

1.Introduction

1.1 Entellio Overview

Entellio is a self-learning Enterprise Chat bot designed to enhance today's customer care applications. Entellio (Enterprise Intelligence) is the next gen solution for customer interactions, which will enable enterprises to provide a superlative customer experience to their customers. Entellio is available on mobile and web. Entellio caters to the sales, service and support journeys of an end customer. It's an engine built using open source technologies which performs Natural Language processing and Latent semantic analysis

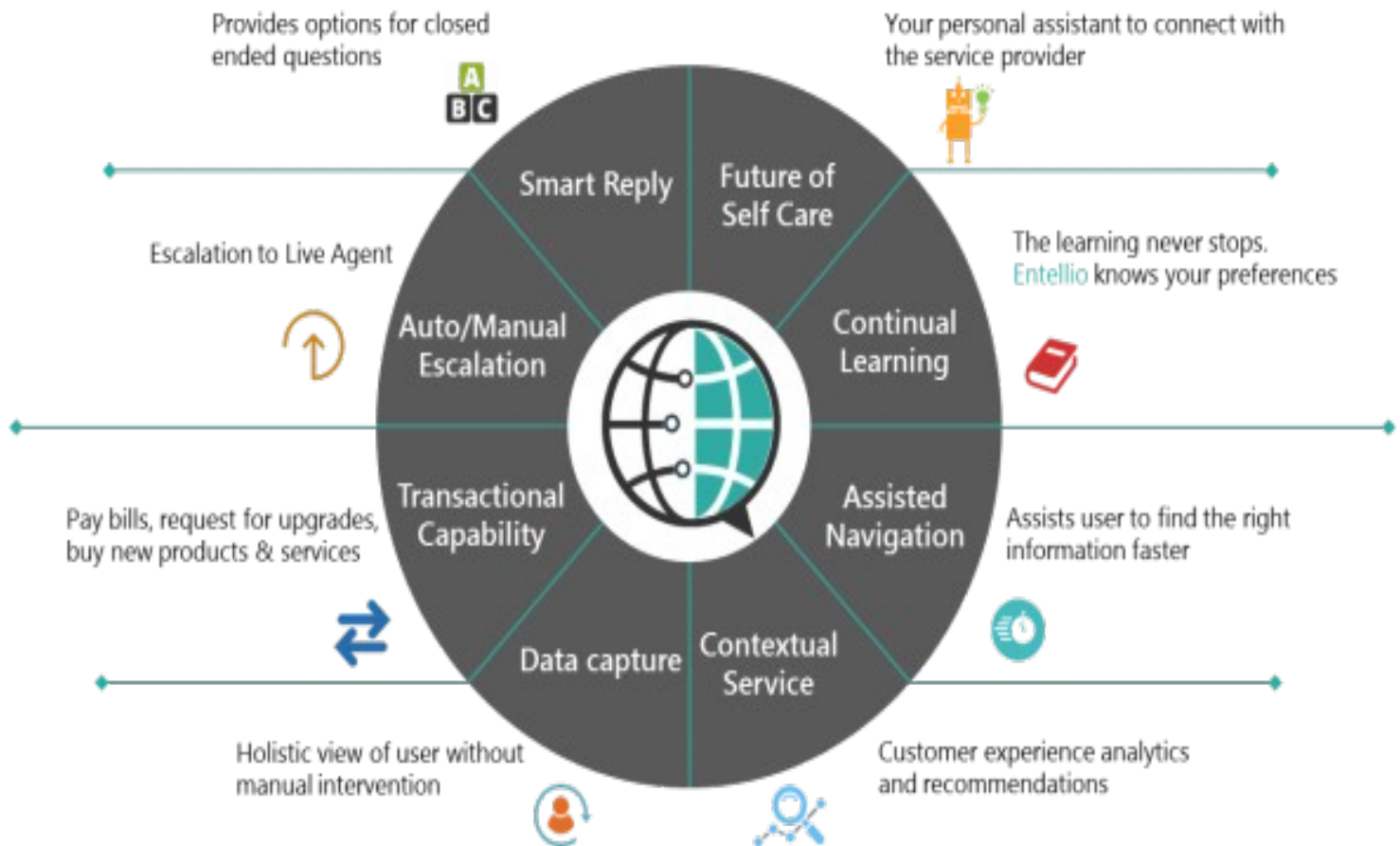
1.2 The Differentiator Technology

Entellio Chat bot which stands for Enterprise Intelligence Input Output is a completely open source based self-learning/ Self-evolving chatbot with AI as the back engine along with NLP capabilities to cater to the channel experience by adding an extra level of AI and without changing the existing systems as it is enterprise data to be put on our cloud unlike the IBM Watson's of the world which require the enterprise data to be put on their cloud. Entellio acts as a personal assistant for your enterprise purposes as it caters throughout the sales, service and support channels. Entellio is basically aimed at providing Conversation as a platform (CaaP). Entellio has a unique capability which is called as conversational browsing as it essentially navigates through an enterprise website for the customer. Entellio enables 24*7 Support along with an escalation capability to a live center agent which helps improve the customer experience as it does not keep the customer in a loop when unable to answer a question. It also has the transactional capability of performing payments etc for the user while the user just chats with Entellio.

1.3 Entellio Description

Entellio is Tech Mahindra's home grown conversational agent built on the aspect of Intent and entities along with machine learning. Its primary use is to provide conversational services via web services, IOS and android. It can also be put on a website to control web page browsing, a concept which is known as conversational browsing. Entellio works on the premise of a left side and the right side brain. While the left side is trained from birth, the right side is more cognitive in understanding the intent and the meaning. The left side brain can just be started in couple of minutes using enterprise FAQs. It is a self-ranking bot, which keeps an eye on its responses and generates a report for administrators. Entellio is built on open source technologies, which involves Natural Language Processing and Latent Semantic Analysis

