Ai and MI Based Google Assistant for an Organization using Google Cloud Platform and Dialogflow

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Abstract: Many people adopting Smart Assistant Devices such as Google Home. Now a days solely engaging with a service or product and services in any organization using 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 users query our chatbot will understand the training phrases and generates the dynamic response to user. In this paper we are going to study on Dialogflow, Actions on Google and Firebase Realtime Database. The academic organizations and other tech industries were one of the first industries to adopt new technologies. This integration has grown massively, helping organizations reach a wider customer base enabling them to perform their conveniently educational organizations are becoming ever more competitive with each other to adopt the newest advancements in technology to provide an improved delivery service to satisfy users. The Organizations are now enabling the use of technology so, customers can perform more tasks online using the voice based and conversational such as getting results, attendance, personal and academic information remotely and intelligent chatbots to increase customer service and assist employees & users. Generally, chatbots are a simple software programs that can respond to customer prompts. The focus of this project is to implement these new technologies to create an intelligent chatbot Google assistant to enable organizations to appeal to millennial and potentially gain a lifelong user. The proposed system takes an educational institution as a reference.

Keywords: Google Cloud Platform, Natural Language Processing, Actions on Google, Smart Assistants.

I. INTRODUCTION

This Google assistant helps users to interact with our product and services in any organization using 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 users query our chatbot will understand the training phrases and generates the dynamic response to user. In this paper we are going to study on Dialogflow, Actions on Google and Firebase Realtime Database. The academic

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We can use the Google Cloud API’s for this project and we can develop many various features.

This system uses Firebase Real time Database we can build rich, collaborative applications by allowing secure access to the database directly from client-side code. Data is persisted locally, and even while offline, real time events continue to fire, giving the end user a responsive experience.

This system also uses the advanced technologies like Google Cloud Platform, Dialog flow, Actions on Google and Google Cloud vision API i.e. Cloud Vision API allows developers to easily integrate detection features within applications, including image labelling, face and landmark detection, optical character recognition (OCR), and tagging of explicit content. Google Cloud Auto ML Vision API enables you to create a custom machine learning model for image labeling.

The system is linked with Google Assistant to provide wonderful experience to user, this project is available to every user where ever the google is there. The users of this project are no need to install app in their device, Only users need to call the project by using the invocations like “Talk to saveetha.com”. When we call the invocation this app asks to you sign in to app using various methods like Sign in with google, Facebook, LinkedIn and manual username and password method.

III. SYSTEM ARCHITECTURE

The system architecture consists of Java Script programming language, Actions on Google, Dialogflow, Firebase Realtime database. The Dialogflow which is an integrated development environment from Google is used to develop chatbots using various programming languages.

IV. RESULTS AND DISCUSSION

4.1 AUTHENTICATION

In this project, we are going to create an OAuth authentication for accessing the google assistant. The OAuth authentication is a standard protocol helps to provide the secure delegated access to client applications. This OAuth works over http protocol and authorizes devices, API’s, servers and applications with access tokens rather than credentials. In this project, we have integrated the Sign In with google, Microsoft and LinkedIn and also provided the normal username and password. We need to create the authorization URL and token URL for setting up OAuth authentication.

4.2 STUDENT

The student modules can help the students for accessing their academic data over the voice and conversational based system, for example when a user says “I want to know my grades or result” It will generate response based on the trained phrases and uses the machine learning strategies. This module will be shown when user logsins with the college UserId and college MailId like in similar way it gets do all the basic process.

The basic process of this project is shown in the below diagrams so, we can visualize the working process of the project.
4.3 ADMIN

Admin page in this project enables for easy supervision of all administrative activities of the institution. All the information and functions of the management can be operated from the admin panel, it provides access to new users of the organization, and also take care of account roles and privileges, and their logging activity, etc. features.

We can also notify the users with the notification option like Assignment deadlines, Fee dues and various tasks in any organization. Admin can manage all the profiles of organization users.

4.4 FACULTY

The Faculty module can help the teachers to do basic processes such as getting student details using Register number,
Mobile number and also, they can give the assignment status and provide grades for students and when faculties say over voice it can be automated such as scheduling meetings with HOD and department head.

4.5 GOOGLE CLOUD VISION API

Google cloud Vision API is a Pre-Trained Machine Learning model that helps to derive insights from pictures and videos. You can get insights including image labelling, face detecting and landmark detection, optical character recognition (OCR), and tagging of explicit content. In this project we can detect the faces of students and take their details within seconds of processing the data. We can also take the attendance by recognizing the faces of students and their activity. The Cloud Vision API is the best features and we will be utilizing this feature in this project.

ACTIONS ON GOOGLE:

Actions on Google could be a development platform for the Google Assistant. It permits the third-party development of "actions"—applets for the Google Assistant, that give extended functionality. The actions platform supports "direct" actions, still as "conversational" actions for a lot of advanced applications. We can build the extraordinary applications using the actions on google console. The Actions on Google enables us to seamlessly integrate our services with Google Assistant and we can reach users across 500M+ devices, including smart speakers like Google Home, phones, cars, TVs, headphones and more.

V. WORKING

Open Android mobile or Google home or smart devices that has google assistant i.e. Open google assistant and just say “Talk to saveetha.com”. Then it will be asked you to link your account to saveetha.com organization if you are okay with that proceed for OAuth authentication.

After successful authentication it will be redirected to app and It will say greetings to user and asks how can I help you with organization resources. Then the user will interact with this google assistant project and for example if a faculty asks like this “I need to get student details “, then app asks you enter the register number of the student after entering it will fetch and give the dynamic response to user. Like this in similar way it can do all tasks.
Therefore, in this way we can create an Artificial Intelligence & Machine Learning based google assistant 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 customer queries. As the above stated methodology, we can improve the Machine Learning techniques in DialogFlow and Firebase real-time database provides various features and with OAuth authentication our application becomes more secure and responsive and Google cloud or any other cloud services we can use like Microsoft Azure, Google Cloud etc. I have created a demo of this project in Google actions Simulator you can view it here using the following link https://googlee.technology/. For more details you can contact me on LinkedIn https://www.linkedin.com/in/chinnapareddy-kanakant-i-053ab812a/

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[Click on the above icons you can catch him there]

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