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Vehicle Maintenace Index Implemented Using a Whatsapp Bot

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ABSTRACT: For the past few years chatbots for text base services like discord, whatsapp have been evolving at a rapid pace to provide more features and better interface to their users. While discord has a great variety of bots which provide services ranging from entertainment to server management, whatsapp bots have been used by many companies to set up an interactive customer care. A chatbot is a program that is designed to replicate a conversation on a text or spoken ground. It recognizes the user input by pattern matching to identify a predefined scenario and provide its respective acknowledgement. When the input is being given, a response from a predefined pattern from the database is given to the user in which the order of the sentence is recognized and a saved response pattern is acclimatized to the exclusive variables of the sentence. This paper addresses the design and implementation of a Chatbot System using the Whatsapp Application where it will detect and recognize the input image of the vehicle number plate and return the details of the vehicle and its owner as its output. It also focuses on the methodology which is being used for the extraction and recognition of characters from the vehicle numberplate.

Index Terms - Chatbot; Pattern Matching; Optical Character Recognition (OCR); Natural Language Understanding (NLU); Application Programming Interface (API)

I. INTRODUCTION

A chatbot is a smart application that interacts with a personand provides an answer to the queriesone might have in its domain. We can say that we are entering the era of chatbot. Companies like Google and Microsoft are all busy in improving and developing this innovative user experience technology. A chatbot is also known for messaging applications which are now more widely used than social media networks.

To be technically precise, we can characterize a chatbot as a program designed to have a conversation/discussion with a human. For instance, any client could ask a question on a chatbot, and the chatbot will react accordingly from a set of predefined responses. We can say a chatbot operates similarly to the concept of instant texting. The intricacy of a chatbot can be dictated by the complexity of its hidden programming and the information it can get to .

ELIZA, the first chatbot was developed in 1966 with the sole purpose of acting as a psychotherapist by returning the user's utterances with questions designed to make the introspect. A basic idea of example coordinating was utilized and a format-based reaction component was made. Its conversational capacity was not unreasonably acceptable, but rather it was sufficient at a time to confuse individuals when they were not used to connect with PCs and give them the impulse to begin building up their own chatbot.

In1995,ALICE(ArtificialLinguisticInternet ComputerEntity)which was an improved version of ELIZA was developed by utilizing the Artificial Intelligence Mark-up Language (AIML) as a dialect and mediator.In ALICE, the idea was to relate client information with a response of the chatbot Knowledge Base (KB). In the composing that displays the AIML thoughts, there are instructional activities that are remotely present, or present in the vernacular thoughts in focal point. The two options are assuredly not reasonable for AIML disciples since they can't change the proportion of theory and application.

The following stage was the growing and spreading of data through development and innovation which has correspondence among customers in virtual circumstances. In the present circumstance, the interfaces coordinate in human

and machine. We built up a chatbot framework utilizing the Whatsapp Application. In this chatbot, we have given the contribution of the vehicle number plate picture, which perceives the characters of the picture by Optical Character Recognition (OCR) and the subtleties of a specific vehicle number plate are brought from the open-access information base utilizing the innovation of Artificial Intelligence (AI) and Machine Learning (ML). The vehicle proprietor's information is being extricated from the open-access information base (counting enrolling date and authority, wellness and protection legitimacy). At that point the worker is utilized for facilitating the contents that are associated with the sending and accepting of the vehicle proprietor's data as a yield. In this paper, the reason for a chatbot has been changed as it gives a cross country search over the digitized information of Registered Vehicles utilizing Image Processing Technology. This administration will help implementation organizations to distinguish any phony records. The chatbot is expected to energize and to engage the clients while keeping up a normal discussion

Now, using different domains chatbot can be classified as:

