Unique Identification Authority of India BOT: An Intelligent Application Using Artificial Intelligence Approach

V. Prasad, M. Vineeth Kumar, K. Viswanadh, and P. V. N. Mahesh

Abstract In the modern world, the growth of technology is exponential. Artificial Intelligence (AI) and Machine Learning (ML) are evolving rapidly day by day. The evolving AI applications are super smart and definitely usable for layman. In such application, normal bots are famous application for conversation. This project includes an implementation of Unique Identification Authority of India (UDAI) BOT (mentioned as U-bot) of virtual assistant for the conversation in the natural language with the customer, uniquely identified by their Aadhaar number where the details of the Aadhaar card can be detected by using Quick Responsible (QR) code scanner. According to the details of the Aadhaar card, the virtual assistant tries to satisfy the customer by responding for every appropriate query raised in the form of either voice or the text. Thereby, the customer can have a conversation to the maximum possible level to which it is programmed.

1 Introduction to Artificial Intelligence

AI is the simulation of human intelligence processes by machines. AI sharpened both the theory and techniques with advanced implementation. Though there is a fast growth in multidisciplinary fields with the embedded AI, but still AI stood stand alone. The development of recent chatbots made an inspiration to study this scenario. Chatbot deals with message versions and styled in its traditional server mechanisms with prefixed data. Cui et al. [1]. Super-Agent (chatbot Name) deals with leverages large-scale and publicly available e-commerce data. It is unique from other bots. Galitsky and Ilvovsky [2] designed an automated customer support or assistance bot for the user in learning product features and for the tasks which it is usable. Dahiya [3] represented the pattern matching, access information system to provide a predefined acknowledgment for the design and categorical implementation. Bani and Singh [4] the implementation of ALICE chatbot system as an application named as college

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enquiry bot, an application which helps students to solve all the problems they face during admissions. Rahman et al. [5] developed a cloud-based chatbots program which acts for the future era of chatbot. Kuhn and De Mori [6] a language model which reflects short-term patterns of word use by means of a cache, a 3 g-gram component was tested on samples drawn from the Lancaster-Oslo/Bergen (LOB) corpus of English text for the speech recognition using natural language processing. Li et al. [7–9] converted a spoken utterance into a feature vector with concurrence accurate statistics in the field of natural language processing, interactive application areas to build a morphological processor for language generation.