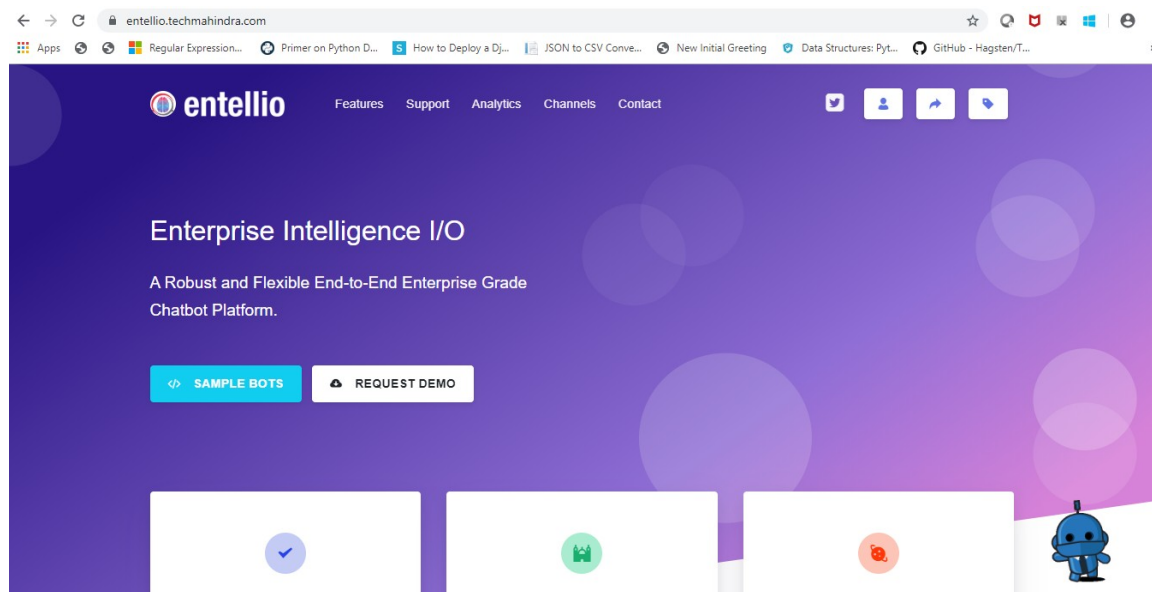
1.4 Entellio Features



2. User Onboarding

Entellio on-boarding starts with the main site(entellio.techmahindra.com) highlighting what Entellio represents and some of the features that it offers.

Since Entellio is a cognitive bot framework and not just a single bot, it allows easy onboarding by clicking the “**Create a Bot**” button. On clicking this, Entellio opens up a new page to enable a user to create a bot of his/her own as shown below:

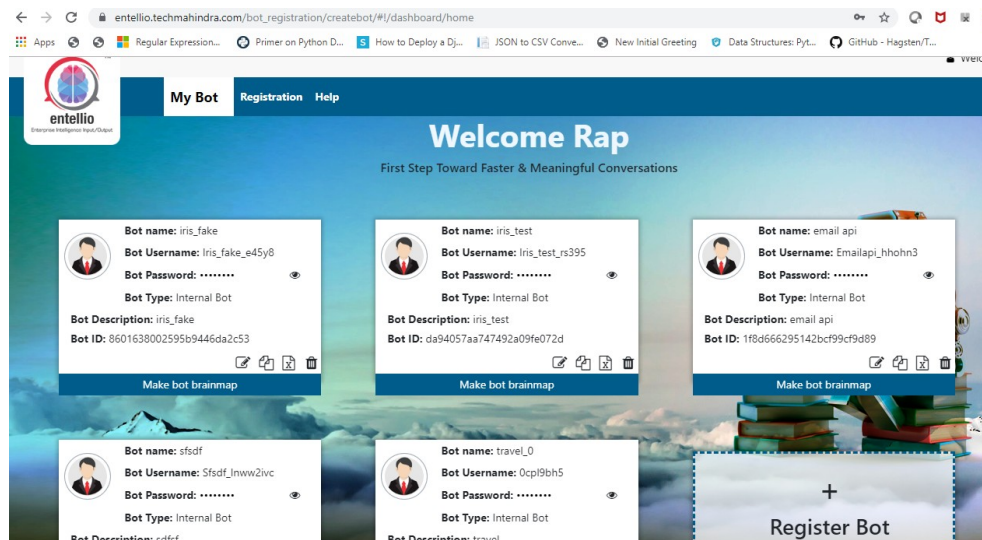


The user can be a new user / or an existing user. In case of a new user the user needs to click the “**Register Here**” and fill in the required information to complete the registration process. In case of an existing user the user needs to login using existing credentials.

A screenshot of the Entellio login form. The form is white with a blue border. At the top is the Entellio logo and tagline 'Enterprise Intelligence Input/Output'. Below the logo are two input fields: 'User Name' and 'Password'. A blue 'SIGN IN' button is positioned below the password field. At the bottom of the form, there are two links: 'Forgot password?' and 'Create new account'.A screenshot of the Entellio registration form. The form is white with a blue border. It contains several input fields: 'Organization Name', 'Email', 'User Name', 'Password', 'Contact No.', and a 'Select Country' dropdown menu. At the bottom, there are two buttons: a green 'REGISTER' button and a blue 'RESET' button. Above the 'REGISTER' button, there is a link 'Already Registered? LOGIN'.

3. Bot Onboarding

Once a user signs in with a given username and password, a bot registration dashboard is shown. This bot registration dashboard provides ability for a bot admin to register three different bots on a cloud based environment. In an enterprise version, this is unlimited.



The bot registration is as simple as clicking the register bot button, providing information like the bot name, domain and a description as shown below:

A screenshot of the bot registration form. At the top, there's a section for 'Import Existing Bot by uploading the files' with a 'Choose File' button and an 'Upload' button. Below this is the text 'Or Create Bot by providing the below details'. The form is divided into two main sections: 'BOT Detail' and 'Config Detail'. The 'BOT Detail' section includes a 'Bot Name*' field, a 'Description' field, and a 'Bot Type*' dropdown menu set to 'Internal Bot'. The 'Config Detail' section includes an 'App ID' field with the value '8629cdd716491c6f1bc98f39', an 'Add Domain' section with a 'Domain*' dropdown and a 'Knowledge Packs' dropdown, and a 'Chat Icon' section with a 'Choose File' button and the text 'No file chosen'. A 'Bot Register' button is located at the bottom right of the form.

