Visitor Management Chatbot

Mini Project Report submitted in partial fulfilment

of the requirement for the degree of

B. E. (Information Technology)

Submitted By

Vaibhavi Prabhulkar (17101A0013)

Neha Adulkar (17101A0049)

Shraddha Gurav (18101A2014)

Under the Guidance of

Prof. Icchanshu Jaiswal

Department of Information Technology

Vidyalankar Institute of Technology

Wadala(E), Mumbai 400 037

University of Mumbai

2020-2021

CERTIFICATE OF APPROVAL

For Mini Project Report

This is to Certify that

Vaibhavi Prabhulkar (17101A0013)

Neha Adulkar (17101A0049)

Shraddha Gurav (18101A2014)

Have successfully carried out Mini Project entitled

"**VISITOR MANAGEMENT CHATBOT**"

in partial fulfilment of degree course in

InformationTechnology

As laid down by University of Mumbai during the academic year 2020-2021

Under the Guidance of

Prof.Icchanshu Jaiswal

Signature of Guide

Head of Department

Examiner 1

Examiner 2

PrincipalDr. S. Patekar

ACKNOWLEGEMENT

We thank God for giving us the ability or this undertaking. This acknowledgement is not something which has been written in a day but we have been longing, right from the time we were allotted our guide, to express our gratitude. This is just a channel for our expression.

First and foremost, we express our profound gratitude and sincere thanks to **Prof. Icchanshu Jaiswal** our would not have seen the light of the day.

We extend our sincere thanks to **Prof. Deepali Vora** Head of the Department of Information Technology for offering valuable advice at every stage of this undertaking. We would like to thank all the staff members who willingly helped us. We are grateful to VIDYALANKAR INSTITUTE OF TECHNOLOGY for giving us this opportunity.

The days we have spent in the institute will always be remembered and also be reckoned as guiding in our career.

1. **Vaibhavi Prabhulkar**
2. **Neha Adulkar**
3. **Shraddha Gurav**

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ABSTRACT

‘Visitor service is the new marketing.’ The present-day customer has information at their fingertips and behind this the enterprises are always on the lookout to make sure that they build a water-tight customer support process and have the right systems in place. Nowadays, many organizations are adopting Smart Assistant Devices and solely engaging with a service through a keyboard are over. In the 21st century, the Visitor Management System is very important in almost all the organizations. Visitor management is principal for any organization because it helps to keep a system of record for the visitor.

We developed a well-structured chatbot named ViziGo Chatbot which is primarily a virtual assistant that takes visitor's experience to the next level by accompanying them through the ViziGo Visitor Management System Application. This chatbot is able to show answers to frequently asked questions in a hierarchical structured manner, leading visitors by either voice, text or tactile input to the content that better solves their queries and doubts. It is essential that the hired hand, without having prior knowledge to chatbots or AI, can be capable of creating, modifying and implementing changes to this institutional tool in a simple and efficient manner. The new modes of user interaction aided with the assistant shows the advancements in Artificial Intelligence and Machine Learning technology are being used to improve many services. In particular, it will look at the development of ViziGo assistant as a channel for information distribution.

INTRODUCTION

Conversational bots have many applications throughout the industry and in recent years they have been developed for educational and enterprise purposes. The ability to serve with questions and answers to thousands of visitors at the same time is perfect to counter the scarcity of employees and help desks in companies and organizations around the globe.

ViziGo Chatbot is developed using Google Dialogflow as a simple way to generate and train a natural language model. Another convenience of the platform is its ability to collect usage data that is potentially useful for the corporations as training or learning indicators. Dialogflow is a Google service that runs on Google Cloud Platform which basically allows any user to build engaging voice and text-based conversational interfaces. The ViziGo chatbot helps visitors to interact with the product and services in any enterprise in form of text-based and conversational interfaces such as voice by using the Dialogflow tool, that have the inbuilt machine learning algorithms to understand the users prompt and based on the visitor's query the chatbot will understand the training phrases and generates the dynamic response to the visitor. It also creates a better tool for organizations to improve their servicing performance. The content of each intent is unique and varies depending on the query and the visitor's approach.

The project aims to implement an android-based chatbot to assist with organization's basic processes, using a platform such as Dialogflow that uses Natural language processing NLP, that expose artificial intelligence and Machine Learning methods. In this way, the chatbot will answer for the most common queries that are being consulted and could hierarchically order the information to ease the visitor with this tool. As useful as a chatbot can be, it is not intended to replace the helpdesk system in the enterprise.

AIMS & OBJECTIVES

The project aims at developing a chat bot that can help visitors book appointments with the respective employees or CEOs of a company or an organization. This chatbot helps in scheduling meeting time and duration for the intended visitors provided the visitor has already registered himself/herself to our android application. If the visitor has not registered into our app or is using the app for the first time then, the chatbot will ask the visitor to firstly sign up and fill in the necessary details like contact number, name, password, etc. and further book an appointment. The chat bot uses Google Dialog Flow's API as its backbone, which will provide the AI strength to the bot. The text query will be sent to DialogFlow for further processing and Dialogflow will analyze the visitor's query and will return the proper output using AI.

Objectives of the Chatbot are:

1. To solve the real-world problem of visitor's mis-guidance.
2. To make this process more efficient.
3. To make this process less time consuming.
4. To make a bot which will be used to solve visitors doubt regarding registration procedures.
5. To reduce human interaction and to maintain personal space of the use.

The chatbot development platform offers pre-built and ready to deploy bots which address certain use cases (e.g., customer support etc.) along with the ability to customize them to suit your business needs so as to handle multiple different workflows and processes pertaining to different customer interactions and your business offerings (e.g., a lead generation bot that also answers customer's queries and replies with answers in a FAQ, document or website).

- Executing tasks seamlessly:

The enterprise has the ability to deploy a chatbot that works on a single task along with creating and deploying a multi-purpose chatbot that communicates with systems and completes a variety of tasks within each of them.

- Multiple Channel support:

Enterprises look for chatbot development platforms where the bots can be deployed to the website, mobile apps, or the channel of its choice with the user interface that is customized for each channel. The bots should have the ability to interact with corporate tools like Slack, Telegram, Skype, etc.

- Natural Language Processing and Speech Support:

A chatbot platform that provides NLP training and maintains accurate interactions and conversations using speech/text support to provide the best results when it comes to understanding user intent and replying with relevant content post-assessment.

- Industry Experience and Domain Knowledge:

Identifying and engaging with the right technology and platform providers that have considerable industry experience and domain knowledge or relevant framework will augment and facilitate speed, scalability, and flexibility in order to support their visitors and employees.

- Deploying Intelligent Chatbots through the corporations:

The corporation has intelligent chatbots that understand, recollect and continuously learn from data and information that is garnered from each visitor's interaction which includes the need to maintain the context of the visitor's request during interactions.

- Available 24/7

With human customer support, it can be quite difficult to provide 24/7 support. Customers want all of their issues to be resolved as quickly as possible. The chatbot is available for the company's visitors and it answers promptly to every query that's presented to them, which ensures that your customers will always find solutions to their problems.

It is the necessary part of the brand strategy to build a visitor experience that is effective, efficient and seamless from the first invitation they receive from an organization, to their lobby experience, and beyond.

PROBLEM STATEMENT

In the early era, gathering precious and valuable data from your customers or visitors or interacting with them was very difficult for the coronational world which included getting insights about their activities, preferences, problems, and more. Prematurely the company had to personally enquire and solve the queries for the visitors which led to major time to response back process and was very time consuming. The visitor's servicing is a modern world complication and it mainly occurs due to the operator's lack of time to verify the query processing of each visitor when there are tons of visitants enquiring at the same metre and pattern. When operating a business in a corotational globe, the company needs to ensure that the customer experience you deliver is positive. This happens only when the customers are satisfied with the services that they will keep coming back to the company.