- **Knowledge-based:** The measure of information where it is prepared upon is known as the information based area and it is described into two classes for example Open-space chatbot which can discuss general subjects and react properly, while shut area chatbot is more centered around a specific information area and they may neglect to react to different inquiries.
- **Input processing and response generation method:**There are three models used to create the fitting reactions in this space that considers the strategy for preparing inputs and producing reactions:
  - **Rule-based model:** They pick the framework reaction dependent on a bunch of rules which is predefined and perceiving the lexical type of the info text without making any new content answers. The information utilized in the chatbot is humanly hand-coded and is coordinated with conversational example coordinating. A more extensive standard-based model permits the chatbot to answer to more kinds of client input. Notwithstanding, this sort of model isn't strong to linguistic and spelling botches in client input. In standard put together model most existing exploration with respect to examines is that the reaction determination for single-turn discussion is just viewed as the last info message. In more humanlike chatbot, multi-transform reaction determination mulls over as the past pieces of the discussion to choose a reaction pertinent to the entire discussion setting.
  - **Retrieval-based model:** Somewhat not quite the same as the standard based model as it offers greater adaptability to questions and breaks down accessible assets utilizing APIs. A recovery based chatbot recovers some reaction competitors from the information base before it applies the example coordinating way to deal with the reaction choice.
  - **Generative model:**It creates answers in a preferable manner over different models, in view of current and past client messages. The chatbot is more human-like and applies AI calculations and man-made consciousness strategies. Be that as it may, they are somewhat troublesome in building and train them.

- **Service-based:** It considers the measure of personal cooperation that happens for the client, and it is likewise needy upon the errand the chatbot is performing. The administration-based area can likewise be described into two classifications for example relational chatbot which lies in the area of correspondence and offer types of assistance, for example, Restaurant booking, Flight booking, and FAQ bots. They get data and give them to the client however they are not associates and will most likely recall data about the client. Though intrapersonal chatbot exists inside the individual area of the client, for example, informing applications like Messenger and WhatsApp. They comprehend the client like a human does and are allies to the client.

- **Human-aided:** Another characterization for chatbot considers the measure of human-guide which use human calculation in at any rate one component from the chatbot. Group laborers, consultants, or full-time workers can join their knowledge in the rationale to fill the holes brought about by impediments of a completely computerized chatbot. While contrasted with rule-based calculations and AI human calculation gives greater adaptability and heartiness and still, it can't handle given data as quick as a machine can, which makes it difficult to scale to more clientdemands.

II. DESIGN AND REVIEW

A chatbot is a framework that gives the

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mediator, just as a bunch of incorporated innovations, to decrease the expense and the unpredictability of improvement, sending, and the board of such frameworks. A portion of the advances that are being utilized are the information base joining, web administrations for the chatbot and the log recording of the discussions with the clients. These mediations will encourage individuals who can get restricted admittance to the vehicle proprietor's detail liberated from cost.

The program consists of an API (Application Programming Interface) implemented in Python Language and Java Script. Among the advantages of using the program, there are (i) real-time vehicle data is being fetched using Artificial Intelligence (AI) and Machine Learning (ML) technology with the help of image processing; (ii) helps the enforcement agencies to detect any fake documents.

The basic design of a chatbot is shown below in Fig. 01.

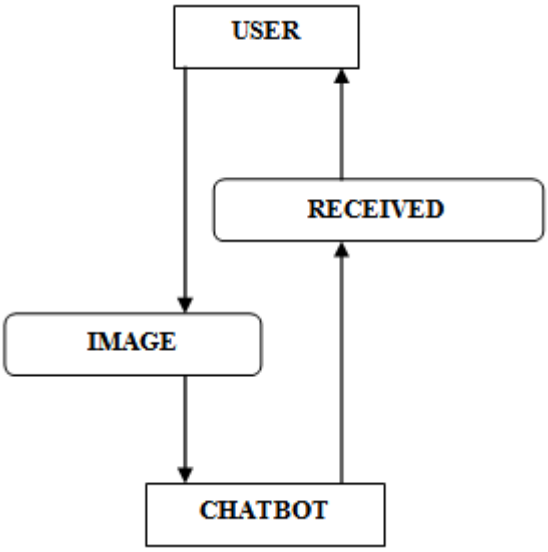

Fig.01: Basic design of a chatbot

A chatbot is also called as smart bots, digital assistants, interactive agents, or artificial conversation entities. They are useful in applications such as information retrieval (example: parking and traffic management), educational purpose (example: monthly progress report), business, and e-commerce (example: customer care service).