Bot can also be registered by importing existing bot by uploading files as shown above. A cool thing to notice is the APPID which is a system generated GUID, and is the token to allow different clients to connect to this particular bot. This GUID is unique for each bot within the framework. By default, the bot within the framework is accessible via the url

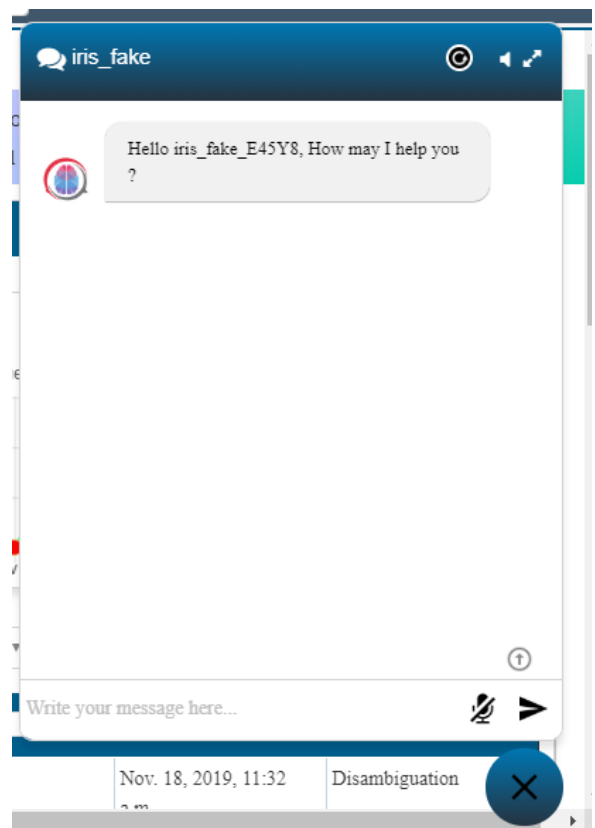
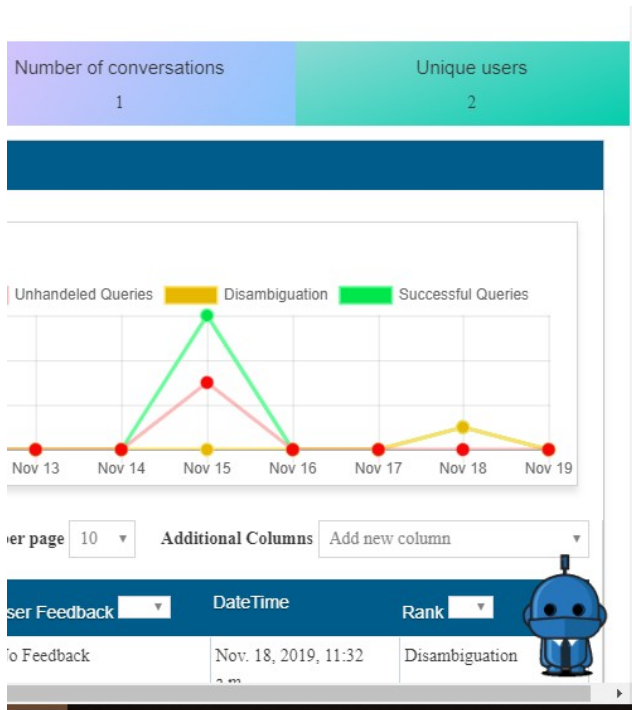
<http/https>://<YOUR_DOMAIN>/bot/APPID/chat

4. User Roles and Functionalities

4.1 User Functionalities

4.1.1 Query Resolution(Chat Functionality)


The user can click on the “chat” icon to expand the chat window and start asking queries provide a feedback by clicking the like or dislike button depending on if the bot was able to help the user or not. The user feedback is sent to the report section which can be accessed by an administrator.



4.2 Admin Functionalities

4.2.1 Learning/Corpus for the Bot

On the Learning page, click on “Upload FAQ’s”. FAQ’s can be the various questions with formats visitors are likely to ask. The questions are grouped into different classified categories and domain. Click on Upload FAQ icon in right corner to upload the FAQ with correct format with 4 columns: Question-Answer-Category-Domain, and upload the file.



Welcome

iris_fake_E45Y8 to iris_fake

- Dashboard
- Configuration
- Learning
- API
- Conversation
- Spell Checker
- Channels
- User's Info
- User Files

Questionnaire

New QuestionNew Initial GreetingRank 5 MessageClear DatabaseExport to ExcelClick to Upload FAQ

Search Minimum 3 characters requiredRetrain BOTRecords per page 10

Domain	Category	Question	Answer	Created Date	Last Updated By
HR	test	[get employee data]	API: get_employee	Sept. 5, 2018, 1:46 p.m.	user
HR	test	[get city coordinates]	API: get_coordinates	Sept. 5, 2018, 1:47 p.m.	user
test	test	[test conversation]	answer CONV: first	Sept. 6, 2018, 12:28 p.m.	user
Telecom	iris	[what is iris?]	iris answer	Nov. 15, 2019, 8:52 a.m.	user
Telecom	api connect	[i want to know the employee id]	API: get_employee	Nov. 18, 2019, 11:23 a.m.	user

To add new questions apart from the FAQ file

The screenshot shows a dialog box titled "Add New Intent and Entity". It has a light yellow background and a blue border. At the top left, the title "Add New Intent and Entity" is displayed. On the top right, there is a checkbox labeled "Show as Suggestion:". Below the title, there is a section labeled "Intents:" with a text input field containing the text "what is my bill?". Below the "Intents:" section, there is a section labeled "Cards:". It contains a dropdown menu with "--Select a Card--", a text input field containing "bill", and another dropdown menu with "English". Below the "Cards:" section, there is a section labeled "API Connect" with a dropdown menu showing "get_employee" and a close button (X). To the right of the "API Connect" section, there is a "Preview" button. At the bottom left, there are two buttons: "Add" and "Close".

Select New Question Tab of learning and then add the necessary information.

