Voice Control Chatbot for Ticket Booking Using NLP

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ABSTRACT: This report presents a VOICE CONTROL CHATBOT FOR TICKET BOOKING to provide a much easier way of booking tickets since this system is capable of accepting voice as an input along with the text.The chatbot application developed using various programming languages with user interface to send input and receive response contains certain boundaries and limitations. This paper proposes a chatbot application for assisting the information regarding the colleges with the use of artificial intelligence.This system has been embedded artificial intelligence to help the user to resolve the questions by providing a human way interaction to identify the sentences and making a decision itself as response to answer a question overcoming the use of programming languages. The technology at the core of the rise of the chatbot is natural language processing ("NLP"). Recent advances in machine learning have greatly improved the accuracy and effectiveness of natural language processing, making chatbots a viable option for many organizations. This improvement in NLP is firing a great deal of additional research which should lead to continued improvement in the effectiveness of chatbots in the years to come.Most commercial chatbots are dependent on platforms created by the technology giants for their natural language processing. These include Amazon Lex, Microsoft Cognitive Services, Google Cloud Natural Language API, Facebook Deep Text, and IBM Watson. Platforms where chatbots are deployed include Facebook Messenger, Skype, and Slack, among many others.

I. INTRODUCTION

A chatbot is a program that communicates with you. It is a layer on top of, or a gateway to, a service. Sometimes it is powered by machine learning (the chatbot gets smarter the more you interact with it). Or, more commonly, it is driven using intelligent rules (i.e. if the person says this, respond with that). The services a chatbot can deliver are diverse. Important life-saving health messages, to check the weather forecast or to purchase a new pair of shoes, and anything else in between. The term chatbot is synonymous with text conversation but is growing quickly through voice communication. The chatbot can talk to you through different channels; such as Facebook Messenger, Siri, WeChat, Telegram, SMS, Slack, Skype and many others.Consumers spend lots of time using messaging applications (more than they spend on social media). Therefore, messaging applications are currently the most popular way companies deliver chatbot experiences to consumers. A bot is a software application that performs automated task and chatbots come under the category of bots that live in various chat platforms. A chatbot can converse with humans so the idea of conversation is primary to a chatbot. Chatbots run on platforms such a Facebook Messenger, Slack, Telegram, Skype, SMS and even on websites. Each platform has its own salient features which determine the possible ways in which the chatbot can interact with the user, however, the actual behavior of the chatbot is determined by the bot itself.

II. METHODOLOGY

With the prevalence of Chatbot Technology and its public APIs curated by several largest IT companies like Google, IBM, Microsoft and Amazon, developers should now find it much easier to make one. Here we introduce some of the well-established Bot framework and their public APIs. As already mentioned, the present system is a user-friendly interface that aims at cutting down the inconvenience and hassle caused during the tedious process of booking tickets. Chatbot becomes more natural interaction than graphic base interface so will be broadly used in humanizing computer interaction to human. Chatbot can give 24 hours service which can become an advantage besides using a human personal assistant.

Additionally, it also supports a smooth ticket booking for people who are differently abled people.Communication has been the essence of life from the beginning of times. Thus, with the evolution of technology, the mode and style of communication has also evolved. In the early days, conversations were restricted to verbal and textual interaction between humans.These interactions are usually guided by emotions, context, and awareness. A bot is a form of virtual assistant that acts as an intelligent intermediary between people, digital systems, and Internet-enabled things. Bots are intelligent with machine learning, natural language processing, and other forms of advanced.

