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### FAP<sup>2</sup> TRACKER-CHATBOT

Syeda Fizza Sania Naqvi<sup>\*1</sup>, Koundra Priya<sup>2</sup>, Pooja Kadiyala<sup>3</sup>, Mr.Rajasekhar Sastry<sup>4</sup>,  
Dr.B V RamanaMurthy<sup>5</sup> & Mr.C Kishor Kumar Reddy<sup>6</sup>

<sup>\*1,2,3,4,5&6</sup>Stanley College of Engineering and Technology for Women, Hyderabad

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#### ABSTRACT

Artificial intelligence chatbot is a technology that makes interactions between men and machines using natural language as possible. In chatbot the keyword matching technic is used for searching or better interactions . this is made the more flexible keyword matching. Vid(virtual diabetes physician which is a chatbot for diabetes education activity) as a testing medium, Omamc(one match and all match categories) is a technic makes the matching keyword process time less and more flexible. In this paper the current trend and practices in AI are to be improved by implementing new technic or new algorithms. For this we should focus on the structuring and functioning of a simple AI system chatbot. This paper presents a survey on the techniques used to design the chatbots for various generating models that are capable of having open-domains conversations. Chatbot is useful for students to learn ‘individually by using pc-based’ software without the need of a class and teacher. Call is a route to “learner autonomy”. Call can be used to provide exercises and lessons in grammar, vocabulary, writing skills etc. a chatbot is a program which can chat in natural language.

**Keywords:** Artificial intelligence; Natural language interactions ; Chatbot; Keywords matching; Vid; Omamc; Machine; Algorithms,

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#### I. INTRODUCTION

This Chatbot is based on a tracking system that gives information about the bus public transportation. This provides real time arrivals and departure information. One can get information about the buses available for their route as well as the bus stop nearer to a person in Hyderabad city Rtc buses information will be given. Adopting latest technologies, the Chatbot is all set to go commuter friendly with a series of facilities that will help and guide them while travelling. Here this Chatbot will give you information about the buses available for your particular route that you have selected from the given bus route from the given bus route list.

In this you can find the buses for that route that means the numbers of the buses. It will give additional information such as the timings at what time it has left the depot as well as the timings when it will reach to the last stop including the cost or fare per head.

As part of this, vehicle tracking and passenger information system (VTPIS) is to be brought into use which would keep commuters informed about various stages of their travel. At each stop, commuters in the bus will be informed by this Chatbot about the time to reach their stop.

All the 2100 bus stops in greater Hyderabad zone are there. The concept of VTPIS had been adopted in many foreign countries which went on to become travel friendly. Keeping this in view, we are developing Chatbot to provide better facilities for passengers.

When it comes to taking the public transportation, time and patience are of essence. In other words, many people using public transport buses have experienced time loss because of waiting at the bus stops.

This Chatbot basically tracking buses, estimates their arrival times at specific bus stops informs the users through message in conversation to wait at the bus stop enables them to use their time more efficiently.

This Chatbot is very user friendly. It is developed by keeping in mind that any traveller can easily use it, it can be any one from the city or from other cities or it can be the foreigner as well this Chatbot can be easily understood by anyone.

## II. LITERATURE SURVEY

### **An Interactive Buses Information Chatbot:**

In this research paper ViDi's knowledge is used for chatbot conversation. Extension and prerequisite algorithm is used to implement the ViDi knowledge. The ViDi is Bahasa Malaysia human language chatbot. The conversation is translated into English language as we understand. As the chatbot needs to have a huge knowledge-based, managing data is really critical. First the chatbot used ELIZA to store knowledge-based data but later came ALICE that uses (AIML) Artificial intelligence markup language. Which is derived from the language(XML) Extensible markup language. By this language the chatbot takes an advantage of relational database management system(RDBMS). Currently chatbots are designed to response for user input in a one-way-input-response. In general the chatbot process input 1 will return a response 1 and so on until input n will return a response n. the <that> or <topic> tag used to store or hold the topic of the conversation.