There are likewise numerous preferences of a chatbot for clients and just as for engineers as well. These days, most usage are done on a stage which is autonomous and in a split second accessible to clients without required establishments. Such application programming interfaces (API) are utilized where a chatbot can work without leaving the informing application, which furnishes and ensures the client's character with verification and security having secure meetings and there are restricted information prerequisites for the clients. Besides, installment administrations are coordinated into the whatsapp chatbot and can be utilized securely and dependably with an update framework which will reconnect idle clients. So correspondence dependability, quick and straightforward turn of events, absence of fracture in adaptation, and restricted plan endeavors for the interface and open-source stages give the capacity to intercede in many parts of usage are a portion of the favorable circumstances for designers as well

III. RESEARCHMETHODOLOGY

The goal of this paper is to plan and execute a chatbot framework utilizing the Whatsapp Application which will recover the data about the vehicle and its proprietor through Artificial Intelligence (AI) and Machine Learning (ML). [18-19]. A program has been composed for making a chatbot utilizing Visual Studio Code Software which is utilized for programming in this paper since it contains essential workspace and it is generally utilized for programming dialects. Python Language and Java Script are utilized for programming. An Application Program Interface (API) Twilio is being utilized for Whatsapp based Chatbot. A method of AI and ML is made utilizing an example coordinating that is known to the client and could be straightforward. The information

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picture is coordinated with the information sources saved in the open-source information base and comparing data is returned as a reaction. The accompanying flowchart of the chatbot cycle is appeared in Fig. 02.