- i. Fill in the question in the intents section that visitors are likely to ask.
- ii. Choose the relative category which the questions fall into.
- iii. Select the card of your choice and language
- iv. Type the answers.
- v. Click "Add".
- vi. Click Retrain Bot

4.3 Conversation

1. You can view a list of conversations by browsing conversation tab.

List of Conversation's		
Search		Minimum 3 characters required
		Add New Conversation
ConversationID	Name	Action
5dce19a8d1d8887aae661793	first	

2. Add new conversation by selecting right corner button and a window will pop up as shown below:

New Conversation Node

node1

node2

Conversation Node Details

Choose Extractors

Select

Context

Search

Configure BotResponse

New Connection

Default node2

3. Now, add the nodes as per your requirement and you can configure the bot response to it by selecting the cards.

Please choose cards

Cards:

--Select a Card--

Text

Hey, conversation started

Please enter class name for css properties of text

Preview

Save

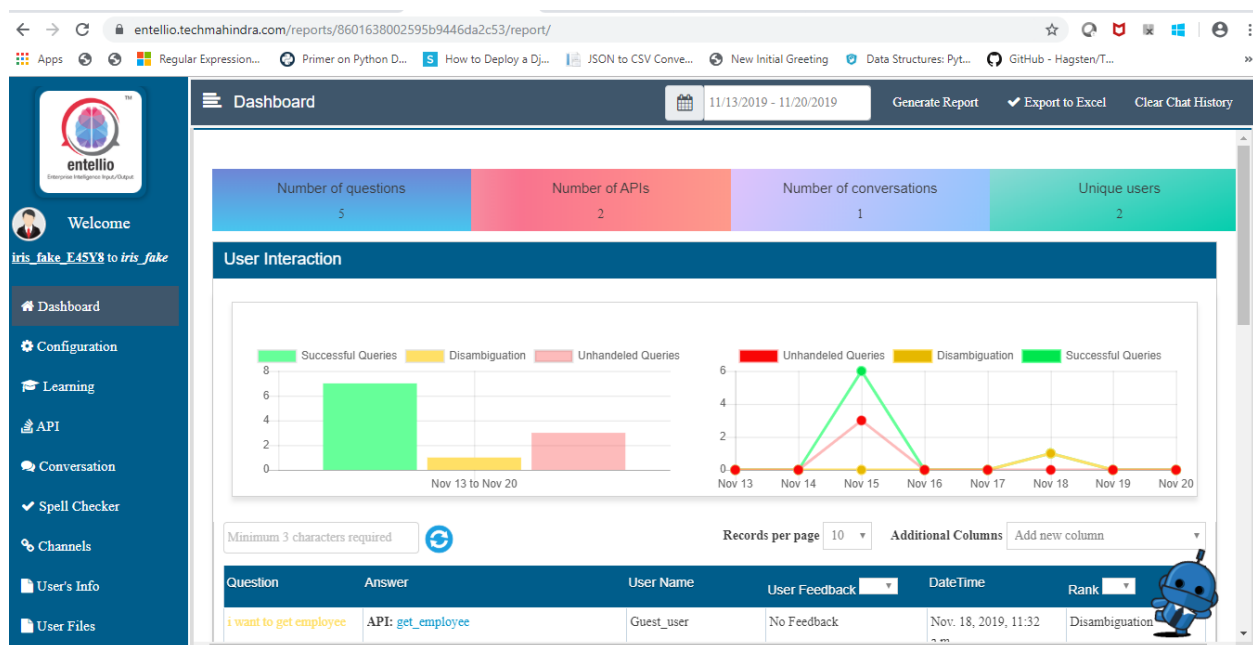
Close

4. Also, you can set the path of conversation on bases of the responses of user and other conditions and redirect it to next node of conversation.

5. You can set default response for the node as well.

4.2.3 Dashboard For Admin

1. On the homepage, you will be able to see the dashboard already there with count of No. of questions in Learning, no. of APIs, no. of conversations, no of unique users.
2. It also shows the user interaction statistics in the form of graphs to get a view on the number of questions the bot was able to answer and the number of questions the bot was not able to answer.
3. Choose a particular date range to generate a report of the questions asked to the bot, the information of the user, the status of the answer within the bot, and the Rank(Whether the bot was able to answer the question). Rank varies from 1 to 5 where 1 means the bot was able to give an answer and rank5 is where the bot was not able to provide an answer.



The two figures above indicate the reports as seen by the administrator from within the bot framework. It shows a line graph and a bar graph to determine and classify the ranks of answers the bot provides. While rank 1 indicates that the bot completely understood the intention of the user, rank 5 indicates that the bot had no knowledge of this question and this needs to be entered for retraining of the bot.

4.3.4 API Configuration:

1. New API can be added from API section
2. API will appear as below:

List of API's						Search	Minimum 3 characters required	Add New API
API ID	Name	URL	RequestType	Bot ID	Action			
5dce19a8d1d8887aae661791	get_employee	http://10.10.204.53/MyBenefits_Service/Benefits_data.svc/GetEmployeeDetails/{employeeID}}	get	8601638002595b9446da2c53				
5dce19a8d1d8887aae661792	get_coordinates	https://www.metaweather.com/api/location/search/?query={{city}}	get	8601638002595b9446da2c53				

3. To Add new API click on “Add New API” button and fill the form:

Add new API



API Name

API Name

URL

URL

Request Type

Get

Request Flow

Entellio_server

Authorization

No Auth

Headers

Body

Raw_Data

Save

API Input Parameter

Parameter	Message	Validation	From	Test	Context
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4. Existing API can be updated by clicking API name

Update API get_employee details ×

API Name

get_employee

URL

http://10.10.204.53/MyBenefits_Service/Benefits_data.svc/GetEmployeeDetails/{{employeeID}}

Request Type

Get ▾

Request Flow

Entellio_server ▾

Authorization

No Auth ▾

Headers

Body

Raw_Data

Save

API Input Parameter

Parameter	Message	Validation	From	Test	Context
employeeID	<div>Add Message</div>	TechEmpID ▾	session ▾	359895	Search