Most of the users could find that the responses from the chatbot are stupid and irrelevant with the topic and the context. Shawar and atwell(2005) stated that there is a logical inconsistencies in chatbot replies. In other words topic is basically used as a replacement over pronoun with constant noun.

For example:

"I broke my hand ", "did it hurt?" replacement of pronoun "it" to the constant noun "hand". They performed a test and the presented result extension and prerequisite had successfully embedded in the general process chatbot. As a result the chatbot will replace the pronoun with noun. Keywords matching is also done by chatbot. The additional algorithm that extension and prerequisite are used in this test. It makes the chatbot more controlled approach.

Emergo:In this paper they started to improve the use of a chatbot for interactions with student in context of EMERGO is a serious game environment. The knowledge of the chatbot is stored in AIML files. In this we use the component-based architecture of EMERGO. The chatbot needs the further technical developments. If the technical development is done and the EMERGO is added then we try to solve if there is any problem in interaction and user's experience with interaction and on the effectiveness. If it becomes success then the chatbot will become integral part of the EMERGO toolkit.

Chatbot : The chatbot user's can place the question planned being a trainee. The chatbot responds in a clearly and acceptable way. The interaction model is more challenging of the chatbot than other one.

Omamac: For testing the OMAMC technique, they had designed and developed a new chatbot named(ViDi) virtual diabetes physician it uses the RDBMS(relational database management system). OMAMC technique consist of two components. The components are co-related to each other 1. Keywords arrangement for matching precedence and 2.keywords variety for matching flexibility. The ViDi's knowledge-based is designed to have an infinite number of keywords sets with either one-match or all-match category.

In one-match category has a single keyword in the form of an word or many keywords. In all-match category has more than single keywords. All match keywords can be in a form of combination of single word and a phrase. Therefore multiple one-word keywords and multiple phrase keywords are in the same single keywords set. The keywords should be separated by commas. One match is considered to be an exact match and all-match is considered to be a flexible match where word's location is a flexible factor. The input sentence being converted into several possible keywords set by using the graph master-AIML technique. All keywords will be matched first before precedence ant its flexibility in the process. OMAMC technique is also used for information extractions also had involved in string matching process.

Chatbot is a useful for information retrieval tool: Bayan also shawar et al. proposed paper, “chatbots: Are they really useful?”, knill et al.(2004). The Sofia chatbot is developed for teaching the mathematics for students. We trained the chatbot Sofia with good knowledge about mathematics in simpler way to understand. The Sofia chatbot is trained with some jokes related to the mathematics. By this the students can learn the subject easily. (Abu shawar et al. 2005; Abu shawar and atwell , 2006). We trained the Sofia chatbot with version ALICE to retrieve more information. Even we have Google to search the answer but the chatbot is very easy to get answers in our natural language. The user ask the questions and the chatbot will give the answers. Gibbs et al.920040 the chatbot is retrained to learn the social theory. The chatbot can explain the students social in more easy way with simple examples.

**Chatbot Assistants in e-commerce business and other domains:** If customer place an order of anything the chatbot checks whether the item is there in the company or not. Then the chatbot gives the customer reply for example the order is placed at zomato app the customer place the order the chatbot will check the list whether it is in the list or not if it is there then it checks for the availability if there is the availability the chatbot accepts the order and it gives confirmation to customer same as human. By this the business will improve the chatbot will perform the task very fast than human. So , the business people can invest on the chatbot for work and to speed up their business. Therefore we surveyed many chatbots like E-commerce, Business, Student information etc. the chatbot is very useful in any fields.

**Function of a simple AI system :** Anirudh khanna et al. proposed paper,” A study of today’s AI chatbot and Rediscovery of machine intelligence”, chatbot is the popular example of intelligence human computer interaction(HCI) . In chatbot it divides separate sections manages the data transfer and the another section that understand the messages given by the user and it gives reply and another section manages

the errors and other sections handles the storing of the key points and so on. In chatbot the program is logically divided into different modules like industry screen, chat interface and manager, the database and productivity applications.