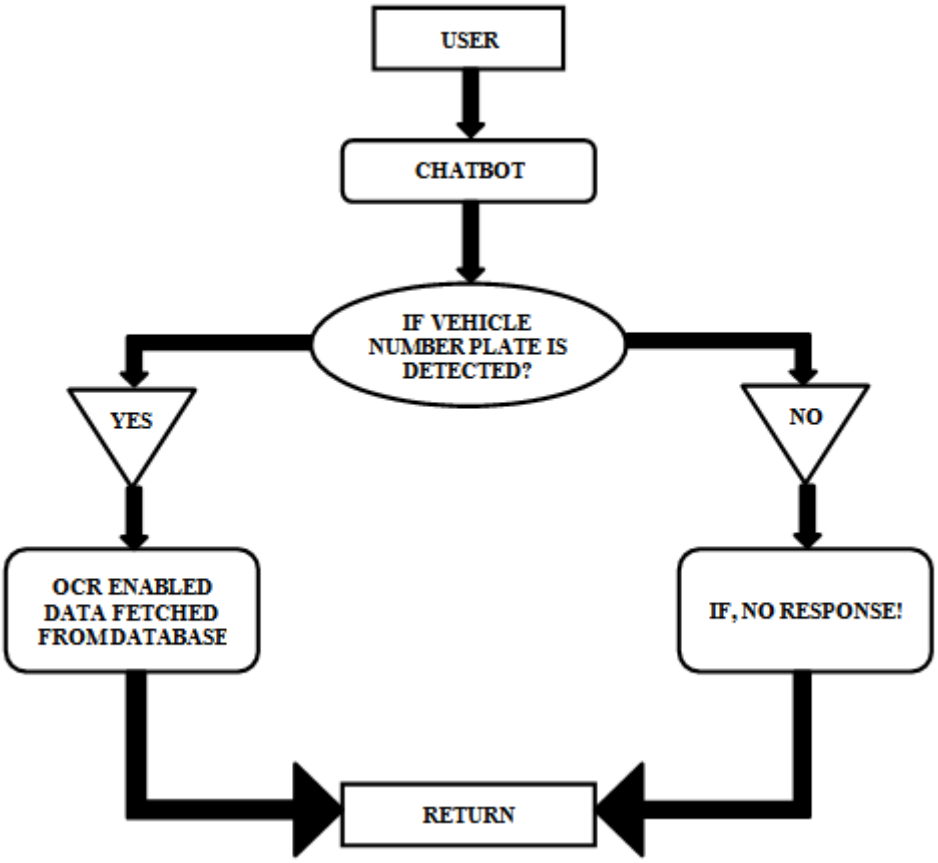

Fig.02: Flowchart of chatbot system

Natural Language Understanding (NLU) is the undertaking of Natural Language Processing (NLP) which is a region of computerized reasoning. As it utilizes the human language and information on the agreement which is being assembled to build up a program that will cause PCs to comprehend and control normal language to perform wanted undertakings. Also, NLU focuses on the extraction of the unique circumstance and significance from common language client inputs, which reacts properly and separates the space explicit elements.

Vehicle number plate location and Optical character acknowledgment (OCR) are the key modules utilized in the execution of the chatbot framework. The info picture from the client is taken and extraction of the vehicle number plate is being handled from the open-source information base utilizing AI and ML. At that point a comparing reaction is being produced as the vehicle data consequently.

Fundamentally, the structure which is being utilized for vehicle number plate identification and acknowledgment depends on Image Processing, where it first catches the picture and a bunch of a calculation is applied to upgrade its quality known as pre-handling. With the assistance of the edge procedure, the picture is changed over into highly contrasting. Confinement is done when it perceives the characters from the vehicle number plate picture and it crosses through the picture and finds the associated pixels. Division happens with trimming out the marked associated parts. Finally, all the associated parts are shipped off an Optical Character Recognition Engine, which restores the ASCII of the vehicle number.

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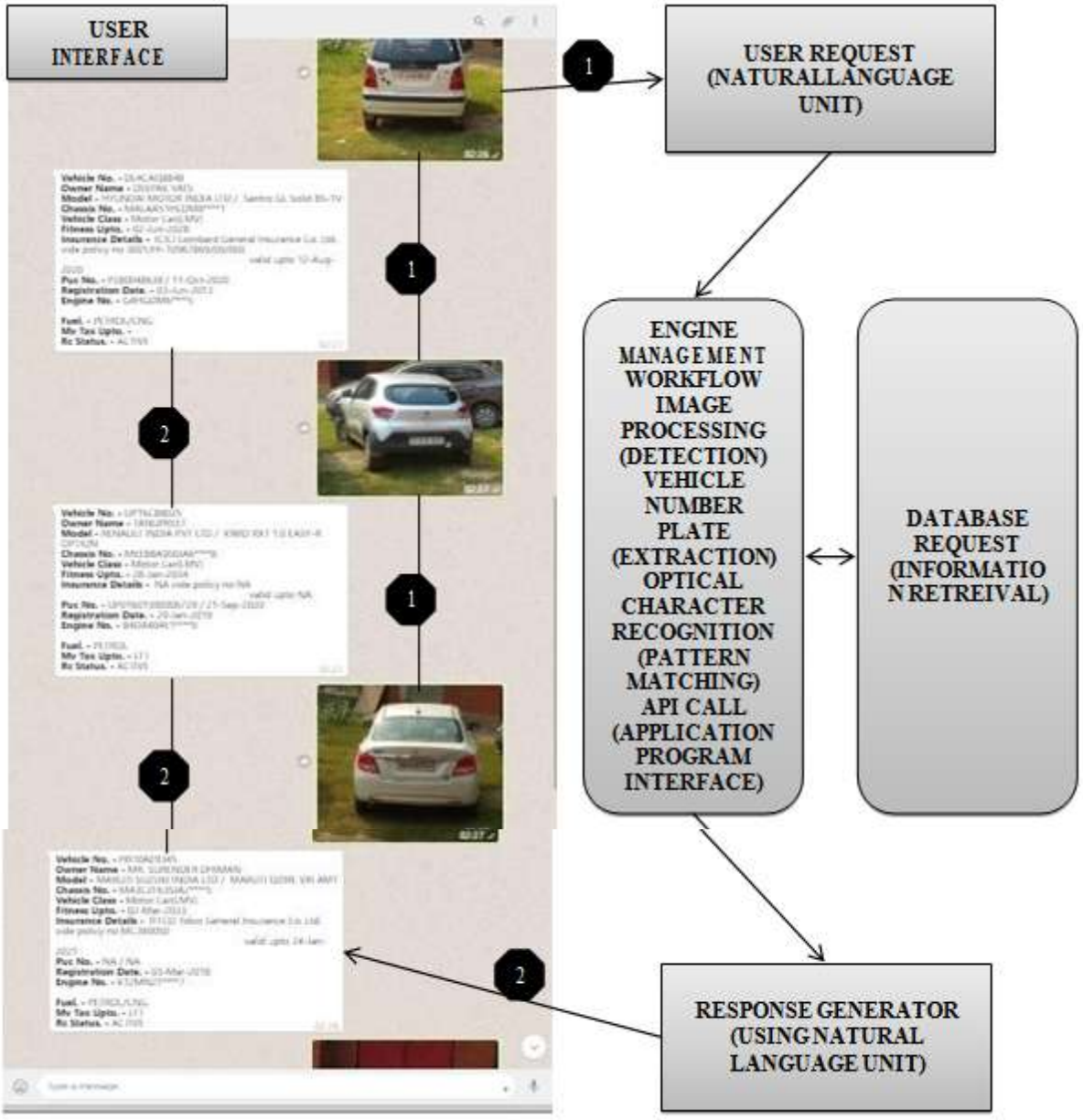