III. DIALOGFLOW

Dialogflowis a natural language understanding platform used to design and integrate a conversational user interface into mobile apps, web applications, devices, bots, interactive voice response systems, and so on.Dialogflow is a Google-owned developer of human–computer interaction technologiesbased on natural language conversations. It is a natural language processing(NLP)platform that can be used to build conversational applications and experiences for acompany's customers in various languages and on multiple platforms. The Googlepoweredproduct enables developers to create text-based and voice conversationinterfaces for responding to customer queries in different languages.
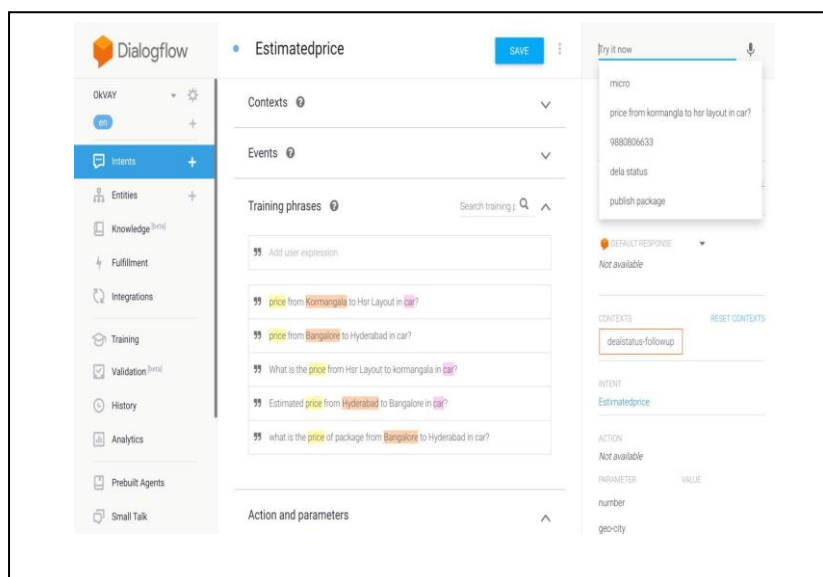

Fig 1: Overview of Dialogflow

Our proposal considers two main phases:

(i) **Knowledge modelling -** This phase determines how knowledge is represented and stored in the knowledge base.
(ii) **Conversation flow -** Both the lexicon used by the tutor and the order in which ideas are presented should be defined in this phase.

● **PHASE I: KNOWLEDGE MODELING, EXTRACTION AND STORING:**

The sets of queries and responses are to be defined first, and thereare several ways toperform that task. To deal with knowledge extraction and representation, for example,of the form <input, response>, which are constructed by ranking the replies of a webforum thread as either 'fascinating', 'acceptable' or 'unsuitable', on the other hand,focus on automatic emotion detection of news headlines togive meaning to the input using self-organizing maps. Both ideas revolve around amedium-sized knowledge base, with a couple of concepts and queries.

The tutor language may be either casual and relaxed, or a bit more abstract and rigorous depending on the context. For example, in the field of mathematics—using abstract constructs and precise notations—the input from an expert is advised, since technology alone does notguarantee that students learn mathematics better than using only a regular textbook. Moreover, problem situations can be represented in several ways, even in natural language.

The use of an appropriate lexicon is important for students to incite them to translate everyday situations to mathematical models. Although many data structures exist to store the knowledge base, most chat-bot conversation structures are based on trees. Each node in the tree represents a unique response, from a simple greeting to detailed information about previous queries. It is also important to note that in order for the conversation service to determine which response the user is looking for, the similarity between the user input and all known queries must be calculated. This process is usually done by machine learning algorithms using similarity measures between sentences in which each word or character may represent a single dimension, and its accuracy is refined by providing thousands of correctly labelled examples of userinputs.

Therefore, it is advised to group knowledge units by similarity of the user inputthat will trigger them, rather than clustering by topic.
For instance, grouping the examples provided by intent, one can see that all threequeries using the function tell time have a similar input:
– What's the time now?
– What time is it here?
– What is the time in New Zealand?
The tell time function input is somewhat different from that of the show function, inwhich the phrase Show me is predominant. Creating branches according to intentstherefore reduces the complexity of the search.

- **PHASE II: CONVERSATION FLOW**

Once knowledge is separated into small atomic units, designing how to present them is the next step. An efficient way to do that is the creation of a glossary and a naming convention to keep track of the available queries and manage their trigger order. For instance, for the creation of the intelligent tutor for the introductory mathematics course, each knowledge unit in the tree was given a unique ID. The ID wasgenerated automatically from abbreviation of the names of the intents and the entities, with a hyphen separating the intent from the entities, and the entities separated by aplus sign: def-N was used to represent the definition of the natural numbers, corresponding to the question 'What is a natural number?' or 'What is the definition of natural numbers?'. Some conversation frameworks allow entities to be grouped into categories, as it is the case of IBM Watson.