**The turing test and its problems:** This Turing test it used to check whether the machine is intelligent or not, that means it is not exactly the machine can perform the given by the user more intelligently and accurately than the human beings. But the Turing test has its own challenges limitedness, short preview , unproductive Development, arithmetic, senses, consciousness, redefining machine intelligence. Artificial intelligence is most interesting and challenging field in research. In near future, the chatbots are used in large number of users in business and so on. We should continuously develop the chatbot with new tools. Sameera A.Abdul-khader et al .proposed paper, “survey on chatbot Design techniques in speech conversation systems”, many researches are doing in speech based human computer interaction. If the speech recognition is developed in computer as mobile applications there is no need of mouse, keyboard such as input devices.

Speech analysis and its response : The user speech passes through a microphone to digital signal then it converts to pulse which has information . then it converts to text. The above figure shows that speech input converts to text.

Arpan Bhattacharya et al. proposed paper, “generating conversational agents”, schat zamann et al.,2007[2],[3], misu et al., 2012[4], letiman et al., 2000[5]. The chatbot has main function of decoding messages and generating responses . we need less data for conversational models. We combined the external resources with the recurrent neural network afterwards the system can make slow changes to the chatbots.

Bayan Abu shawar et al. proposed paper, ”fostering language autonomy”, Wallace et al.2003. the student and teachers should find the suitable chatbot according to their needs. The Sofia chatbot is used for learning mathematics different chatbot are designed and trained according to particular task. By using the chatbots the student can independently without depending on teachers.

Heriberta cuayahuitl, seonghan ryu et.al, proposed paper,” a study on dialogue reward prediction for open-ended conversational agents”, the human lengthy dialogues are reported and embedded in the chatbot. The lengthy histories of dialogue are stored in chatbot. This helps to use the conversation more effectively. This lengthy history of dialogue is used to train the chatbot with dialogue history by using neural repressor

Jizhou haung, ming zhoy et.al proposed paper, “extracting chatbot knowledge for online discussion forums” Colby et.al 1973. In the chatbot the knowledge is stored in the form of templates. The user gives the input the chatbot start searching in the template which is matched and it gives the response according to it . therefore by construction of knowledge of chatbot it saves the time. The chatbot will reply very fast. We should use the certain approaches to constructs the chatbot knowledge.v.yampolsiy et.al proposed paper,” AI safety engineering. Why machine ethics is a way approach”, now a days machines are designed to make ethical decisions or to have rights are misguided. We should design to machine in safety way also. The developers should develop the limited AI systems with security protocols also. The system is not misguided.

Alice : Bayan Abu shawar, el.cl atwell et.al proposed paper ,“Alice chatbot: trails and outputs’ ..atwell(2003 a). The ALICE stores the knowledge of the chatbot. ALICED is developed to design the dialogue pattern in the chatbots. Artificial intelligence mark-up language(ALICE) is a derived from extensible markup language(xml). The AIML stores the knowledge of chatbot in the form of data objects is known as AIML objects by using chatbots we can visualize or animate and we can get answers to our questions. We can learn English, Hindi , Urdu nay language by using the chatbots. The conversations between user and ALICE .

User : hello ALICE

Alice : hi there!

User : how old are you?

Alice : I’m eighteen in computer years

User : who is your father?

Alice : I was programmed.

Ana paula chaves et.al proposed paper , “single or multiple conversational agents/ an interactional coherence comparison” garrido et al.[15], linden et al[36]. Many task are required to expertise the multiple chatbots. There is on different in signal chatbot and multiple chatbot scenarios. Most of the chatbots are designed more high. We can book the flight tickets, hotels and we can order food in zomato etc. By using the chatbots if is very confusing to the users. As the structure of the chatbots are similar. Further we should design the chatbot knowledge ho to explore. Amey taiwari et.al proposed paper ,“ college information chatbot system”, chatbot is an artificial person, animal any creature”. The chatbot will stores all the conversation interacted with human. The chatbot will store everything keywords, questions, answers etc. the chatbot is more beneficial to the business the chatbot can program any task. The business employees will reduced the salary is saved it the chatbot is implemented. The employees work also the chatbot will do the information of the colleges students are also stored in the chatbot. In college many students are there. Their details are accordingly.