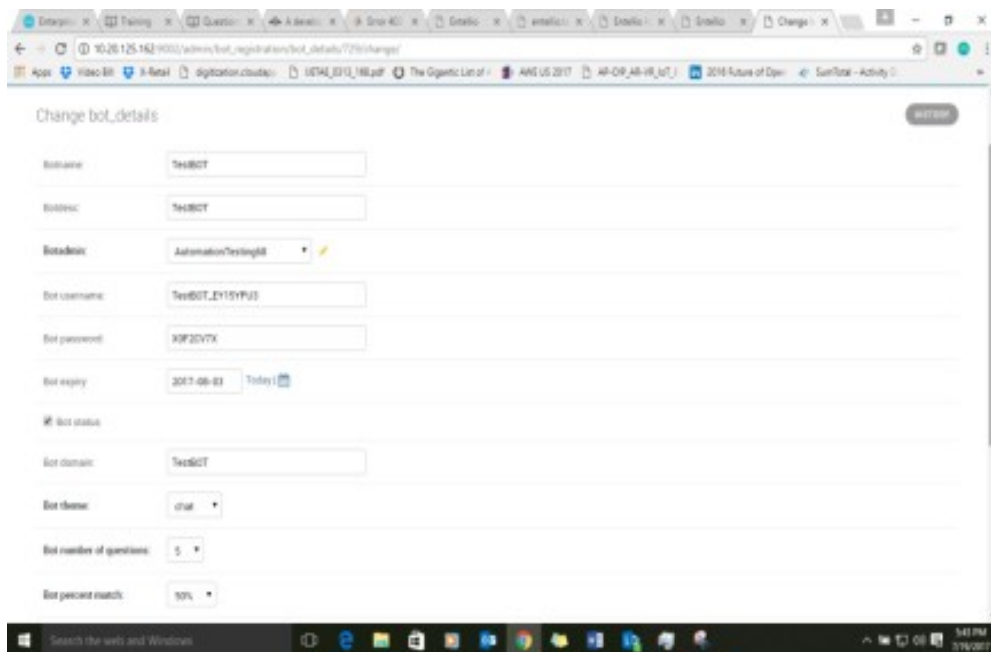
5. Existing API can be deleted by clicking “Delete” button, on API detail page

By default, all the API present in system will be visible. In order to view API created by BOT, configuration needs to be done in super admin section. “Show Only bot API” needs to be check. It will display API created by BOT in API section and from where API is configured for Question

4.3 Super Admin Functionalities:

4.3.1 Add, Modify, Delete Bots

The super admin module allows the super admin to monitor all the bots created via Entellio. The super admin has the capabilities to Add, Modify, Delete the bots created via the framework.



The screenshot shows a web browser window with the URL `10.26.125.162:9000/admin/bot_registration/bot_details/7296/change/`. The page title is "Change bot_details". The form contains the following fields:

- Botname: TextBOT
- Botdesc: TextBOT
- Botdetails: AutomationTestingUI (with a dropdown arrow and a checkmark icon)
- Bot username: TextBOT_EY15YPU3
- Bot password: X9F2DV7X
- Bot expiry: 2017-08-03 (with a "Today" button and a calendar icon)
- Bot status: (checkbox icon)
- Bot domain: TextBOT
- Bot theme: chat (with a dropdown arrow)
- Bot number of questions: 5 (with a dropdown arrow)
- Bot percent match: 50% (with a dropdown arrow)

The Windows taskbar at the bottom shows the time as 5:45 PM on 8/19/2017.

The super admin needs to click “**Bot_details**” to see details of bots created via the framework. The admin can select a particular bot and also set an expiry date of a bot, change the UI theme of the bot. The user can also change the number of questions given as options to the users and the % of confidence match of answers asked by users.

4.3.2 Modify Access of Features to users

The super admin can configure access to different features such as learning, reporting and channels to different users by following the steps :

1. Go to the Users Section.
2. Choose a Particular User
3. Go to Groups section. Write the feature that you want to provide to the user in the filter box.

5. Bot Configuration

5.1 Configuration

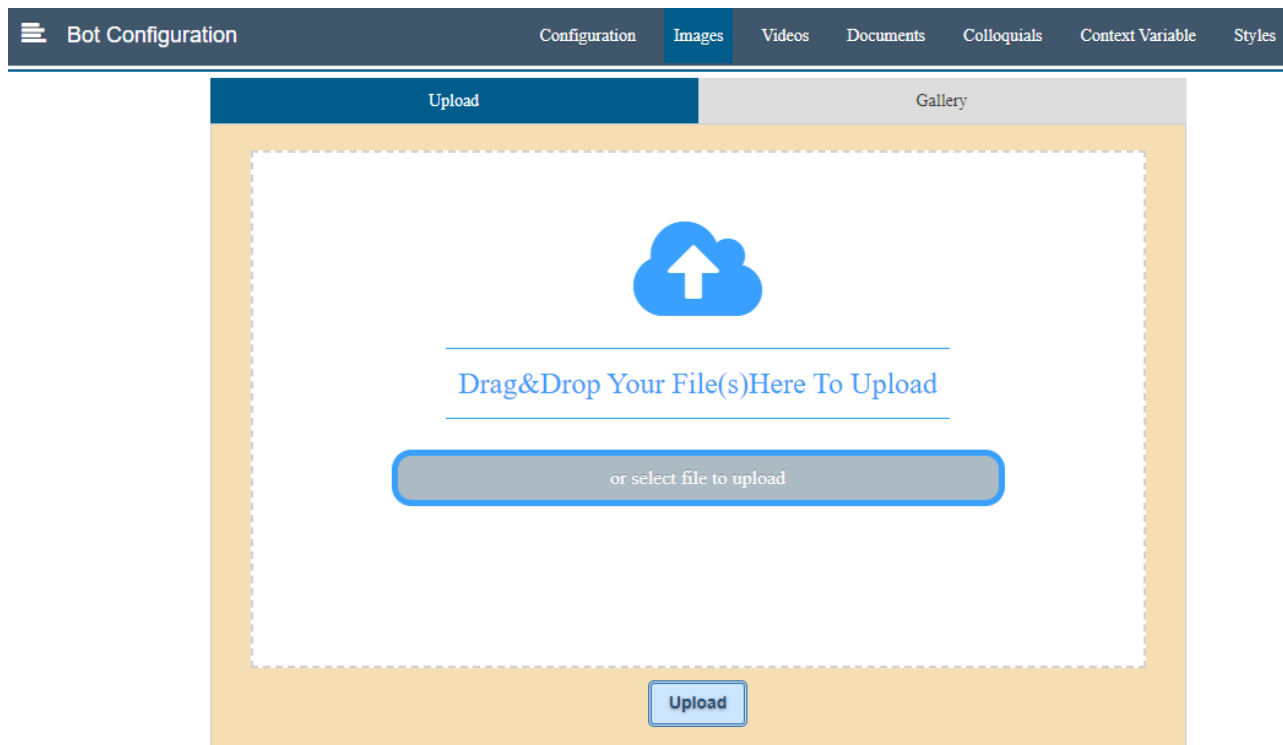
You can configure following features through this tab:

