user's query with the database available with its backend server. The mechanism of mapping is called as Intent. Interestingly, it does so, applying several permutations and combinations. This is a remarkable feature as users ask the same thing in multiple ways, so it's the responsibility of the chatbot to understand and serve them correctly. Dialogflow helps with creating a device-antagonistic chatbot. Thus, it attracts and involves with the users on wearable's, phones, cars, speakers, and other smart devices. So, businesses can connect with their expectations or customers anywhere, anytime.

4.4 Firebase

Firebase is Google's mobile application development platform that helps you build, improve, and grow your app and websites. The Firebase is a Backend-as-a-Service (BaaS) that provides the developers with a vast spectrum of tools and services to develop high-quality apps at a much faster speed. Now, if defining BaaS, it is a cloud computing service model with help of which the web app and mobile app developers can join their applications with backend cloud storage and APIs rendered by the backend applications.

Firebase Functionality:
Authentication — user login and identity
Realtime Database — real-time, cloud-hosted, NoSQL database
Cloud Storage — massively scalable file storage
Cloud Functions — "serverless", event-driven backend
Firebase Hosting — global web hosting
ML Kit —SDK for common ML tasks

5. TECHNOLOGIES USED FOR WEBSITE DEVELOPMENT
5.1 Hypertext Markup Language (HTML)

HTML is a standard markup language for documents planned and created to be displayed in a web browser. It can be helped by technologies such as Cascading Style Sheets (CSS) and scripting languages such as JavaScript. Web browsers obtain HTML documents from a web server or from local storage and render the documents into multimedia web pages. HTML narrates the structure of a web page semantically and originally includes cues for the look of the document.

HTML elements are the forming cells of HTML pages. With HTML constructs, images and other objects such as interactive forms may be implanted into the rendered page. HTML offers a means to form structured documents by signifying the structural semantics for text such as headings, paragraphs, lists, links, quotes, and other items. HTML elements are presented by tags, written using angle brackets. Tags such as<imp /> and<input /> directly introduce content into the page. Other tags such as <p> encircle and provide information about document text and may involve other tags as sub-elements. Browsers do not show the HTML tags but use them to explicate the content of the page.

5.2 Cascading Style Sheets (CSS)

CSS is defined to be a style sheet language that comes in use for explaining the exhibition of a document written down in a markup language like HTML. CSS is a keystone technology of the World Wide Web, alongside HTML and JavaScript. CSS is formed to enable the uncoupling of presentation and content, including layout, colors, and fonts. This separation can enable multiple web pages to share formatting by specifying the relevant CSS in a separate .css file, can improve content's accessibility, reduce difficulty and repetition in the structural content, give more plasticity and control in the description of presentation characteristics. Content and Separation of formatting also makes it workable to show up the same markup page in a variety of styles for different rendering methods, such as on-screen, in print, by voice, and on Braille-based tactile devices. CSS also has rules for every other formatting if the content is acquired on a mobile device. The name cascading comes from the specified priority scheme to decide which style rule applies if more than one rule is equivalent to a particular element. This cascading priority scheme is foreseeable.

5.3 Bootstrap

Bootstrap is a front-end framework that is formed to assist in creating web applications and dynamic websites. It is one of the most preferred front-end frameworks as it offers effortlessly fast & smooth processing to build a website. It gives support to all the major browsers and fast loading responsive web pages. Bootstrap consists of HTML and CSS-based design templates for a variety of different interface components and is motivated to smoothen web development. By an update to the CSS, you can adapt to modern stuff quickly. The developers should make sure to focus more on interaction components as the bootstrap itself will take care of standard views of data, which can be changed later if you wish to. Bootstrap exists without a conflict with almost all the latest versions of browsers such as Internet Explorer, Google Chrome, Opera, Firefox, and Safari. It supports the responsive web design and dynamically tune the layout of web pages by looking at the characteristics of the device used. **Why Bootstrap?**
1. Speed of Development
The speed of development is one of bootstrap's main advantage. If you want to make an application or a website precisely, it is imperative to consider using Bootstrap. It surely helps to save your coding efforts by offering less CSS functionality and pre-built blocks of code rather than structuring code from the base. Ready-made themes of Bootstrap will help gain all your needs through a faster route.

2. Responsiveness
Bootstrap is equipped with responsive layout and 12-column grid system that helps dynamically tune the website to a satisfactory screen resolution. The 'responsive utility classes' feature of Bootstrap helps you to hide/flaunt certain sections of content for a particular screen size.