We need not to go to the college everytime we ask the questions to chatbot about the doubt .we ask the question the chatbots which we want know about our children, if any programs , cultural activities are there everything updated in the chatbot. The chatbot is useful not only t]for students percentage marks of college is improved. Now a days, chatbot is used in many colleges.

Michele i.mc neak and David et.al proposed paper” introducing chatbots in libraries”. the chatbot knowledge is stored first is in ELIZA(1966) and then started to design the ALICE for starting the knowledge information. Then in 2010 the pixel is introduced the libraries related all information stored in it. The Emma is a chatbot online only. Emma chatbot is a public library association’s 2011 Polaris innovation in technology john iliff award. The Emma chatbot was asked by the user in simple way. The Lillian is another chatbot developed by the daden. This Lillian chatbot is used for inquiring the email. The Emma and Lillian chatbots are used in us,

The Bayan Abu shawar, Eric atwell et.al, proposed paper ” different measurements metrics to evaluate a chatbot system”. Before we can easily identify the human chatting and computer machine with human or machine.

Paper surveys a variety of current and emerging mobile, network, sensing applications; articulates their common challenges; and provides architectural guidelines and design directions for this important category of emerging distributed sensing systems. It explains applications of Mobile scope , which are a federation of distributed mobile sensors into a task able sensing system that achieves high-density sampling coverage over a wide area through mobility.

Paper explains about Star Track , a system that enables extensive works on tracks. A track is a discrete and sampled illustration of a continuous route. Mobile devices gather tracks and opportunistically upload them to a central serve. Star Track includes facilities for storing, comparing, clustering, indexing and retrieving tracks. It serves as the base for building large -scale track-based services. Paper presents Surround Sense , a non-conventional approach to logical localization. The main idea is to fingerprint a location based on its ambient sound, light, colour, RF, as well as the layout-induced user movement. This fingerprint is then used to identify the user’s location. Surround Sense can perform micro-localization based on the inherent properties of the ambience

In RADAR is introduced, which is a radio-frequency (RF) based system for locating and tracking user inside buildings. RADAR operates by recording and processing signal strength information at multiple base stations positioned to provide overlapping coverage in the area of interest. It combines empirical

measurements with signal propagation modelling to determine user location and thereby enable location-aware services and applications. is a case study which describes an Android-based feedback mechanism, created to gain structured

input on prototypes of Google Maps Navigation, a mobile GPS navigation system during real-world usage. Dynamic Bus Time-table Using GPS is a GPS based and manual system designed to display the real-time location and timetable of buses which can be useful for any public transport system.

Many passengers are usually late to work, students are late for classes as a result of they decide to anticipate the bus rather than simply merely using another alternate transportation. A variable message shown on the web which will be real time info regarding the bus showing the time of arrival at a particular bus stop might scale back the anxiety of passengers expecting the bus. With the advent of GPS andalso the ubiquitous cellular network, real time vehicle tracking for higher transport management has become attainable. These technologies can be applied to conveyance. These methodologies offer incremental improvements in bus system to meet the capacity requirements of different size cities and presents a review of strategies which can be employed to satisfy public transport demands of different city sizes. Their aim is to build a flexible, comfortable, easily available and reliable bus service which may encourage shift from private vehicles to public transport.

### III. PROPOSED CHATBOT

#### Architecture of chatbot:

IBM cloud computing is a set a of cloud computing services for business offered by the information technology company IBM(International Business Machines).IBM cloud includes Infrastructure as a Service(IaaS), Software as a Service(SaaS)and Platform as a Service(PaaS) offered through public,private and hybrid cloud delivery models, in addition to the components that make up those clouds .The cloud is a storage place where data is accessible for everyone.

To create a chatbot in ibm Watson create an account in ibm.then go to Dashboard IBM WATSON assistant >click on create now as shown in figure.