Fig.03: Architecture of chatbot system

In this way, as should be obvious above in Fig. 03 the engineering of chatbot framework shows that the client sending a solicitation utilizing Natural Language Unit (NLU) to send the picture of the vehicle with number plate in the talk. Following that, the motor administration work process measures the identification of number plate utilizing picture preparing strategy and from that point onward, the plan substances of vehicle number plate gets removed. Next optical character acknowledgment (OCR) is the strategy which groups the info character as per the predefined character class which is otherwise called design coordinating and after that data set solicitations for data recovery. Finally, the application program interface (API) is prepared and the reaction created from the data recovered is sent back to the UI.

IV. RESULT ANDCONCLUSION

This work depends on worker scripting and Puppeteer Library is utilized in Java programming for the information base which is known as the accepting yield. Tesseract Library is utilized for Image Processing in which Optical Character Recognition (OCR) is created.

Prior to this, the National Informatics Center (NIC) created SMS and electronic

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applications for the individuals who take vehicles on recruit to check the accreditations of drivers and the vehicle also. This administration likewise helps in the implementation offices to recognize any phony reports. Clients can see the ongoing got yield subtleties of Registered Vehicles on Whatsapp based chatbot by transferring an info picture on it.

In this paper, we have introduced a Whatsapp Based Smart Application System for Traffic Management by utilizing Python Language and Java Script. A chatbot has the ability of reacting consequently with the assistance of man-made consciousness and AI calculations to create various kinds of reactions. It turns out to be simple for an engineer to make a chatbot and computerize the discussions with the clients. Each time when a client sent a picture, the library saves the picture naturally that the client has sent. The program looks for the nearest coordinating reaction by the strategy of AI and ML that coordinates the info, and afterward it restores the most probable reaction to that picture dependent on how the client shares every reaction.

A chatbot is one of the straightforward ways for the clients where they can without much of a stretch sort their inquiries and recover data. It is an incredible apparatus for speedy collaboration and helps the client by giving solutions to their inquiries that are elusive. We chipped away at how chatbot is created and the uses of chatbot in different fields. By understanding the broadly useful of a chatbot it should be basic, easy to use, should be perceived by the client and the information base should be minimized. Moreover, a correlation has been talked about with the prior strategies for removing vehicle proprietor information.