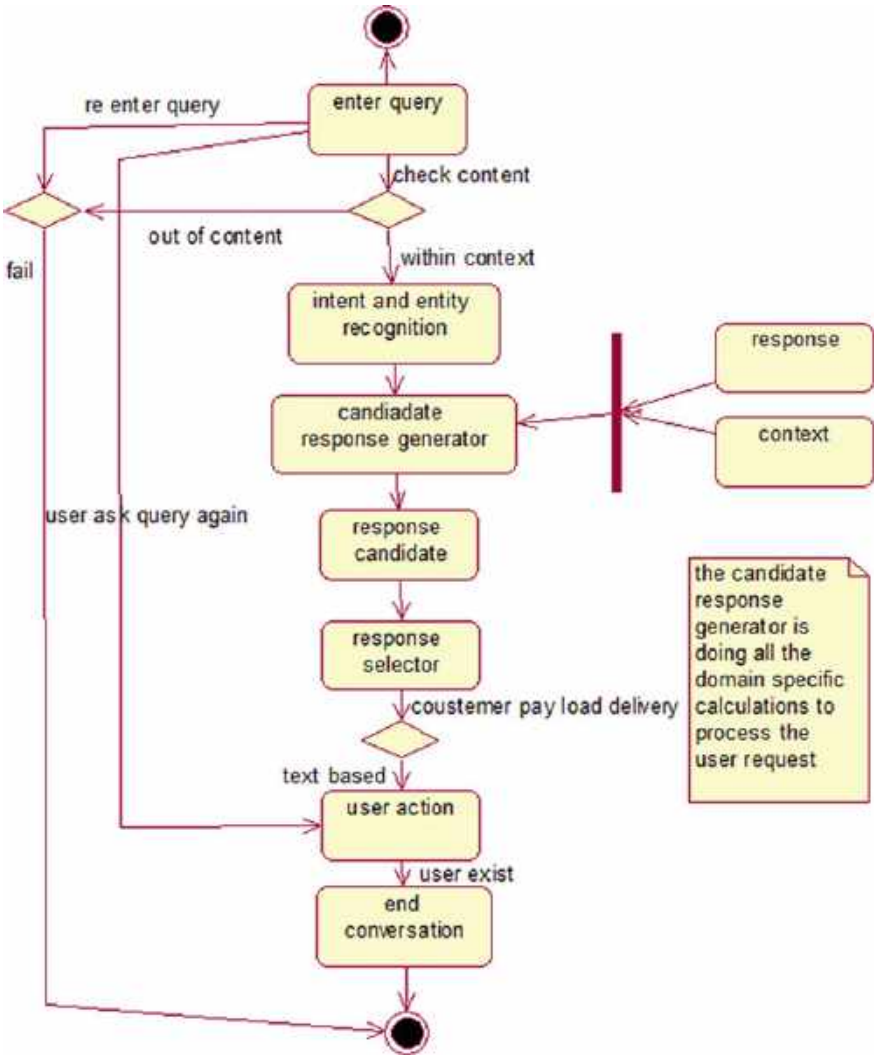
2 Literature Review

Khilar [10] discusses on the speech to text appreciation and conversions of the developed application in each stage of classification. Mon and Tun [11] use Hidden Markov Model (HMM) which is applied to train and test the audio files to get the recognized spoken word using MATLAB. Prachi and Bhope [12] developed a human–computer interface system using mother tongue and discusses the various aspects used in speech recognition process and analyzes the same using Raspberry-pi technology. Nafis and Hossain [13] designed a text to speech conversion module using MATLAB, where real-time speech to text, can be defined as accurate conversion of words that represents uttered word instantly after speaking. Kaur and Garcha [14] they developed an algorithm to convert speech to text using Punjabi phonetics. This paper introduces and discusses two popular and different noise reduction techniques by using Java module. Kamble and Kagalkar [15] worked on speech synthesis. This approach is of text to speech where the output is given in Hindi. Shetake et al. [16] conducted survey methods on character recognition as well as text to speech and speech to text and showed the study on Optical Character Recognition with speech synthesis.

3 Problem Statement

Creating a web-based U-bot for adding flavor of speech. This website provides a feasible interface to authorize the user, here the user is an Indian, it is validated using Aadhaar. Every Indian has an Aadhaar that contains the QR code, the website provides an interface to read the QR and validate the user. After validating or authorizing the user, it redirects to the web interface where the U-bot exists. The bot needs to interact with the user through speech, implicates as voice input, and provides the valid response in the form of speech. Bot need to satisfy all the queries related to Aadhaar details and make the user satisfiable. Chatbot should start the conversation and it should continue the conversation until the user want to end the conversation.

4 System Design And Implementation



5 Existing System

As per the official website of U Aadhaar services, it doesn't have any chatbot services. The communication between the officials and customer is done through either customer agent service through call or email or offline services which lead to delayed responses.

6 Proposed System

U-bot makes speech to speech and text to text communication possible between human and the system. This application U-bot acts as a customer support agent between Indian citizens and UIDAI Aadhaar Officials. U-bot tries to answer all the queries related to the Aadhaar card details up to its knowledge, i.e., the trained data.

6.1 Advantages of Proposed System

- Human interference will be reduced.
- Available 24 × 7 working hours accessible any time.
- Machine will never go into annoyed mode for the quires.
- Provides the output through voice and cost effective.

7 Implementation

The task is divided into four sub-modules as described below, and the sub-modules are further divided (* Indicates the sub-content)

QR Code Generator and Scanner *Creating Database *QR Code Generation *QR Code Scanning	*Dialog flow Setup* *Creating Intents and Entities *Fulfillment	*Integration with web browser* and *Deploying local server*

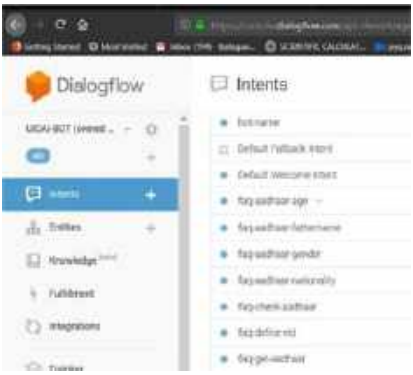
QR Generator and Scanner works on the Aadhaar card contains the details of respective citizen, these details are stored in the database server. Accessing government database server is not possible. Hence, manipulation on the database needed at our end considering the local database. Later, the QR Access code accessing the module which needs the QR code for reaching the details of the citizen and thus QR Code Scanning is to authorize the citizen whether he/she is available in Aadhaar

database or not. After generating QR code, Scan the QR code, and retrieve the Aadhaar number.

321613251882 321613251883

After execution, a new window with web cam will be popped out displaying the QR code around 30 seconds for all the aadhaar numbers available in the database.