Figure:1

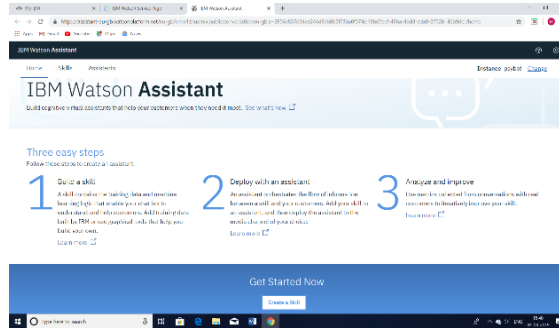
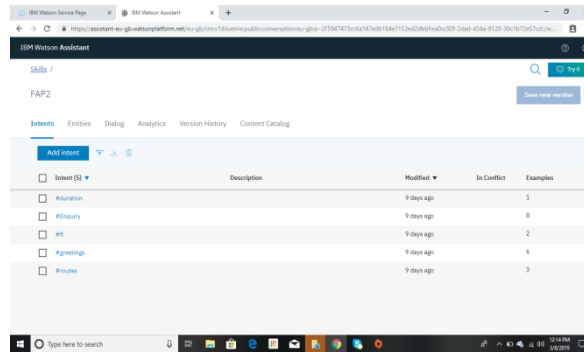


Figure : watson assistant create page

- Then lunch the tool.there you can see the create skill page click on it name your skill.
- There you can see the three things as shown in the below diagram 3.2 .Intent ,Entity and Dialog.
- Intent is a collection of inputs entered by user and the dialog is response to that intent. Entities is the grouping of similar type of inputs.
- We named our chatbot as “ FAP<sup>2</sup> Tracker- Chatbot”.

Figure:2



- To create an intent click on add intent, there you can see “add intent example” give your intent name and click on create intent.
- The intent is denoted by the symbol ‘#’.
- When you create an intent you have to give the user example also. click on user example give an example like “hi” click on add example .This is for the greeting intent .likewise you can give more examples for greeting intent like “hello”, good morning” as many you want.
- In our chatbot we have created six intents as shown in figure. they are :greeting intent, enquiries, routes, duration, fl(means fare perhead). As we know that it is a FAP<sup>2</sup> and it is for bus public transportation, so it will have the duration and routes intent.
- In the routes intent we gave some routes like most ofuses it very frequently like: Dilshuknagar to mehdipatnam, Falaknuma to Charminar, LB nagar to afzaljung and so on.as shown in figure

Figure:3

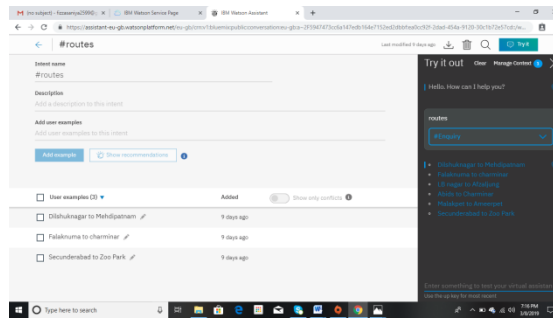


Figure: showing the multiple routes in intents.

Figure:4

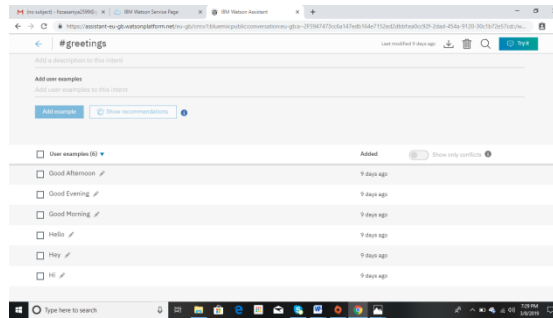


Figure: creating the intents.

- And we have created the examples for other intents.
- The next is creating the dialog. A dialog defines the flow of a conversation in the form of a logic tree. It matches the intent (What user says) to the response (what bot says back). Each node of tree has a condition that triggers it based on the user input.
- Now in Watson assistant tool click on dialog , click create. There you can see two nodes 'welcome node' and 'anything else' node .we have to add our node between these two nodes.
- Click on more icon(:) on the **welcome** node ,and **addnodebelow** .
- Type #greeting in the **enteracondition** of this field. and select **#greetings** option. and here you can response to your intents like 'hi', 'hello' and as many you want .For adding the multiple response go to the settings there on the **MultipleResponses** option.
- Here we are creating entities for the user inputs