As a solution to all these aforementioned messes, the chatbots is introduced which aims to improve visitor's service operations, and to perform their automated job well. The advancement in machine learning and artificial intelligence has led to the rise of chatbots. The chatbots aims to communicate with live chat interfaces and is becoming the popular means to provide real-time visitor service in e-commerce settings. The visitors can use these chat services to obtain information (e.g., registration details and procedure) or assistance (e.g., solving technical problems).

IMPLEMENTATION

The proposed system is used to create a smart assistant - ViziGo ChatBot to simulate a human conversation to assist visitors with their queries and it can be applied to any organization, and to provide a more customized personal experience. The proposed system takes institutional behaviour as a reference. The assistant in background builds an API, called a webhook, in Python that Dialogflow calls to get information from external data sources.

Visitors will be able to ask any institution related queries in natural language that they are comfortable using such as booking an appointment, queries regarding the registration procedure, COVID19 precautionary patterns, and system's trademark, etc. using the assistant. The chatbot will identify and understand what the visitor or the client is asking and generate an appropriate response based on the conversational context. Immediate responses will be provided by the chatbot to redeem the need for the user to have to call or visit the company's branch and wait in queue in order to get through to an advisor for assistance.

- Develop the Character:

The best and the easiest way to achieve the ViziGo Virtual Assistant's personality is to conceptualize and develop the character such that the actual person doing its job by responding to the visitor's queries in an effective manner.

- Discovery:

Here, the discovery consists largely of requirements collection of organizations and analysing key and user's needs. Discovering the requirements from the visitor viewpoint leads to exploring the system's product features in depth.

- Plan:

Before understanding the VizGo chatbot's personality, it is important to create a visitor's track of conversation and design flows that empowers the process for the organization branding.

- Build:

Building the design starts with interior conversation functionality then into assistant's personality which incorporates training the natural language processor to be aware of the user's intent.

- Testing and Review:

Finally, while deploying the chatbot the User Acceptance Test is the important step. It marks the conversation set that characterizes the conversation flow.

Google Dialogflow is a Google framework which provides NLP/NLU (Natural Language Processing/Natural Language Understanding) services. Dialogflow supplies one-click integration with the popular messaging platforms such as Facebook, Telegram, Twitter, Viber, Kik, etc. and also supports voice assistants such as Google Assistant and Amazon Alexa.

Create the Dialogflow Agent

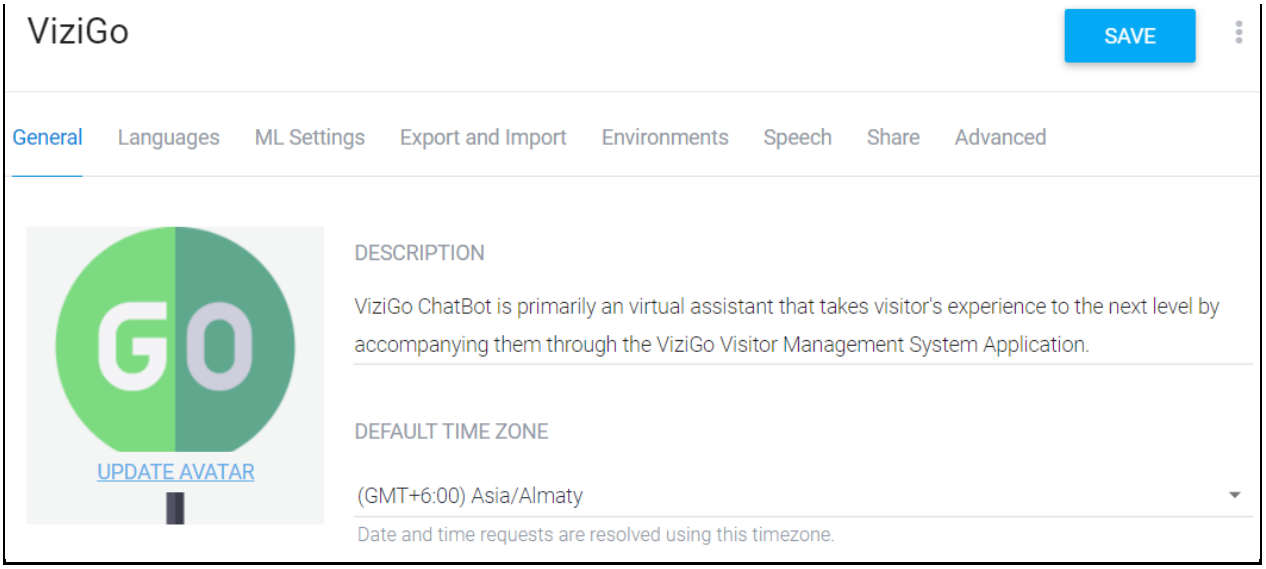
The Dialogflow agent is the bot itself.

Step 1: Login to Dialogflow.

Go to **https://dialogflow.com/**.

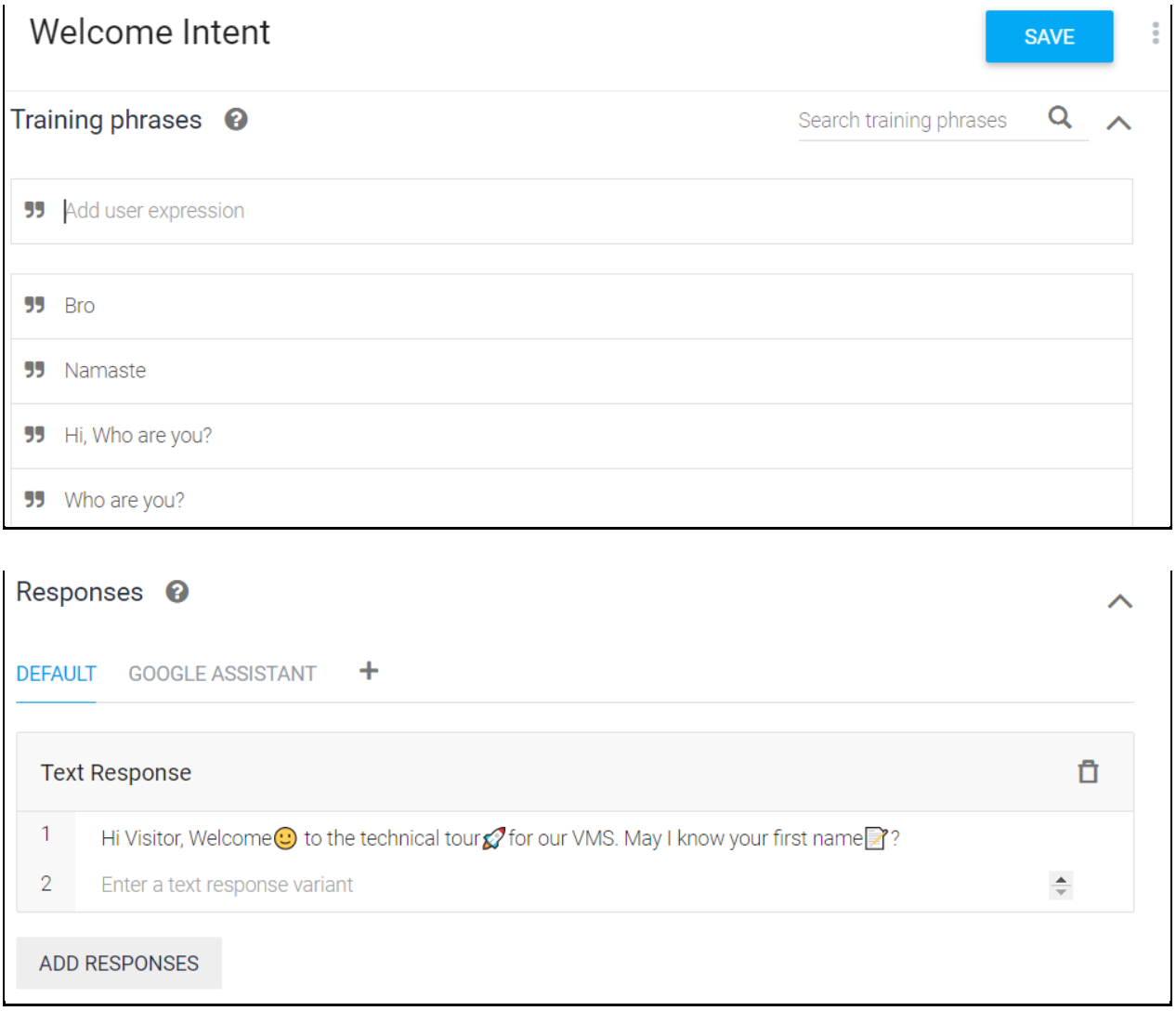
Step 2: Create a new agent.