3. Consistency was the fundamental principle behind the introduction of Bootstrap. It makes sure of the ultimate consistency nevertheless of designer/developer, who is

working on it. Moreover, the results work uniformly across various browsers and the output remains same.

4. Customizable
Bootstrap makes it easier to abundant customization and helps developers in creating tailor-made websites, according to their specifications. It has the provision to select any feature that is actually needed to create a customized website. With this feature, one can get rid of what they do not require.

5.4 JavaScript

JavaScript often abbreviated as JS, is a programming language that complies with standards of the ECMAScript specification. JavaScript tends a few qualities which are, high-level, often just-in-time compiled, and multi-paradigm. It has prototype-based object-orientation, curly-bracket syntax, dynamic typing, and first-class functions. JavaScript here is going to provide a connection with firebase and all the database functions are performed using it, also conditional testing. At a side HTML and CSS, JavaScript is one of the fundamental technologies of the World Wide Web. JavaScript is an essential part of web applications and enables interactive web pages. The majority of websites use it for client-side page behavior, and all prime web browsers have a devoted JavaScript engine to execute it.
As a multi-paradigm language, JavaScript holds up event-driven, functional, and vital programming styles. It has application programming interfaces (APIs) for dealing with text, dates, regular expressions, standard data structures, and the Document Object Model (DOM). Even so, the language itself excludes any input/output (I/O), such as graphics facilities, storage, or networking, as the host environment offers those APIs.

6. WORKING & RESULT

The project works in number of steps discussed below with each ones resulting output:
1. Restaurant Registration:- To enable the service of chatbot in restaurant first restaurant should register it on the website. As soon as the registration is completed, a specific QR code of the restaurant is generated which is sent via email to restaurants. Restaurants will print that QR code and
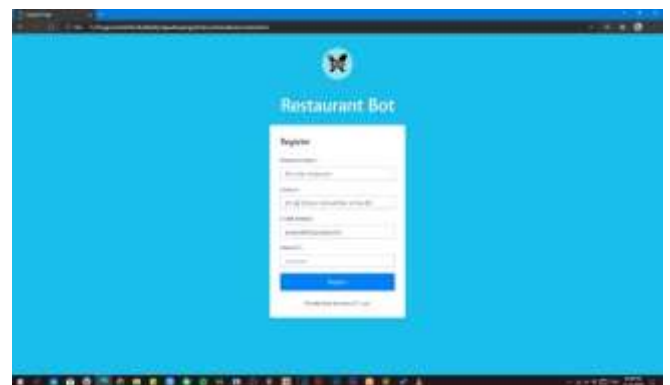
will keep it on the tables so that users will be able to access it. The registration page of website asks for restaurant name, its address, email address and password as shown below. The registered data goes on the firebase database.

2. Restaurant Login Page:- Once the registration is complete the restaurant admin will move to the login page which asks for user name and password.
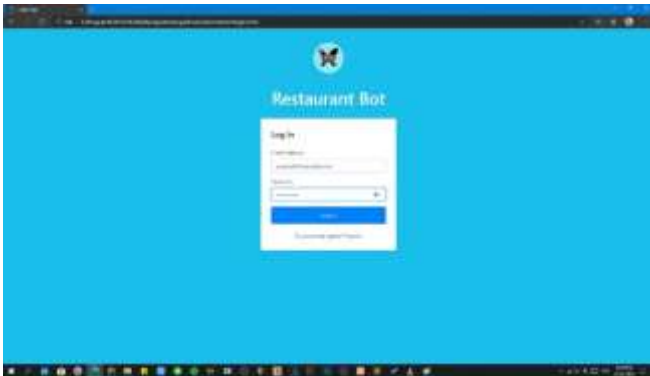
3. Restaurant Homepage:- After login the Restaurant admin will move to home page from where he will have access to number of functionalities of restaurant by clicking on manage menu he can add/delete items. The items ordered by the customers will be displayed on the home page. Following image shows the just registered restaurant's home page which consists of customer's name, phone no., table no. and order list.

4. Customer Registration:- Customer will be provided with a restaurant bot app. As the app is developed using google flutter the app will be available for both android as well as iphone users. As soon as the user enters the app bot will show registration page as-

As the customer clicks on the sign up button the customer will be shown registration screen as-

5. Customer Verification:- When the customer is done, he/she will verify it by clicking Verify button. Now this customers info is saved in the google firebase and it will send a verification code on customers mobile number as-


Then the customer will verify by entering the OTP. After that he will move to scan page.