Entities are then combined with intents to formulate a uniqueset of conditions that are needed to trigger their response, which were written by the expert considering the pedagogical aspect of the language employed in the answer. In this way, instructors caneasily work along knowledge engineers to effectively model the queries and generate the knowledge base.
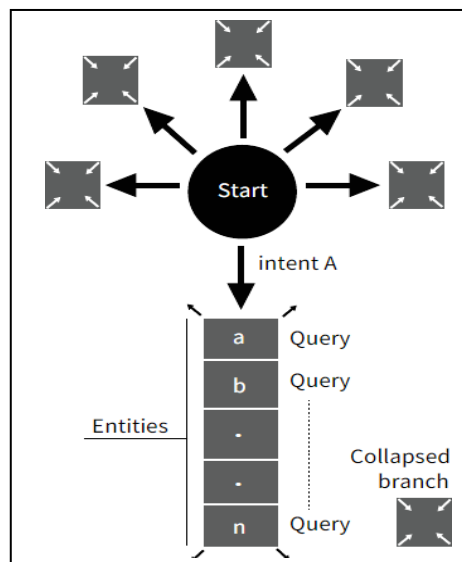
Fig 2: An abstract representation of the knowledge base built by grouping queries by intent

IV. SYSTEM DESIGN

The structural setup methodology is worried with working up a fundamental essential framework for a system. It incorporates perceiving the genuine parts of the structure and exchanges between these fragments. The starting design technique of perceiving thesesubsystems and working up a structure for subsystem control and correspondence is

called development demonstrating plot and the yield of this framework method is a depiction of the item basic arranging. The proposed design for this framework is given beneath. Itdemonstrates the way this framework is outlined and brief working of the framework.
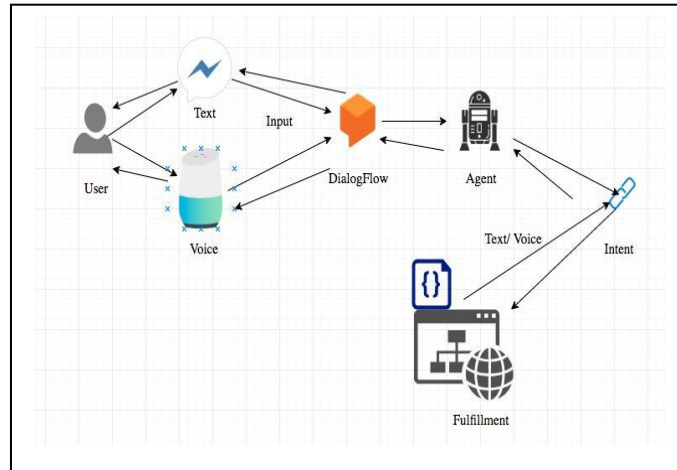

Fig 3: System Design Architecture

V. RESULT

The voice booking chatbot is able to perform operations of booking a flight by using voice and text as inputs. At this stage, the system is only equipped to make bookings for flights and not any other mode of transportation. The current system has only been trained on a very small database. The person looking to book tickets will have to stick by the parameters that are included in the system and only then will it be possible for the system to make the required booking.