A Dialogflow agent is a virtual agent that handles conversations with your end-users. Choose a name for the new bot and the default time zone.



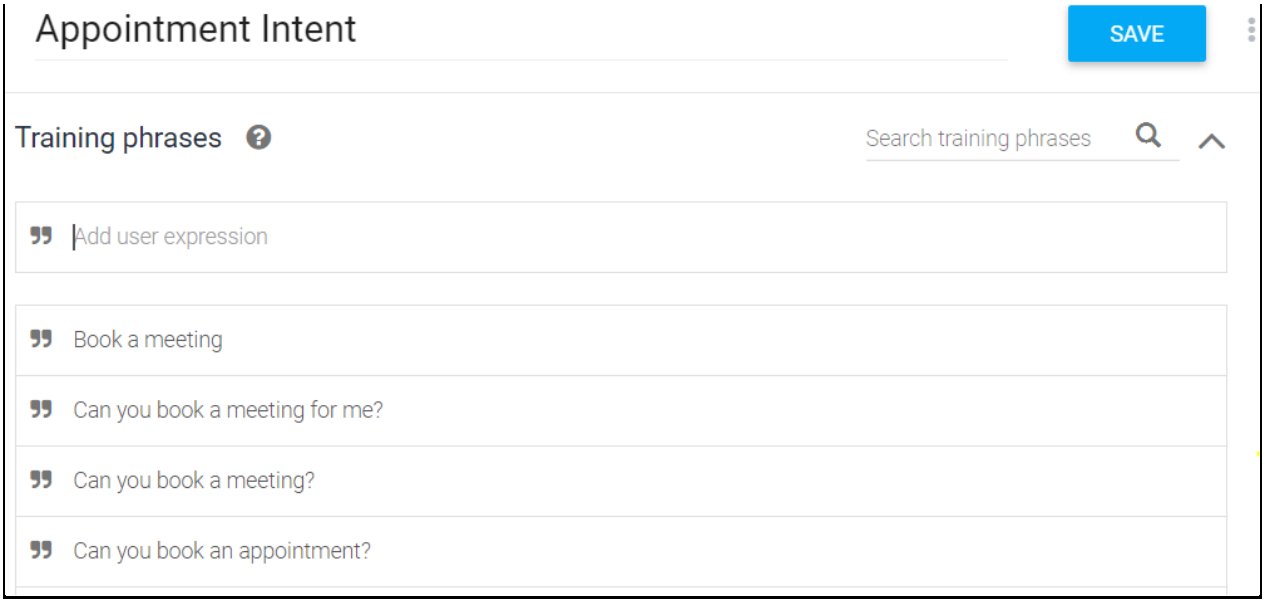
Step 2: Update the preset Intent.

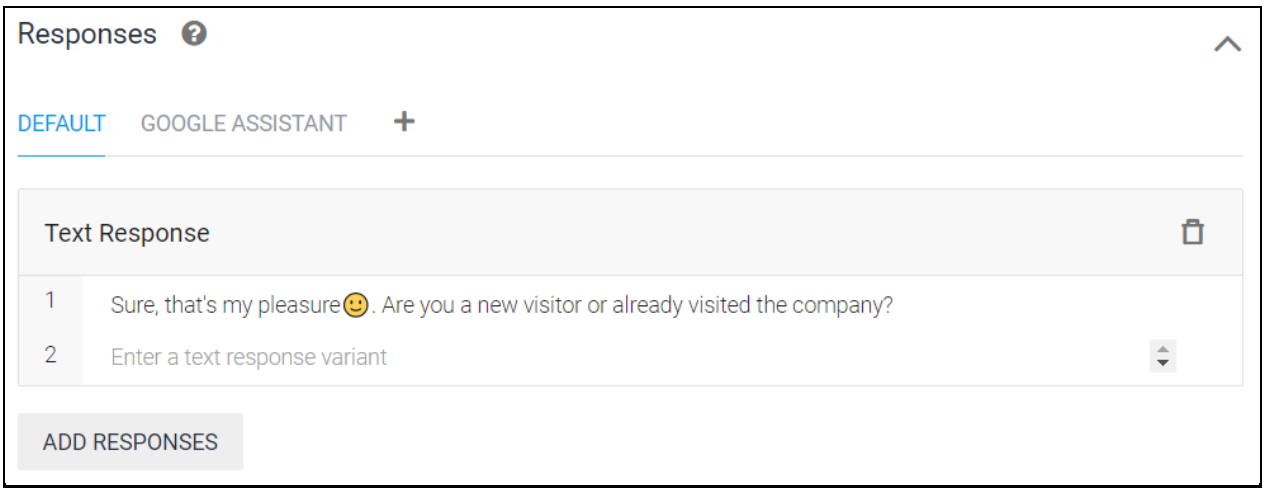
Dialogflow provides basic presets like a Default Welcome Intent and a Default Fallback Intent. Update the training phrases and the responses.



Step 3: Create a new Intent.