1. Number of suggestions you wish the bot should provide along with answer.
2. Percentage match for suggestions.
3. Feedback type which can be chosen Star Rating or Thumbs.
4. Is guest user allowed to enable a guest user without any credentials to access chat page.
5. Moderator to allow human replies to be given instead of bot where required.
6. Notifications to be prompted for some offers or any importance message to be given to users.
7. Live Agent: to redirect to a live agent if bot is unable to provide satisfactory response to user.
8. Knowledge Export to export the knowledge pack of a bot.
9. Knowledge Import facilitates to import bot details already existing into the bot.
10. Bot Name, Bot Description could be edited here.
11. Chat and Bot Image are configurable by uploading the image.
12. Customizable Js and CSS for the particular bot can be done by uploading customized .js and .css files.

Bot Train Message:	Status: True, Message: Bot Trained at 2019-11-18 11:24
Number of suggestions:	<input type="text" value="5"/>
% match for suggestions:	<input type="text" value="50%"/>
Feedback Type:	<input type="text" value="thumbs"/>
Is guest user allowed:	<input checked="" type="checkbox"/>
Is Public:	<input checked="" type="checkbox"/>
Moderator:	<input type="checkbox"/>
Notifications:	<input type="checkbox"/>
Live Agent:	<input type="checkbox"/>

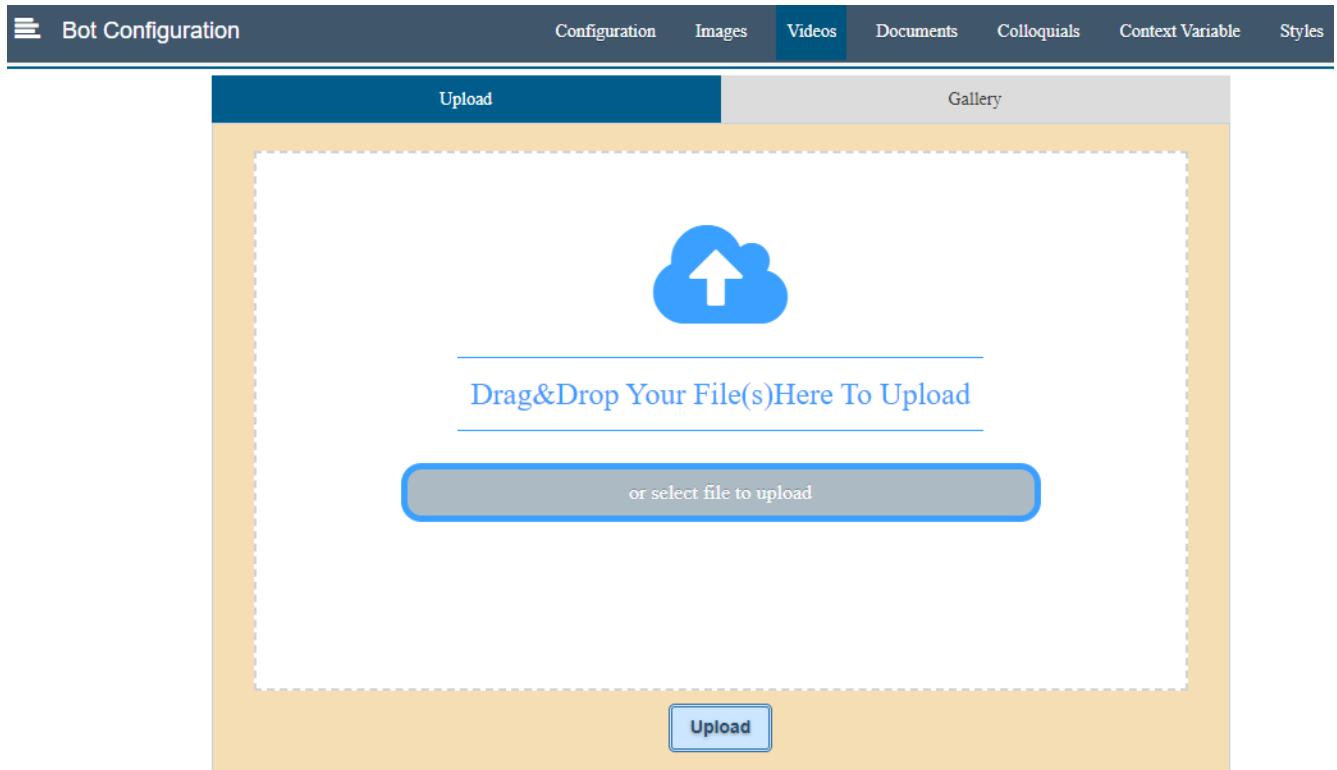
Knowledge Export:	<input type="button" value="Export"/>
Knowledge Import:	<input type="button" value="Choose File"/> <input type="button" value="Upload"/>
Bot Name*	<input type="text" value="iris_fake"/>
Bot Description	<input type="text" value="iris_fake"/>
Chat Icon:	<input type="button" value="Choose Image"/>
Bot Image:	<input type="button" value="Choose Image"/>
Bot JS:	<input type="button" value="Choose File"/> No file chosen
Bot CSS:	<input type="button" value="Choose File"/> No file chosen