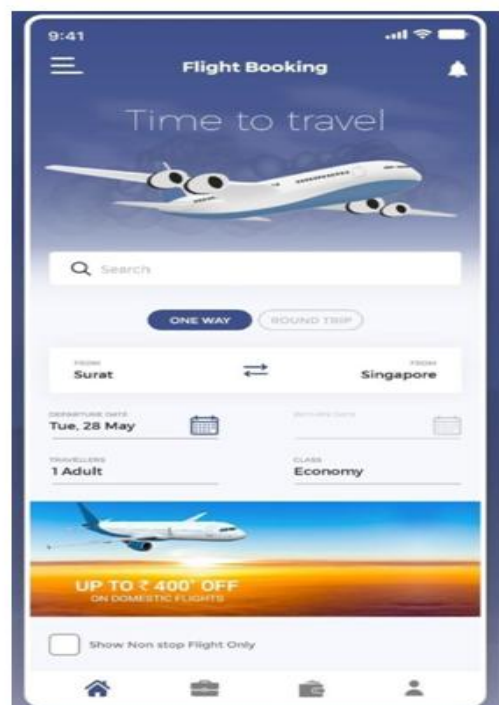**FINAL PROTOYPE**

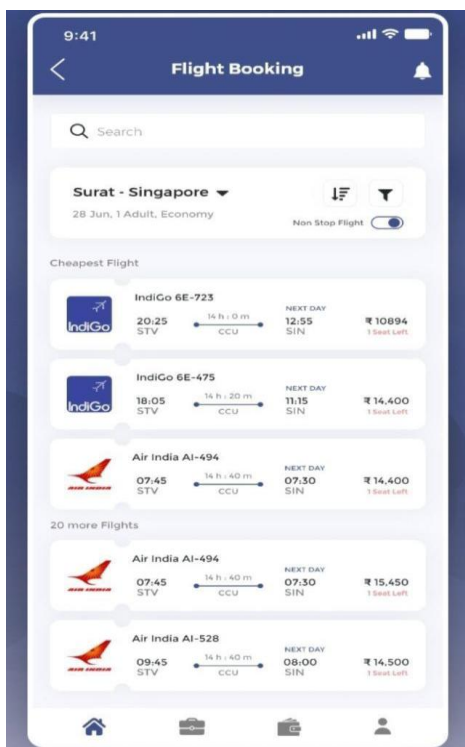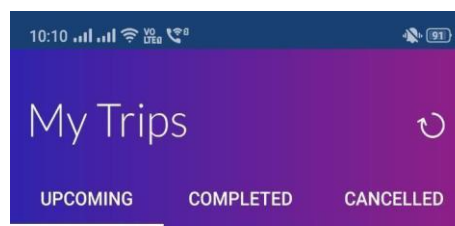**Fig 4: Login Page**   **Fig 5: Flights Selection Portal**

Fig 6: Booking Page

Fig 7: Booking Details

IV. CONCLUSION

Voice is a more natural way of functioning for humans than texting. It is informal, intuitive and immediate. This shift provides a natural and seamless flow to processes and therefore it proves to be the most desirable and convenient. The novelty lies in the way chatbot intelligence can cover and overcome out of topic and also mistyping situation that commonly occurs. Also,in the futurechat history can be considered as chat experience so the behavior of the user can be analyzed.

The proposed chatbot has functionalities of ticket booking along with different filters that a user is free to apply catering to the need of a wide range of user and specifically taking care that it makes the process of ticket booking a hassle-free affair for the differently abled. There is a wide range of chatbot building platforms that are available for various enterprises, such as e-commerce, retail,banking, travel and so on. Chatbots can reach out to large audience on apps and be more effective than humans.

They may develop into capable info-gathering tool in the near future.The development costs of chatbots are getting cheaper. More and more industries wish to tap into the potential of the same and deliver enhanced customer experience. We expected certain industries easily adopting chatbots but a few have shown resistance. Inarguably the development world is working on top priority to remove the barriers to major mainstream augmented by efficient and quick chatbots. After becoming one of the trendiest words of the past year, chatbots are predicted to disrupt the travel industry and set a new standard in the online booking arena.

V. FUTUREWORK

The project aims at bringing the new technologyfor smart life. A chatbot is a program that communicates with you. It is a layer on top of, or a gateway to, a service. Sometimes it is powered by machine learning (the chatbot gets smarter the more you interact with it). Or, more commonly, it is driven using intelligent rules (i.e. if the person says this, respond with that). The services a chatbot can deliver are diverse. Important life-saving health messages, to check the weather forecast or to purchase a new pair of shoes, and anything else in between.

From the result testing, Chatbots with AI are dramatically changing businesses. There is a wide range of chatbot building platforms that are available for various enterprises,such as e-commerce,retail,banking,travel and so on.
Chatbots can reach out to large audience on apps and be more effective than humans. They may develop into capable info-gathering tool in the near future.The development costs of chatbots are getting cheaper. More and more industries wish to tap into the potential of the same and deliver enhanced customer experience. We expected certain industries easily adopting chatbots but a few have shown resistance. Inarguably the development world is working on top priority to remove the barriers to major mainstream adoption and we will soon be witnessing employees being augmented by efficient and quick chatbots.

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