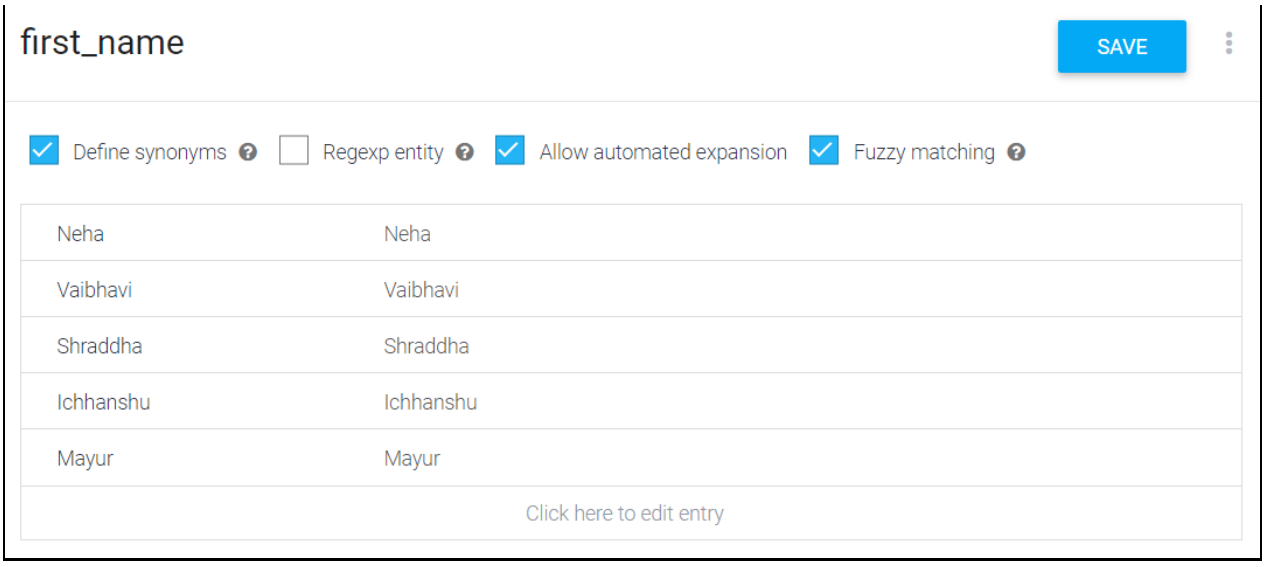
Add new training phrases and responses to the created intent.



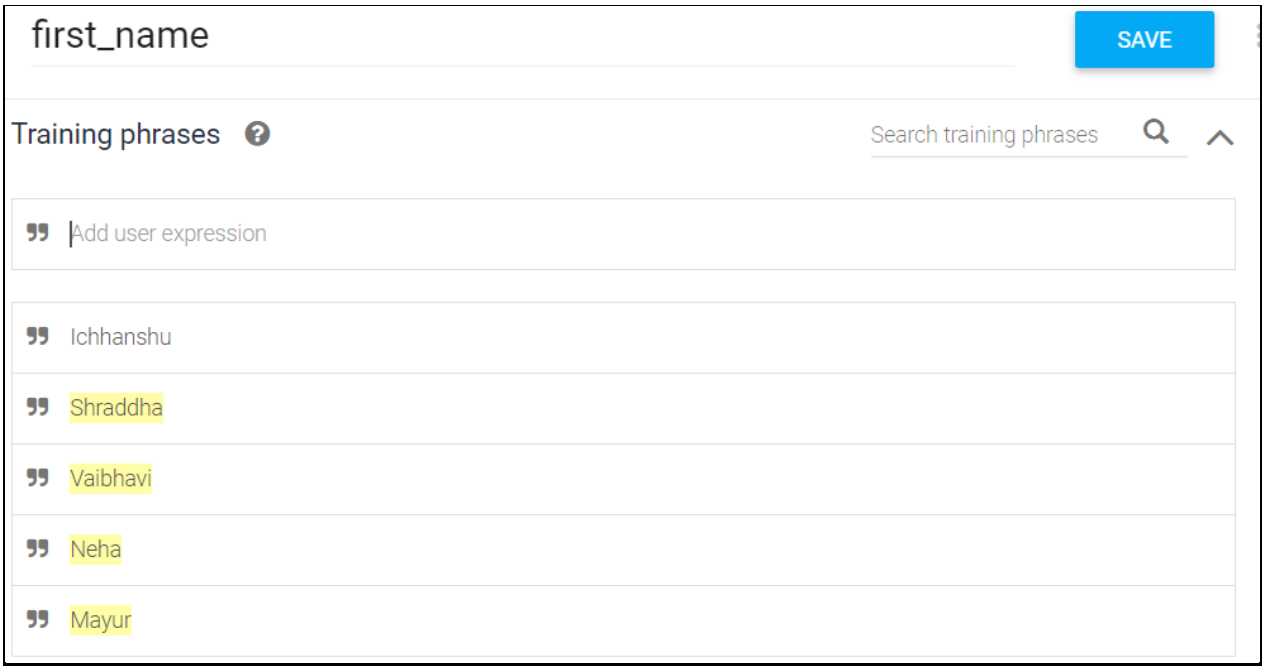


Step 4: Create a new entity.

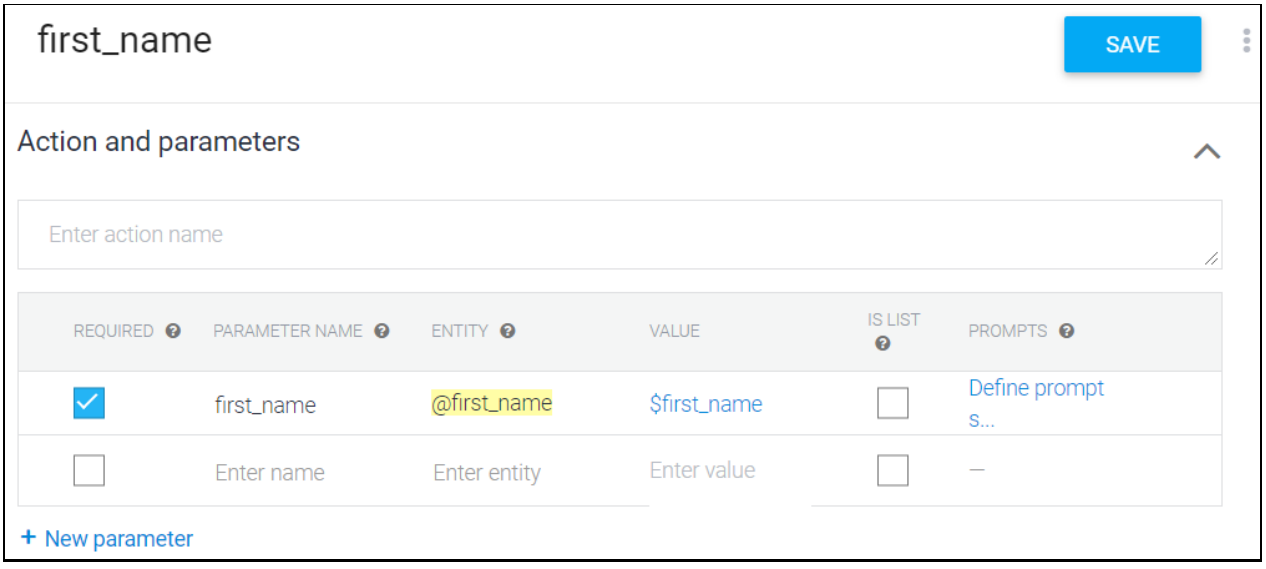
Add new entries to the created entity. Within a chatbot, an entity, or slot, modifies user intent. Chatbot entities are connected to knowledge repositories in order to provide more personal and accurate responses on user search.