5.2 Images



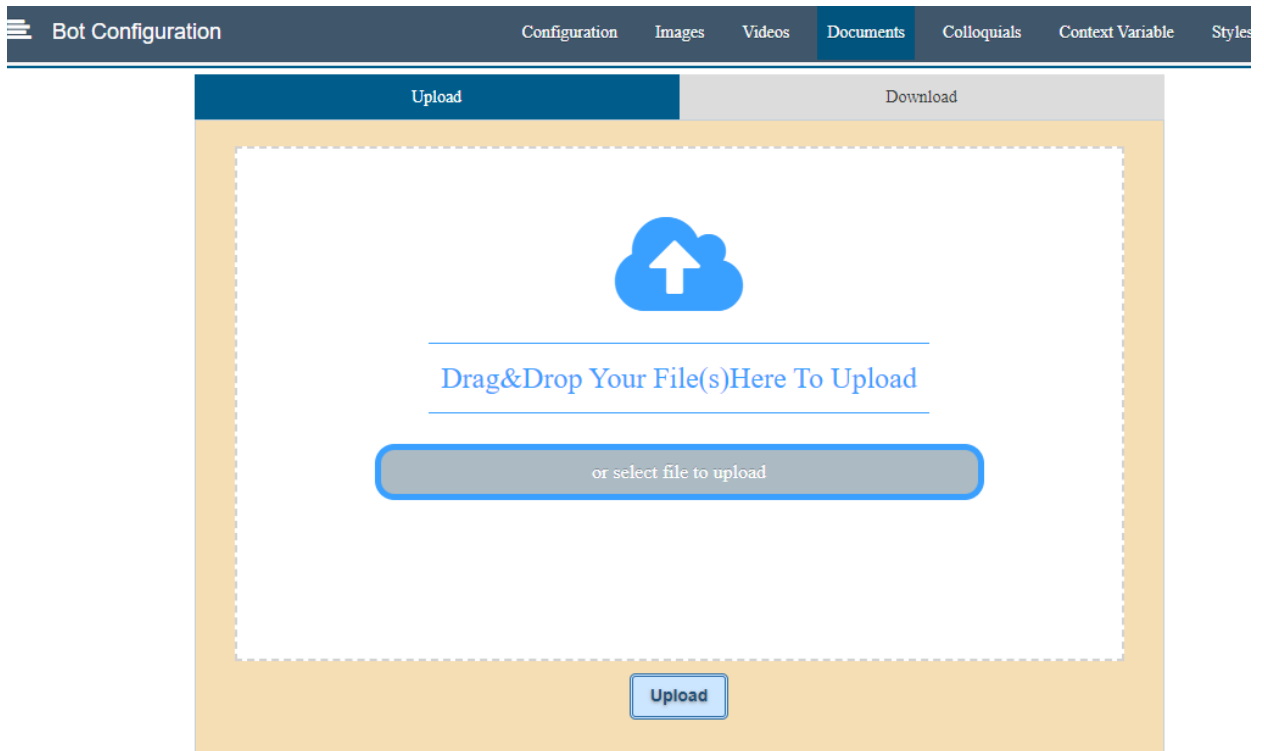
1. Images that needs to be configured in the bot response can be uploaded here by selecting the image file and clicking on upload.
2. The uploaded images can be viewed in gallery.

5.3 Videos



1. Videos that needs to be configured in the bot response can be uploaded here by selecting the video file and clicking on upload.
2. The uploaded videos can be viewed in gallery

5.4 Documents



1. Downloadable Documents can be configured in bot for in chat, using this tab.
2. The file needs to be uploaded by browsing the file and uploading it.
3. The list of uploaded files can be viewed and downloaded in the “Download” tab

5.5 Colloquial

Bot Configuration

ConfigurationImagesVideosDocumentsColloquialsContext VariableStyles

Colloquial List

Start typing a word

Enter colloquial for the word

Required!

Add to List


*Double click on the words to edit

Words	Colloquial	Delete
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Update

1. Colloquials can be added/updated here for words.
2. Also, existing words can be viewed in this tab

6. Spell Checker

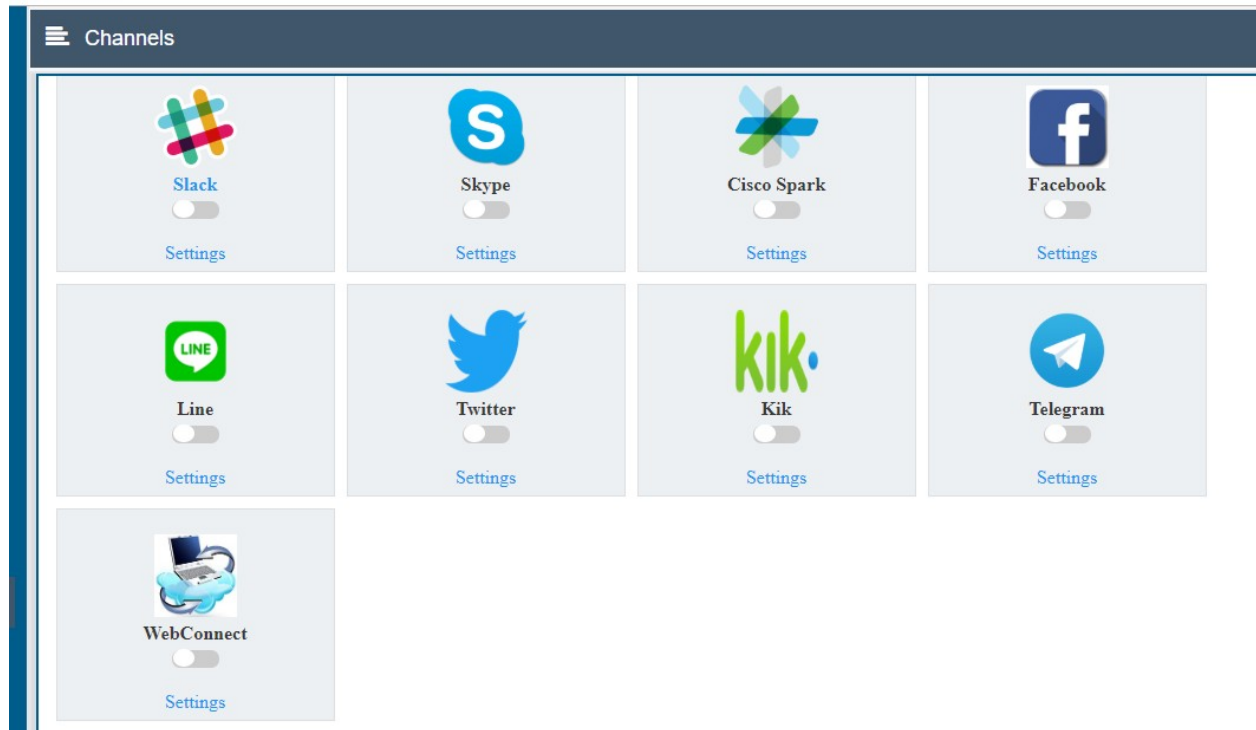
 Spell Check Exception List

[*Double click on the words to edit](#)

Words	Delete
exceptions	<input type="button" value="X"/>
botli	<input type="button" value="X"/>

1. As shown in above screenshot, In spell check we can view all the list of words which are in exception list and can be added by typing in the text box provides.
2. Also the word can be deleted by clicking on “X” button corresponding to the word and then update it.