Figure 5:

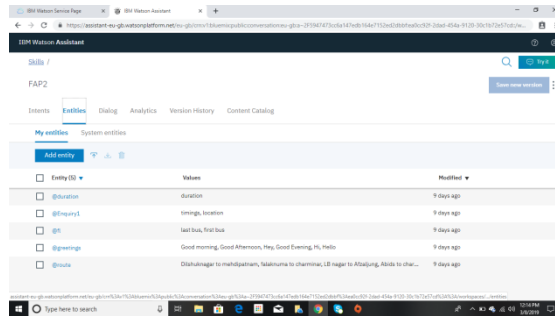


Figure: creating entities.

- Now create the dialogs for all the intents that you have created in intent tab. The dialog node looks like figures shown below.

Figure: 6

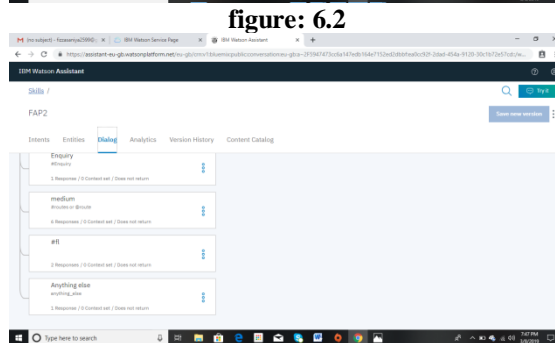
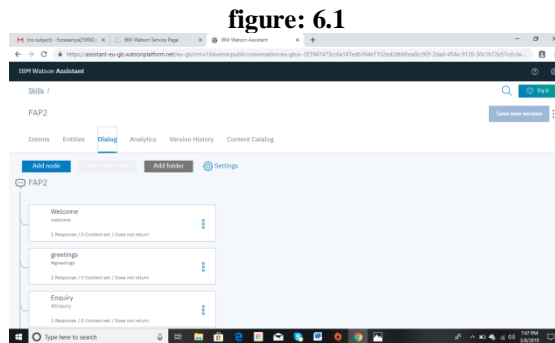
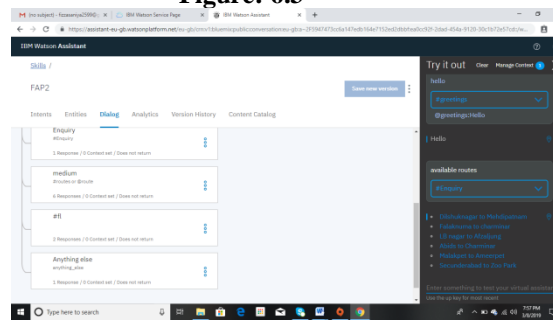


Figure: Dialog creation

- We have created the six dialog nodes like greeting node, routes node , enquiry node ,fl node ,medium node.
- Entities are the grouping of similar types user inputs, for example if the user entered an intent like “available routes”, for this intent we create the entity of synonyms of the **available** word. for creating an entity click on **entity** tab ,click on **myentity** ,create entities .
- Click on **Tryit** icon to open “try it out” pane. at the bottom of the page write ‘hi’ and press enter. the output indicates that # hi intent recognized and the appropriate response ‘hi’ appears.



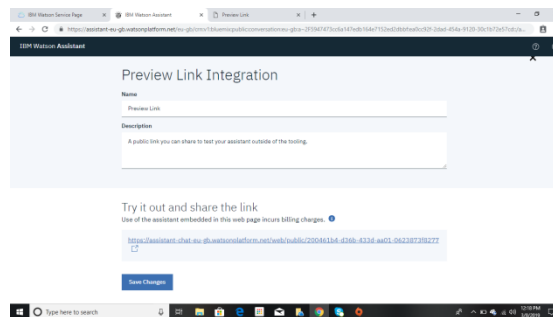
Figure: 6.3



- Likewise we can try other things too .try it out pane is for checking whether the data is entering properly or not.Is the bot responding properly or not.