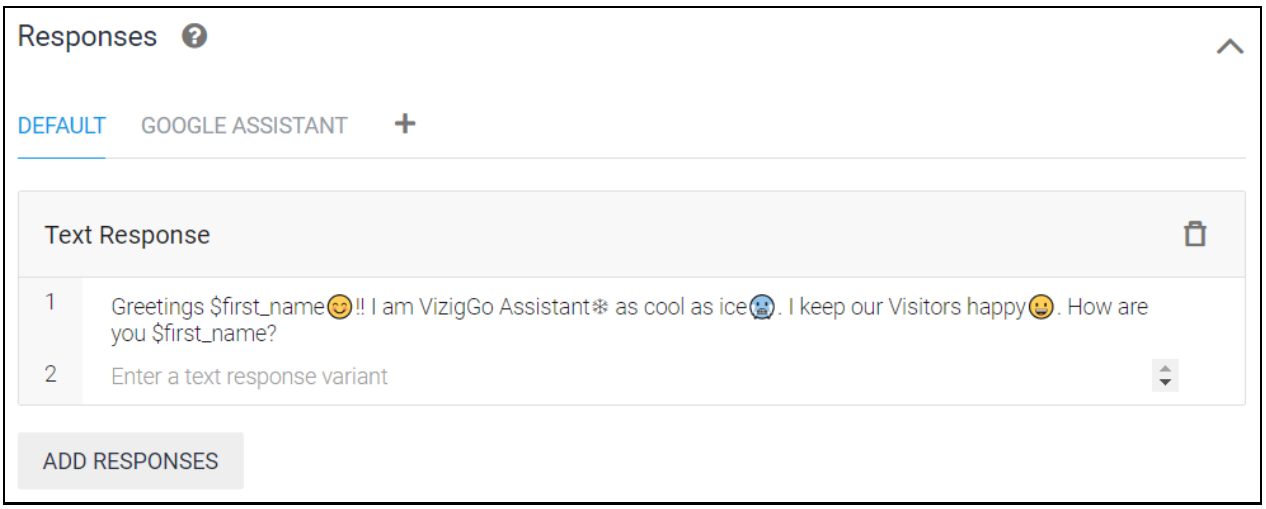
Create new intent and add the training phrases as the entries of the created entity.



Add the action and parameters for the intent based on the created entity to modify the visitor's intent response.

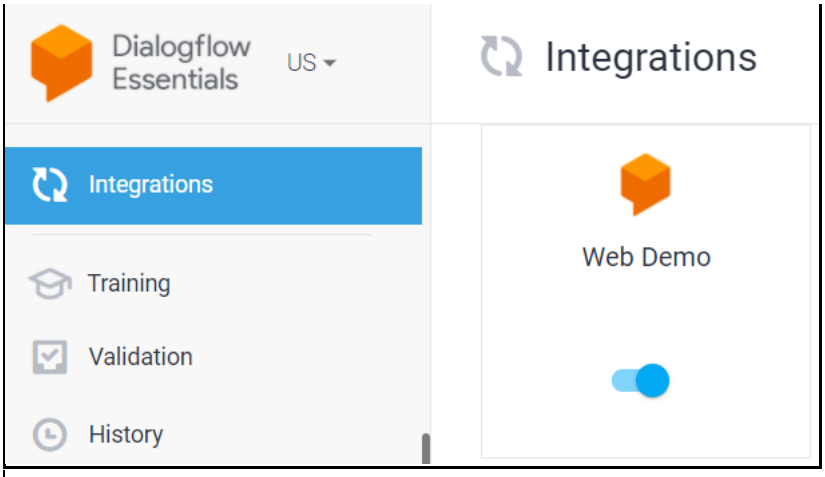


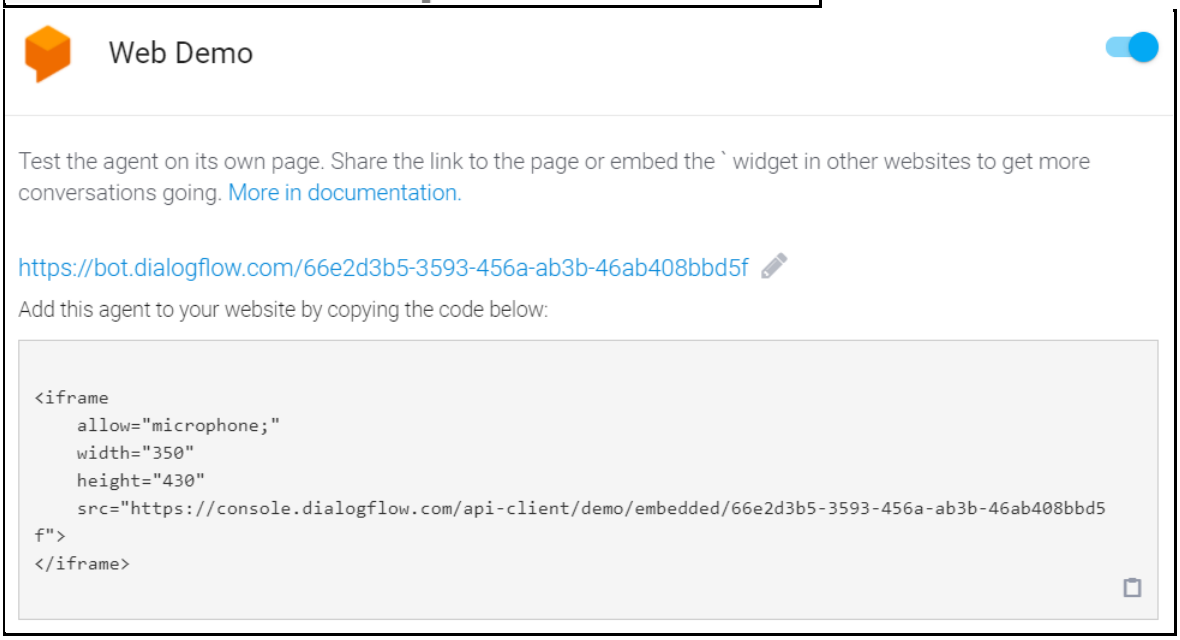
Add the responses to the created intent based on the entries of the entity.



Step 5: Integration.

Actual chatbot deployment on platforms, like your websites, etc. is the ahead procedure that requires publishing the bot but operational Chatbot can be watched on Web Demo in the Integration section.





This is the URL for the deployed chatbot.

CODING

Index.json

```
// See https://github.com/dialogflow/dialogflow-fulfillment-nodejs
// for Dialogflow fulfillment library docs, samples, and to report issues
'use strict';
const functions = require('firebase-functions');
const {WebhookClient} = require('dialogflow-fulfillment');
const {Card, Suggestion} = require('dialogflow-fulfillment');
process.env.DEBUG = 'dialogflow:debug'; // enables lib debugging statements
exports.dialogflowFirebaseFulfillment = functions.https.onRequest((request, response) => {
const agent = new WebhookClient({ request, response });
console.log('Dialogflow Request headers: ' + JSON.stringify(request.headers));
console.log('Dialogflow Request body: ' + JSON.stringify(request.body));
function welcome(agent) {
agent.add(`Welcome to my agent!`);
}
function fallback(agent) {
agent.add(`I didn't understand`);
agent.add(`I'm sorry, can you try again?`);
}
// // Uncomment and edit to make your own intent handler
// // uncomment `intentMap.set('your intent name here', yourFunctionHandler);`
// // below to get this function to be run when a Dialogflow intent is matched
// function yourFunctionHandler(agent) {
//   agent.add(`This message is from Dialogflow's Cloud Functions for Firebase editor!`);
//   agent.add(new Card({
//       title: `Title: this is a card title`,
//       imageUrl: 'https://developers.google.com/actions/images/badges/XPM_BADGING_GoogleAssistant_VER.png',
//       text: `This is the body text of a card.  You can even use line\n  breaks and emoji! 💁`,
```