7. Channels

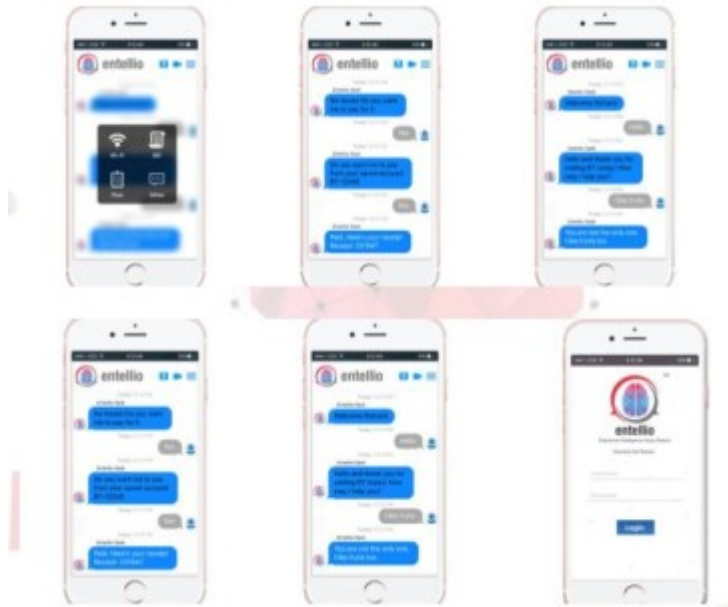


1. In this feature, bot can be configured to various other platforms.
2. They can be configured by following the steps mentioned in the window that will pop up if "Settings" link is clicked

8. Manifestations of Entellio

8.1 Natural UI with Mobile Phones

It is important to understand what the framework enables. As a natural UI, this is how the framework can be utilized. It is available across Android, iOS, Windows platforms.

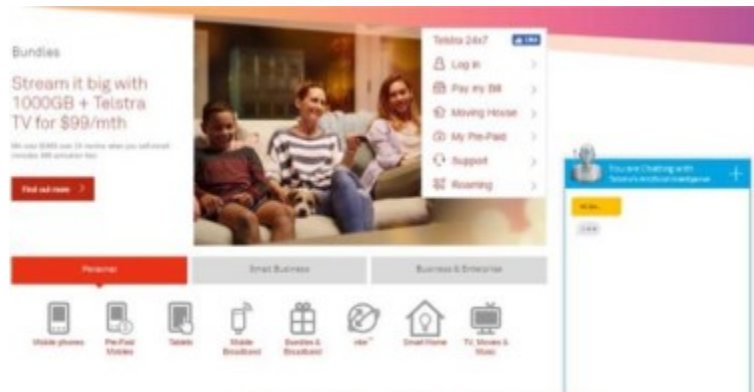


8.2 Conversational Browsing Agent

The idea of a conversational browsing agent is to enable the same Entellio natural language UI to be a conversational browsing agent on a website. We believe that a lot of people still use corporate websites.

These websites have entropy associated with links in them, not allowing new or old customers to reach specific information seamlessly. Entellio can become a natural language agent on the website where it can understand queries but the web redirect mechanism described earlier can enable movement of pages on the website, a technique called conversational browsing and it is unique to Entellio as it gets packaged as part of the entire suite

An example is shown below with figures below with a use case for a telecom company where a use case is about paying a bill

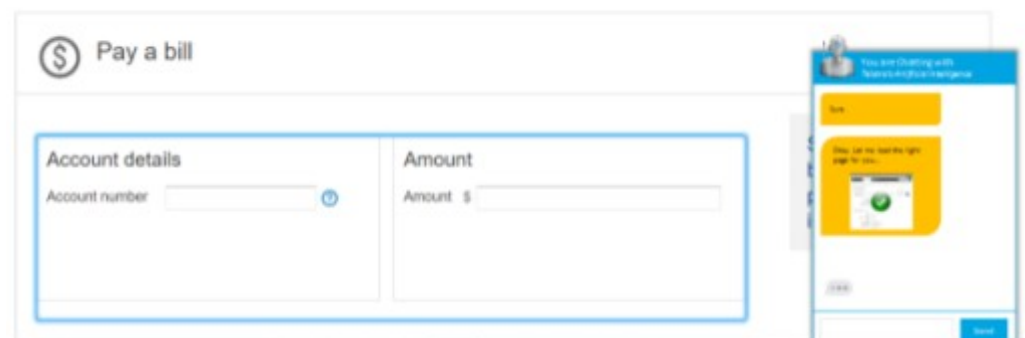


A simple example showing Entellio placed as javascript on a Telco website where a user can start conversation with it



A conversation initiated with the user by the framework about his intention which happens to be paying his bill

ACCOUNT SERVICES



Power of web redirect or conversational browsing shown here where the user is automatically routed to the deep link payment screen once the intention is satisfied

The image shows a payment form with the following fields:

- Card number: This type of card incurs a fee of 0.50% ⓘ
- Card expiry (mm/yy): 07 / 21
- Verification code: Where can I find this?
- Email receipt:
- Email receipt to:

A blue 'Continue' button is located at the bottom right of the form. To the right of the form is a side panel with a blue header 'You are creating order' and a sub-header 'Please complete your order'. The panel contains two yellow boxes with green checkmarks and text: 'Your order has been added to your cart' and 'Enter your payment info to complete your order. Your order will be confirmed when you click the button below. Thank you for your order.' A mouse cursor is pointing at the 'Continue' button.