6. Scan Page:- On this page customer will scan the QRcode on the table by clicking on the scan.

7. Chatting with Restaurant Bot:- Once the customer scans the code the bot will welcome the customer. Now Bot and customer can chat with each other in realtime. This conversations will be managed by our trained google Dialogflow. Dialogflow will filter out information in it and will send it to google firebase. Google firebase will send that to the restaurant website. All this will done in fraction of a minute with the help of realtime technologies.
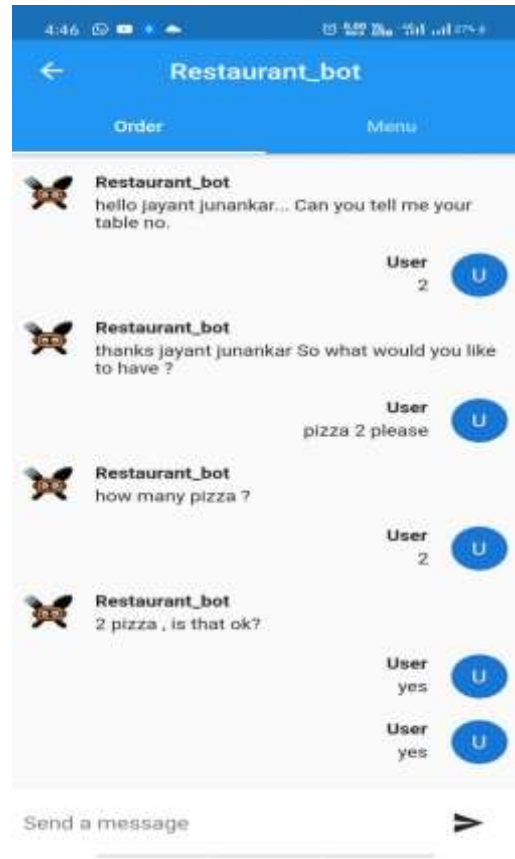

8. Manage Menu:- The Real time Menu list is created by the Restaurant admin by clicking on the manage menu in the website. The admin will add name as well as its prize.
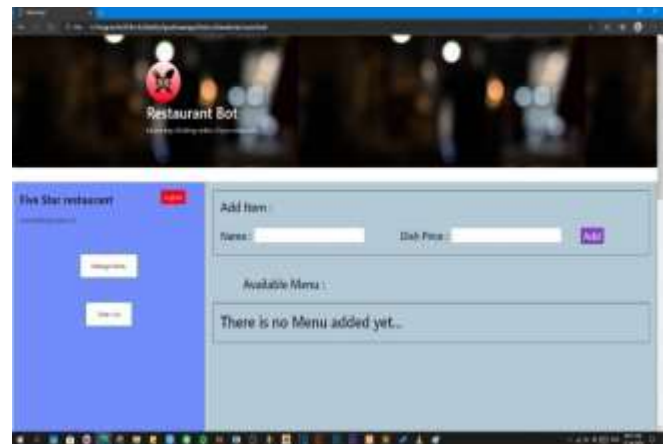
9. Menu List:- The user will able to place orders from real time menu list updated by restaurant admin. User can access menu list anytime by switching tab to Menu list. The menu list will pop up all the available menus as-

10. Order Placement & Confirmation:- The user will place the order using bot and also confirm it right then and there.
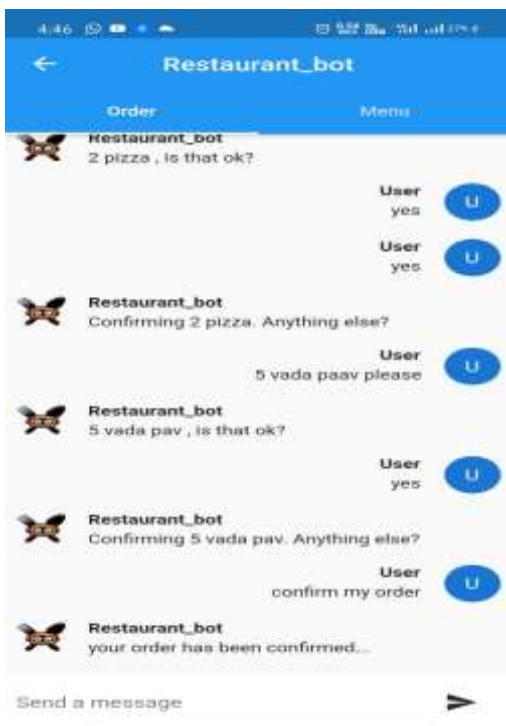
11. Real time order list:- Once the order is confirmed, the restaurant admin will able to see it in real time along with order details.. After that he can proceed for placing the orders.