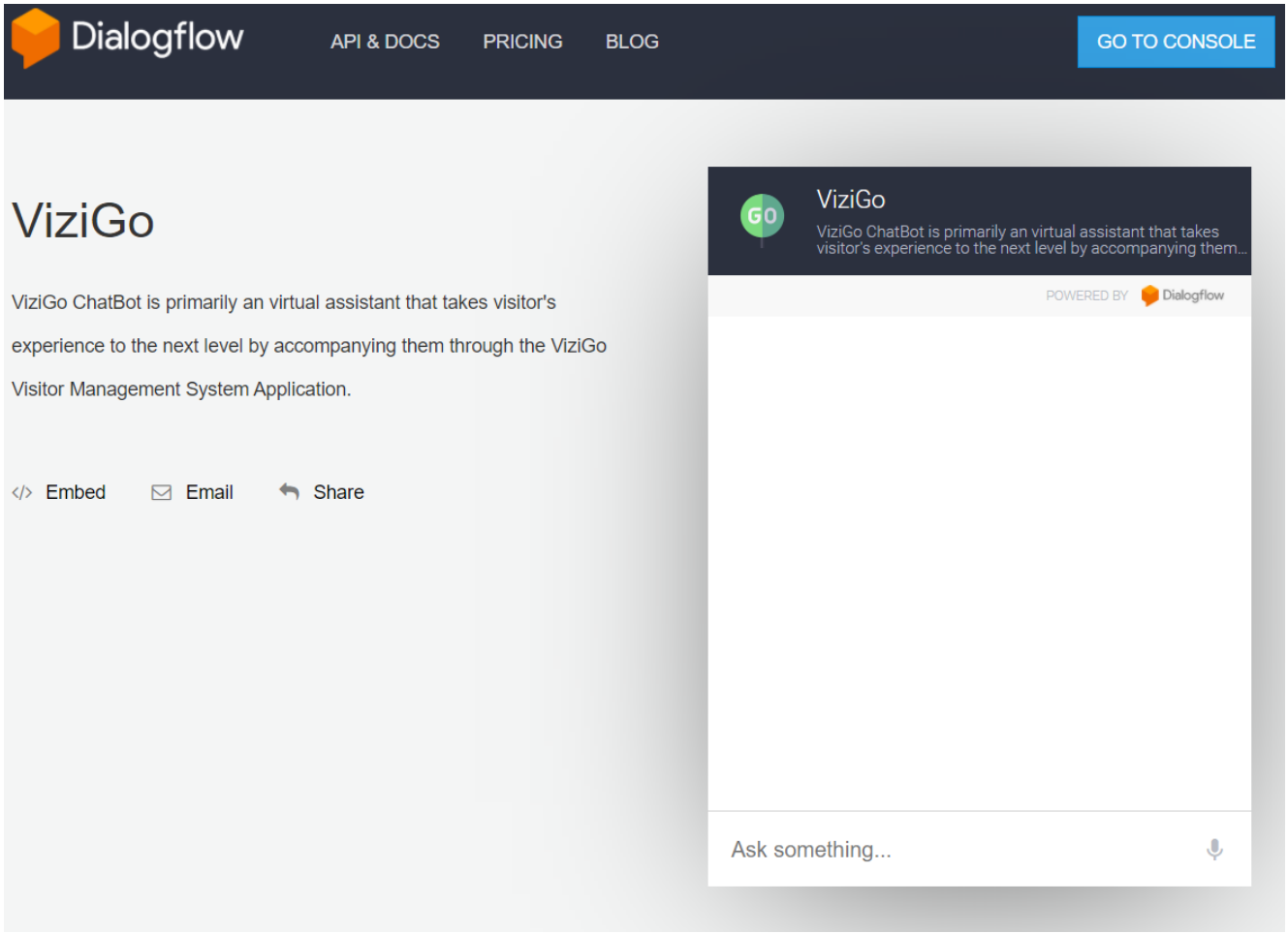
```
//       buttonText: 'This is a button',
//       buttonUrl: 'https://assistant.google.com/'
//     })
//   );
//   agent.add(new Suggestion(`Quick Reply`));
//   agent.add(new Suggestion(`Suggestion`));
//   agent.setContext({ name: 'weather', lifespan: 2, parameters: { city:
'Rome' }});
// }
// // Uncomment and edit to make your own Google Assistant intent handler
// // uncomment `intentMap.set('your intent name here',
googleAssistantHandler);`
// // below to get this function to be run when a Dialogflow intent is matched
// function googleAssistantHandler(agent) {
//   let conv = agent.conv(); // Get Actions on Google library conv instance
//   conv.ask('Hello from the Actions on Google client library!') // Use
Actions on Google library
//   agent.add(conv); // Add Actions on Google library responses to your
agent's response
// }
// // See https://github.com/dialogflow/fulfillment-actions-library-nodejs
// // for a complete Dialogflow fulfillment library Actions on Google client
library v2 integration sample
// Run the proper function handler based on the matched Dialogflow intent
name
let intentMap = new Map();
intentMap.set('Default Welcome Intent', welcome);
intentMap.set('Default Fallback Intent', fallback);
// intentMap.set('your intent name here', yourFunctionHandler);
// intentMap.set('your intent name here', googleAssistantHandler);
                        agent.handleRequest(intentMap);
});
```