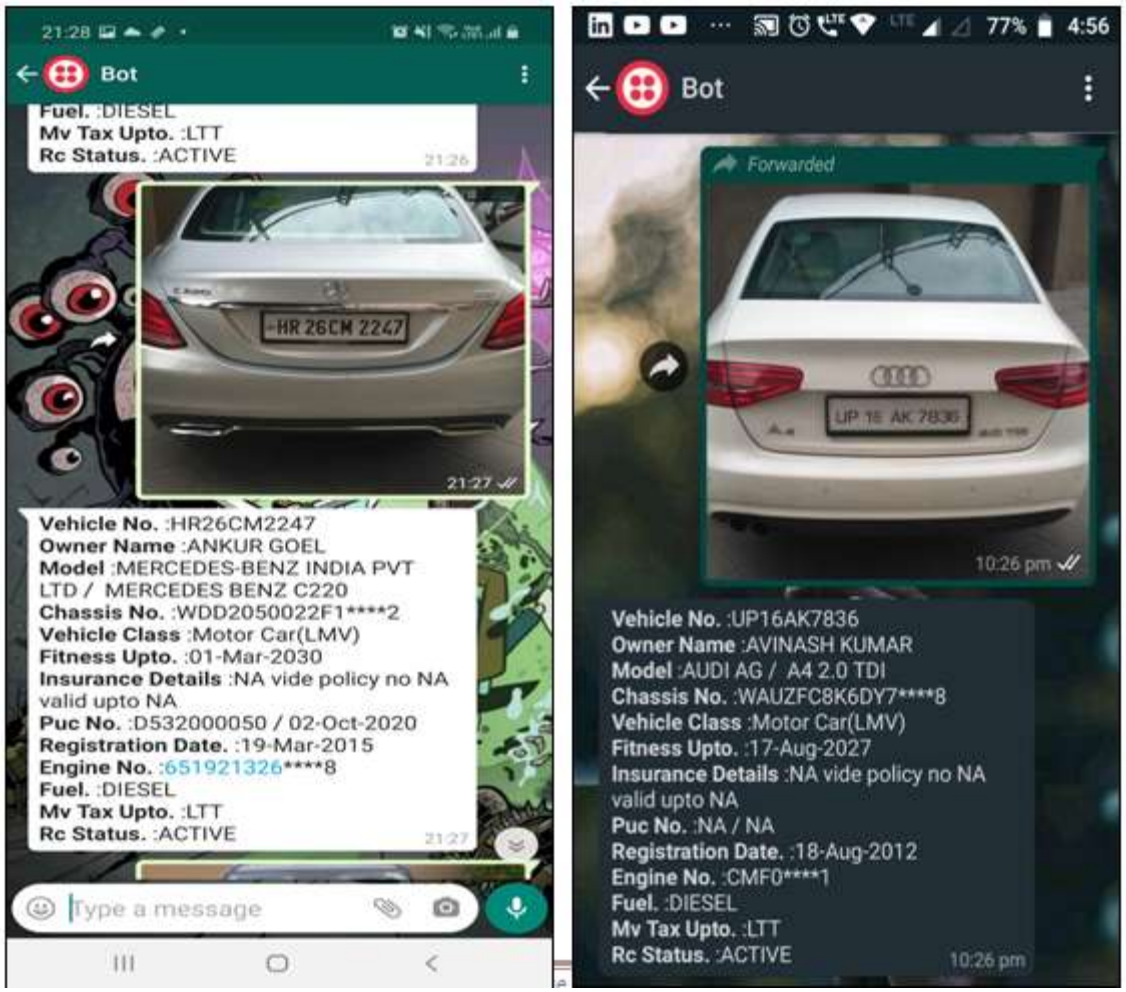

Fig. 03 Whatsapp chatbot (Screenshot)

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