7. ADVANTAGES

[1]. Our Application will work on both Android and iOS Operating System
[2]. Manual Work required is comparatively less.
[3]. The service becomes fast due to its digital nature.
[4]. Customers can get attended in a more quick and efficient manner.
[5]. No possible human interference.
[6]. Any restaurant can implement this application and website for providing service.

8. FUTURE SCOPE

The system proposed can be further amplified and several other functionalities can be put on.   The future Chatbot will improve like location-based services, pre-booking, preordering,   & home delivery, etc. The future Chatbot will be an advanced assistant for both the business and consumer.

Also, Human doesn't really like mugging up the content and store in their mind. And today with the Internet they can use that part to its maximum advantage. So the tasks that require storing up the data can be shifted to AI Chatbot. The exciting ability for bots, especially for brands, is the opportunity to get along with their audiences at scale.

• The future of global, and digitally native customers, demands more from brand interactions and creates the expectation of real-time messaging contact. Personalized communication has augmented from SMS notifications and segmented social media advertisements to one-on-one communication through chatbots.
• Imagine messaging and conversational commerce as an augmentation of content marketing strategy — making conversations the content, and converting conservations into customers. Scaling personalization means greater engagement with a brand's target demographic and developing relationships that promote brand trust.
• Chatbots can be used simply for brand engagement, or have a functional service like facilitating bookings, e-commerce, delivering targeted information, or customer service.
There are several chances and endless implementations for bots in the future.

9. CONCLUSION

Restaurant Bot will reduce human efforts, enhance paperless work, and save time. There is chance of error while serving foods to the customers. By using proposed system there will no chance of errors and we can easily book table from home or from wherever you want. Customers will order the dishes using the bot according to customer requirements. The developed system will be very useful in saving the time of the customer. The Customer can get attended in a more quick and efficient manner. The service becomes fast due to its digital nature. Restaurant bot is a chatbot that will be used for fastly interacting with the customers. Also, it is much more user-friendly than other apps. Customers will experience in a better way and efficiently. This system will also increase the attraction of place for a large range of customers. Applying this system gives a cost-efficient opportunity to provide your customers a personalized service experience where they are with control choosing, what they want & when they want it; from dining to ordering to payment and feedback.

10. ACKNOWLEDGEMENT

11. REFERENCES

[1]. Bai Li, Nanyi Jiang, Joey Sham, Henry Shi and Hussein Fazal "Real World Conversational AI for Hotel Bookings"

[2]. G. Mesnil, Y. Dauphin, K. Yao, Y. Bengio, L. Deng, D. Hakkani-Tur, X. He, L. Heck, G. Tur, D. Yu et al., "Using recurrent neural networks for slot filling in spoken language understanding," IEEE/ACM Transactions on Audio, Speech, and Language Processing, vol. 23, no. 3, pp. 530–539, 2015.

[3]. M. Peters, M. Neumann, M. Iyyer, M. Gardner, C. Clark, K. Lee, and L. Zettlemoyer, "Deep contextualized word representations," in Proceedings of the 2018 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies, Volume 1 (Long Papers), vol. 1, 2018, pp. 2227–2237.

[4]. E. F. T. K. Sang and F. De Meulder, "Introduction to the CoNLL- 2003 shared task: Language-independent named entity recognition," in Proceedings of the Seventh Conference on Natural Language Learning at HLT-NAACL 2003, 2003.

[5]. J. Pennington, R. Socher, and C. Manning, "GloVe: Global vectors for word representation," in Proceedings of the 2014 conference on empirical methods in natural language processing (EMNLP), 2014, pp.1532–1543.

[6]. A. Severyn and A. Moschitti, "Learning to rank short text pairs with convolutional deep neural networks," in Proceedings of the 38th international ACM SIGIR conference on research and development in information retrieval. ACM, 2015, pp. 373–382.