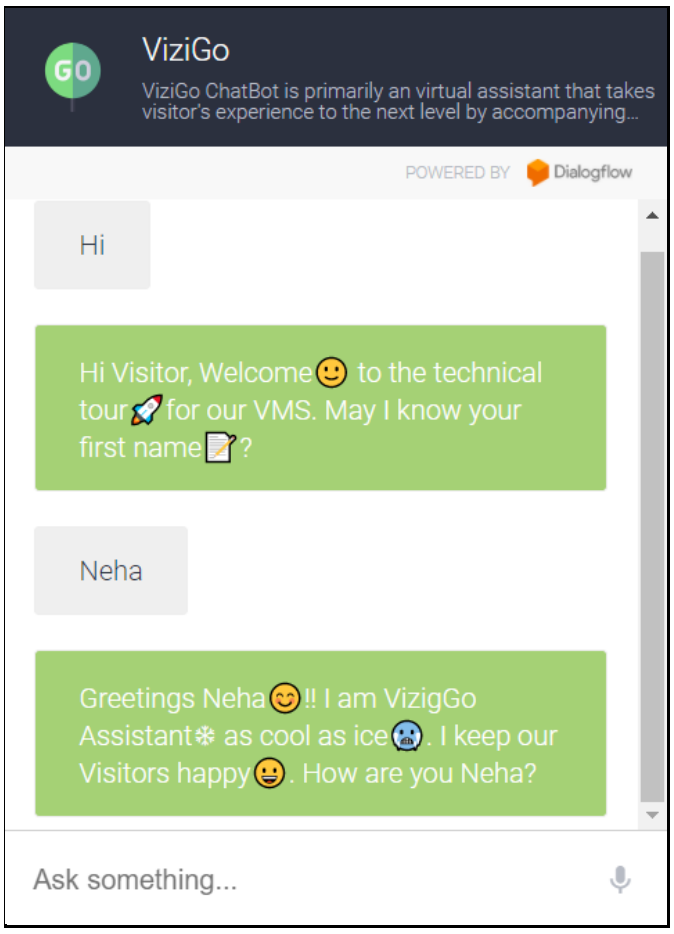
Package.json

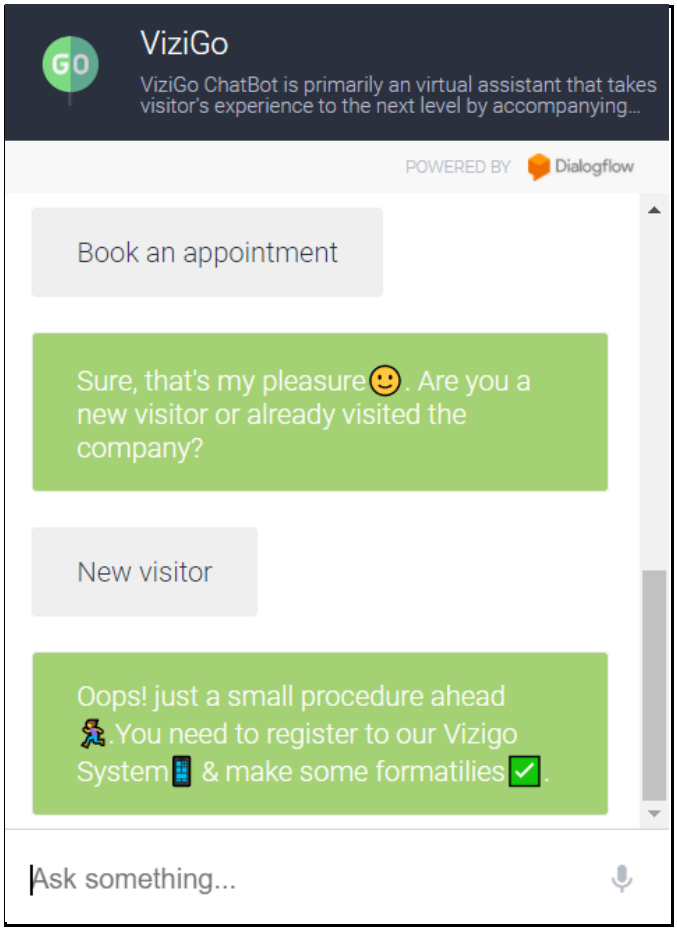
```
{
  "name": "dialogflowFirebaseFulfillment",
  "description": "This is the default fulfillment for a Dialogflow agents using
Cloud Functions for Firebase",
  "version": "0.0.1",
  "private": true,
  "license": "Apache Version 2.0",
  "author": "Google Inc.",
  "engines": {
    "node": "10"
  },
  "scripts": {
    "start": "firebase serve --only functions:dialogflowFirebaseFulfillment",
    "deploy": "firebase deploy --only
functions:dialogflowFirebaseFulfillment"
  },
  "dependencies": {
    "actions-on-google": "^2.2.0",
    "firebase-admin": "^5.13.1",
    "firebase-functions": "^2.0.2",
    "dialogflow": "^0.6.0",
    "dialogflow-fulfillment": "^0.5.0"
  }
}
```

SCREENSHOTS

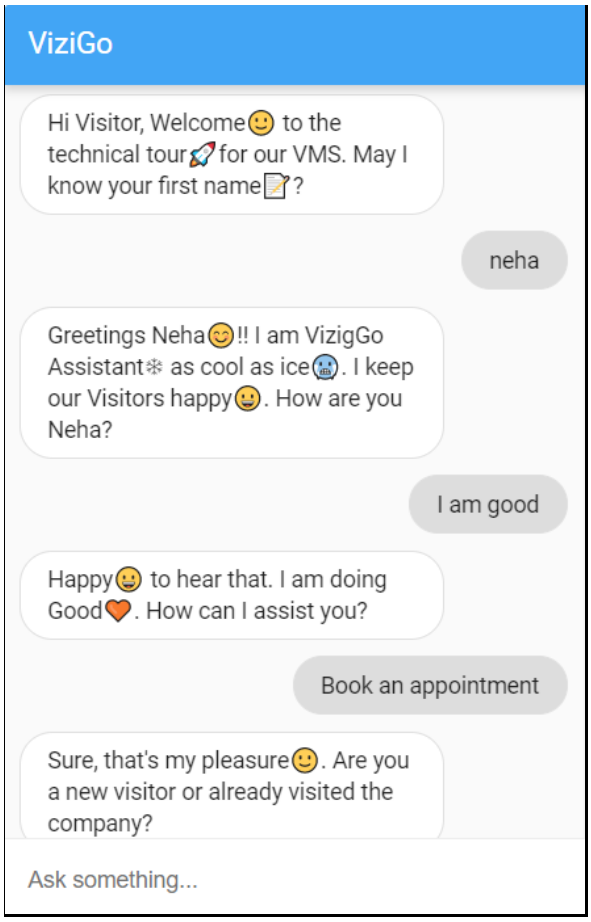
- Using Web Demo

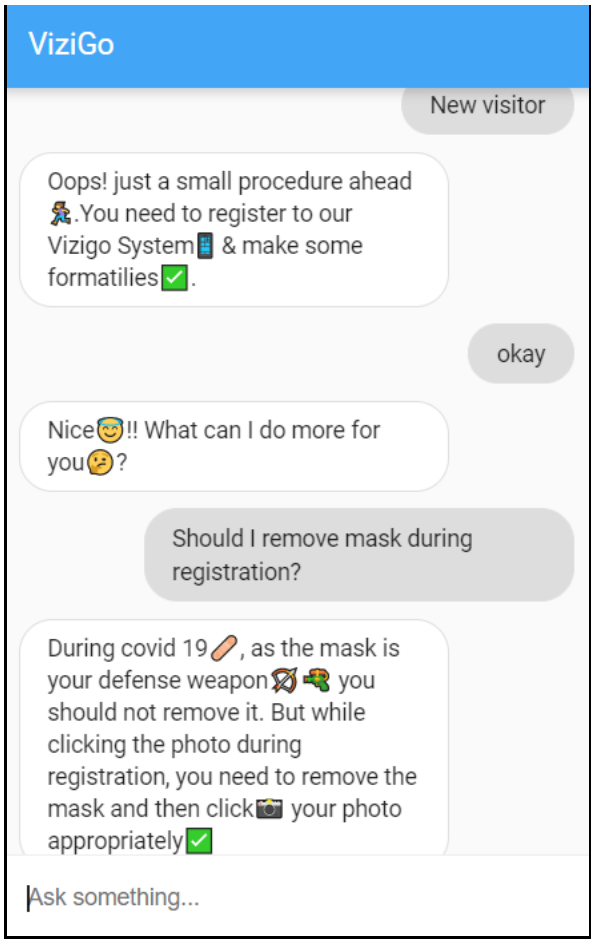


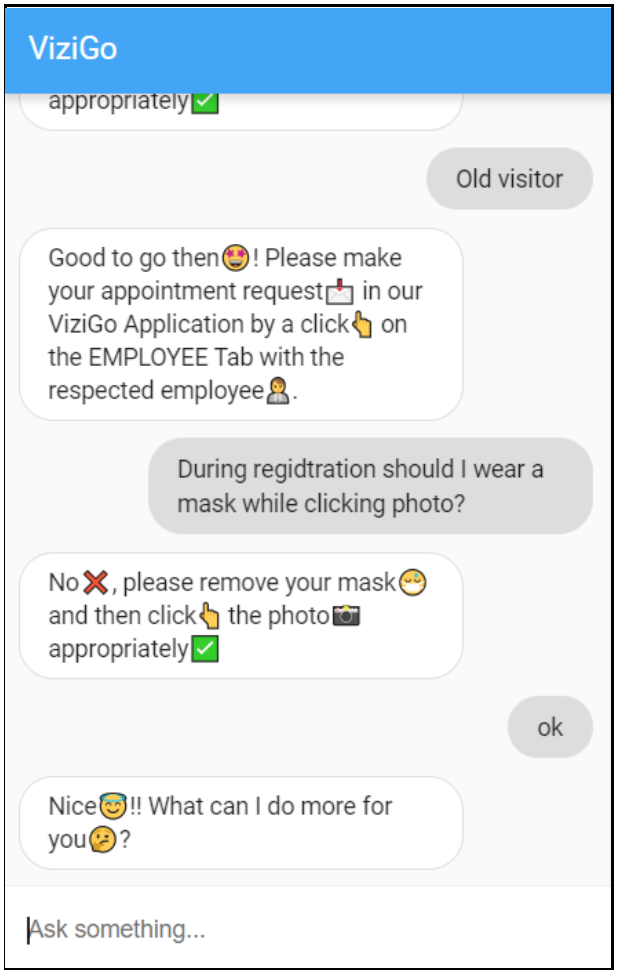

ViziGo
ViziGo ChatBot is primarily an virtual assistant that takes visitor's experience to the next level by accompanying...
POWERED BY Dialogflow
Hi
Hi Visitor, Welcome to the technical tour for our VMS. May I know your first name?
Neha
Greetings Neha!! I am VizigGo Assistant as cool as ice. I keep our Visitors happy. How are you Neha?
Ask something...