**Preview link:**  
the bot.

Figure:1



- Click on the preview link the actual bot will show up, there you can have the conversation.

#### IV. RESULTS AND DISCUSSION

In the IBM Watson assistant we can create our own kind of chatbot or assistant. The assistant responds in a following manner. Firstly, the greetings are given to the assistant bot when the preview link is opened and says “hey, how may I help you?”. Then the input is given in response. It will wait for your input and at the end tells you the available or given response.

You have to ask the available routes from the FAP<sup>2</sup> chatbot it will show the routes.

Figure:1

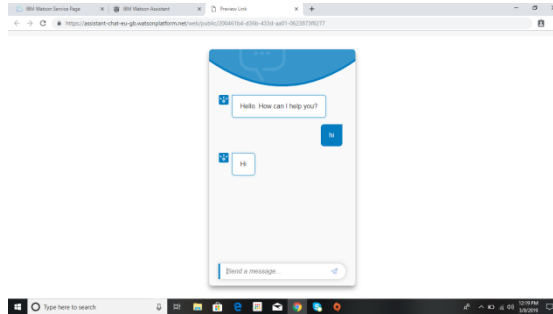


Figure:2

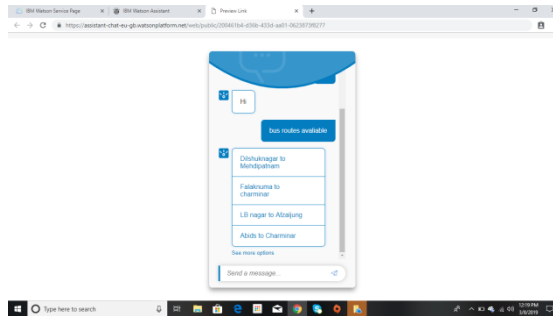
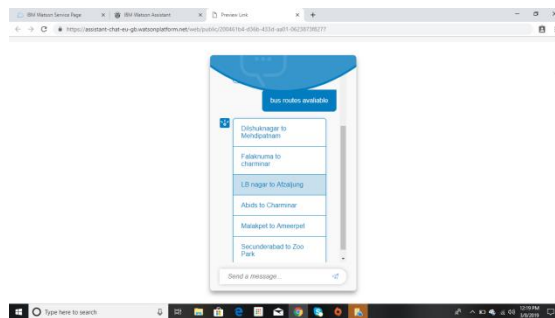


Figure: conversation with FAP<sup>2</sup>chatbot.

Here firstly, the Chatbot will greet you with an “hi how are you?” you have to reply with an appropriate answer or with the greetings. Then the user can give the input asking the bot about the routes from the routes user can easily select the route by easily clicking on the desired route. See given below figure .

Figure:3



The selection will give you information about the buses available for that particular route with their numbers with including the additional information such as the timings with the fare that you might require for travelling in that bus of your choice.

Figure:5

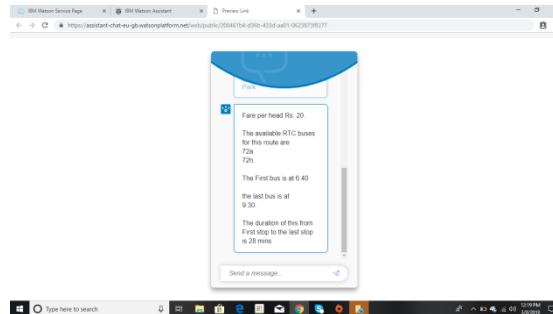


Figure: displaying information of the bus.

## V. CONCLUSION

In this bus tracker Chatbot system the user can see budget or fare also. User can know all cost details and finally know the amount for travelling. It will reduce the time and pre allocate the money as well. The user can plan their routes according to the time period left. The user can easily know the buses according to their routes. It can tell the timings and their numbers which can make travelling from public transport easy. As waiting on stops unknowingly about their transport will make travelling difficult. All of us know travelling from autos charge high cost and sometimes people don't want to travel spending that much. So no worries with the FAP2 tracker based Chatbot system. User can plan everything by his own. No need to worry about pre knowledge and experience. System will take care everything and finally make more easier to travel.

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