7.1 Dialogflow Setup And Installation



*Access dialog flow

*Extract parameters with entities, which defines the extracted utterances

*Manage the context parameters for the physical display of QR codes

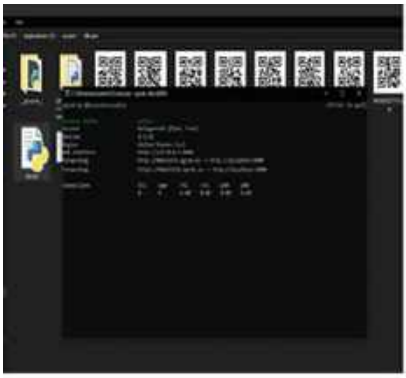
*Integrate with the Google Assistant/ any Virtaul assistant available at your domain, which lets the deployment of Dialog flow agent.

7.2 Creating Intents and Entities

In Dialogflow, the basic flow of conversation involves these steps:

- The user input
- Dialogflow agent parsing the input.
- Agent returning a response to the user.

Intent is used to check the responsive progress. Utterances are triggered to extract the responses.



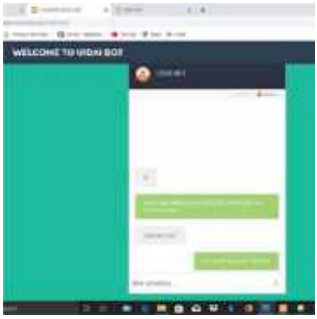
Execute and run the node JS server for generating the index file for seeing this server to listen in port number 5000 as mentioned in the codec.

7.3 Fulfillment

All the Aadhaars available in the database are generated with QR code as displayed with the package installed in the programming language codec, i.e., ***pip install Flask*** as NGROK were it will run the code in local server and takes the result into secured server for communication. This flask works at the port 6000 and 4040 exclusively for Text and Speech.

7.4 Integration with Web Browser

Execution Impulse to make the RUN state possible as commanded below.



$command = escapeshellcmd ('python D:\project\QR-pics\QR-and-Bar-code-Scanner-and-Generator-master\qrcode3.py');

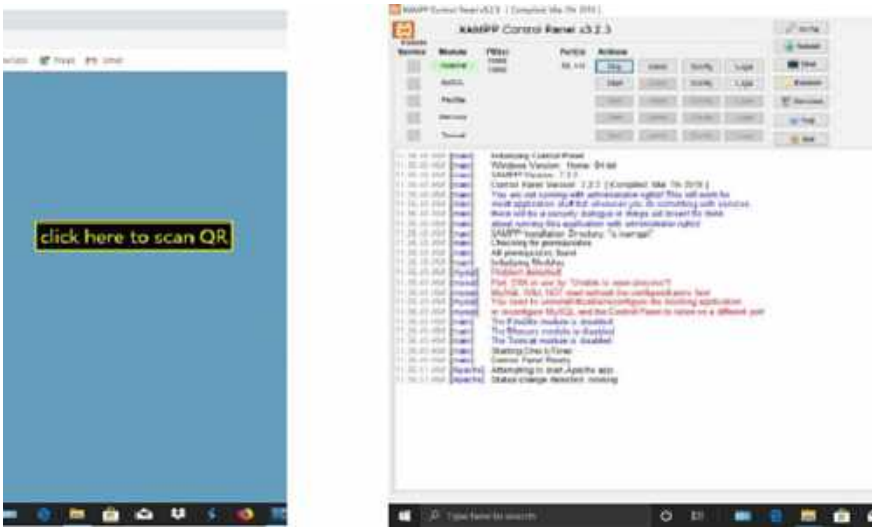
$output = shell_exec($command);

The figure shows the provision for local host address to the web site and can be used to see that chatbot with speech would be available on the website. This U-bot takes the speech as analog signals and coverts into digital signals using micro-phone and send the information to IO socket, later IO socket converts into text and sends to dialog flow.

Fig: 5.19

7.5 Intent Matching

A typical agent has several intents that represent a range of user observation. Whenever a pop, immediately Dialog flow agent attempts to match the utterance to an intent. Dialogflow matches user utterances to intents using the training phrases you define and the important words, phrases or values you specify within them.



The above figures show the deployment of the server with the dialog flow which is sent as a response int text format. IO socket converts this text format into speech as digital form. This digital signal is converted into analog signal and comes out as output through speakers.

8 Conclusion

Perspective chatbots or smart assistants with artificial intelligence are dramatically changing businesses. There is a wide range of chatbot building platforms that are available for various enterprises, such as ecommerce, retail, banking, leisure, travel, health care, and so on. This work represents to build an UIDAI BOT (U-bot) which helps the Aadhaar clients to know the maximum solutions to the Aadhaar related queries and provides a joyful environment to interact with chatbot through voice as input and provides text and speech as output. It tries to answer the maximum queries up to its knowledge. U-bot can reach out to a large audience on messaging apps and be more effective than humans. They may develop into a capable information-gathering tool soon with various vocal processors.

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