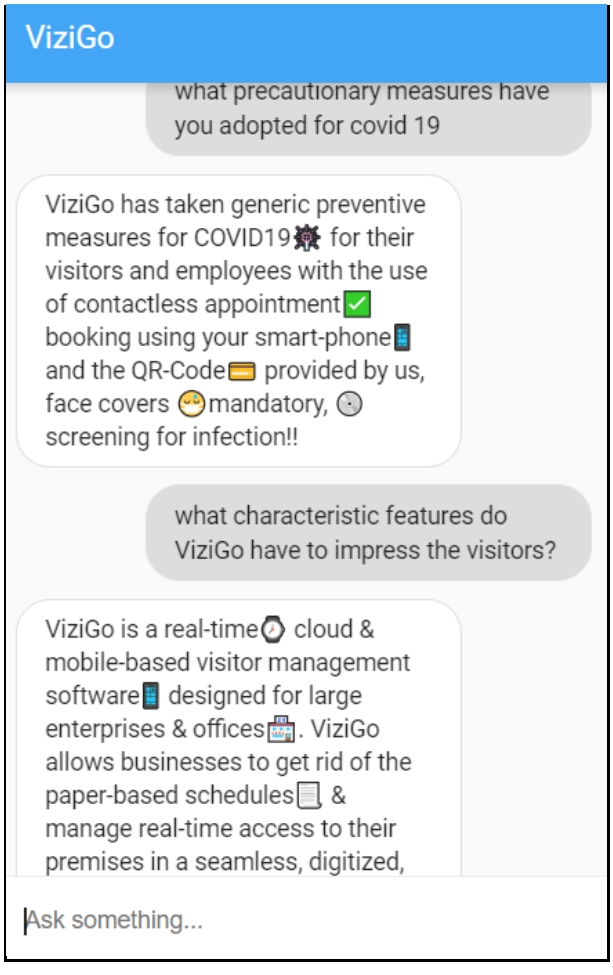

ViziGo
ViziGo ChatBot is primarily an virtual assistant that takes visitor's experience to the next level by accompanying...
POWERED BY Dialogflow
Book an appointment
Sure, that's my pleasure. Are you a new visitor or already visited the company?
New visitor
Oops! just a small procedure ahead .You need to register to our Vizigo System & make some formatilies.
Ask something...

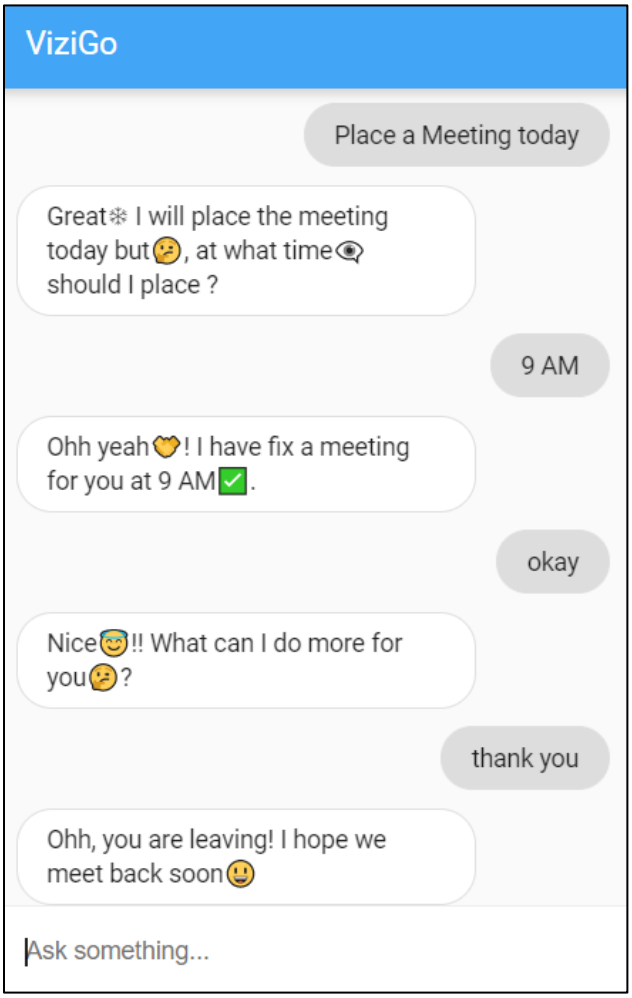
- Using Dialogflow Messenger






ViziGo
appropriately✅
Old visitor
Good to go then😍! Please make your appointment request📥 in our ViziGo Application by a click👆 on the EMPLOYEE Tab with the respected employee👩‍💼.
During regidtration should I wear a mask while clicking photo?
No❌, please remove your mask😷 and then click👆 the photo📸 appropriately✅
ok
Nice😇!! What can I do more for you😉?
Ask something...


ViziGo
what precautionary measures have you adopted for covid 19
ViziGo has taken generic preventive measures for COVID19🦠 for their visitors and employees with the use of contactless appointment✅ booking using your smart-phone📱 and the QR-Code💳 provided by us, face covers 😷mandatory, 😶 screening for infection!!
what characteristic features do ViziGo have to impress the visitors?
ViziGo is a real-time🕐 cloud & mobile-based visitor management software📱 designed for large enterprises & offices🏢. ViziGo allows businesses to get rid of the paper-based schedules📑 & manage real-time access to their premises in a seamless, digitized,
Ask something...


ViziGo
Place a Meeting today
Great❄ I will place the meeting today but🤔, at what time👁 should I place ?
9 AM
Ohh yeah🤝! I have fix a meeting for you at 9 AM✅.
okay
Nice😇!! What can I do more for you🤔?
thank you
Ohh, you are leaving! I hope we meet back soon😃
Ask something...

RESULTS & DISCUSSION

The ViziGo Virtual Assistant using Google Dialogflow helps to understand the visitor's query by using machine learning algorithms. The organizations and other technical industries were one of the first Industries to adopt new technologies. This integration has grown massively, helping organizations reach a wider visitor base enabling them to perform their servicing conveniently and to provide an improved querying service to satisfy the visitors or clients.

Considering the future scope for the system currently we can have, Multiple types of chatbots executing multiple tasks. This functionality would serve to deploy a multi-purpose chatbot design that communicates with multiple systems and completes a variety of tasks to stream collective functionalities at once.

CONCLUSION

The institutional corporations are now enabling the use of virtual person technology, so the visitors can perform more tasks online using the voice based and conversational and acquiring information remotely through virtual intelligent assistants to increase client service and assist employees & visitors.

Generally, chatbots are simple software programs that can respond to client's prompts. The proposed assistant is designed using Artificial Intelligence & Machine Learning for any organization. This process is easier when compared to other procedures. That can automate the basic and complex tasks and reduces the employee intervention of organization to solve the visitor's queries.