

A PROJECT REPORT

On

Personal translator using IBM cognitive services

Submitted in partial requirement for

IBM Gurucool

Submitted By

Dhiraj Amin

Assistant Professor

Computer Engineering

Pillai College of Engineering

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Chapter 1

Introduction

1.1 Overview

Imagine when you want to communicate with someone from a different country, you have to hire someone that can speak both languages and do all the translating. That was the case in old times, but after the development of the internet and technology, communication has become much and much easier. Now, we can use IBM cognitive services to translate anything we want in a couple of seconds. Machine Translation (MT) is the task of automatically converting one natural language into another, preserving the meaning of the input text, and producing fluent text in the output language. While machine translation is one of the oldest subfields of artificial intelligence research, the recent shift towards large-scale empirical techniques has led to very significant improvements in translation quality[1].

1.2 Purpose

The purpose of this project is to create a web app and personal telegram bot that can be your personal translator. The app uses IBM Watson Speech to Text, Watson Language Translator, and Watson Text to Speech services to transcribe, translate, and synthesize from your microphone to your headphones. Services used in this project include IBM Language Translator, IBM Text to Speech, IBM Speech to Text, IBM Language Identification and Node-RED. As for all languages translation from one language to another is not supported by the services the web app and telegram bot is limited to specific languages for translation.

Chapter 2

Literature Survey

2.1 Existing Problem

Machine translation is a relatively old task [2]. From the 1970s, there were projects to achieve automatic translation. Over the years, three major approaches emerged:

Rule-based Machine Translation (RBMT): 1970s-1990s

Statistical Machine Translation (SMT): 1990s-2010s

Neural Machine Translation (NMT): 2014-2020

Rule-based Machine Translation

A rule-based system requires experts' knowledge about the source and the target language to develop syntactic, semantic and morphological rules to achieve the translation.

Statistical Machine Translation

This approach uses statistical models based on the analysis of bilingual text corpora.

Neural Machine Translation

The neural approach uses neural networks to achieve machine translation. Compared to the previous models, NMTs can be built with one network instead of a pipeline of separate tasks. Most of the recent translation services have shifted to NMT.

2.2 Proposed Solution

Personal translator is created using IBM cognitive services where we have used IBM Language Translator, IBM Text to Speech, IBM Speech to Text and IBM Language Identification services in combination with Node-RED which is a programming tool for wiring together hardware devices, APIs and online services. Personal translators can be used in telegram bot as well as in web application.

Personal translator uses IBM Watson Language translator[3] which converts source language into target language where language pairs leverage neural machine translation which is new technology that uses deep learning to improve translation speed and accuracy. IBM Watson Speech to Text[4] service provides an API to add speech transcription capabilities to applications. It combines information about language structure with the composition of the audio signal. With Watson Text-to-Speech [5], we can generate human-like audio from written text. With help of IBM Language identification api of Language translator service we can detect the source language provided as input for translation without the user needing to specify the language manually.

In the web application when users give the input in speech or text and the source language will be translated to the target language using IBM cognitive service, here if the input is in speech it is first converted into text and fed to the language translator. The output after language translation is provided in both the mediums speech and text. In the telegram bot after receiving the input from telegram the language is translated to target language and sent back as output to the telegram receiver. Personal Translator works for a specific set of languages.

Chapter 3

Theoretical Analysis

3.1 Block Diagram

For creating personal translator applications, web app and telegram platforms are used, where users can easily translate text to another language.

Telegram Bot is created which performs language translation here and the user has to first set the target language using the set language `lauguagename` command in the telegram bot (Link to bot). Once the language is set, users can start translating without manually specifying the source language. Source language is automatically identified by the language identification service. The text to be translated, the source and target language is then fed into language translation service which gives the output as text. In the telegram bot if the target language specified is Japanese then with translated text as output speech is also provided to the user where the user can play the audio in real time for other languages like Hindi, French, Spanish, Arabic and German it will only show text to the users.

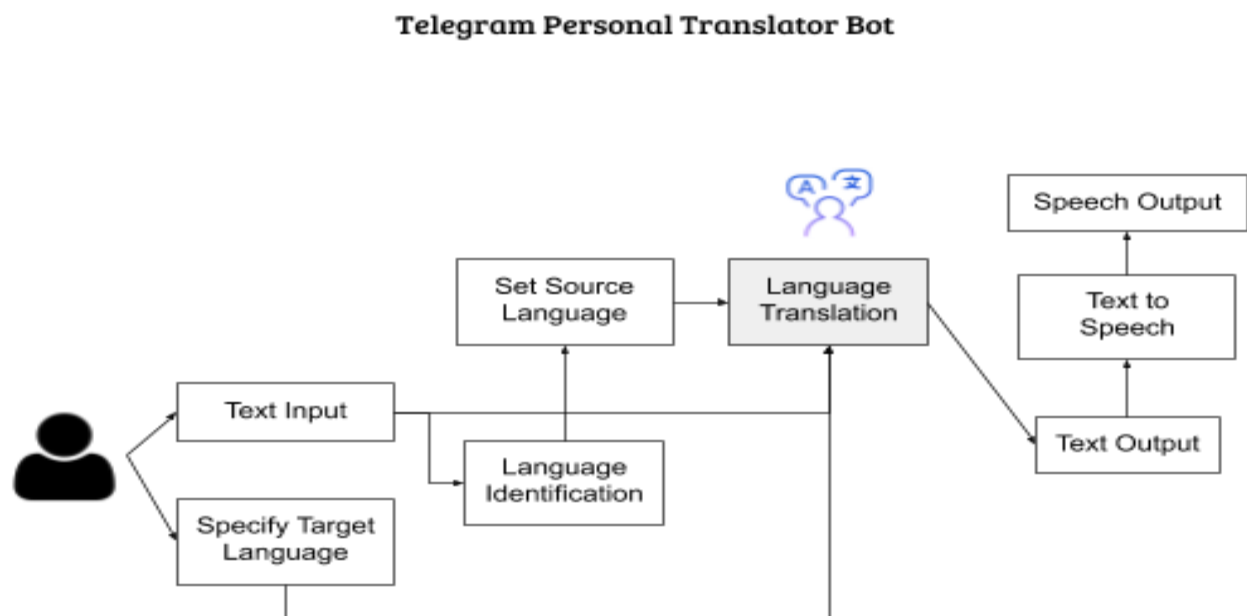


Fig. Telegram Personal Translator Bot

Personal Translator Web App

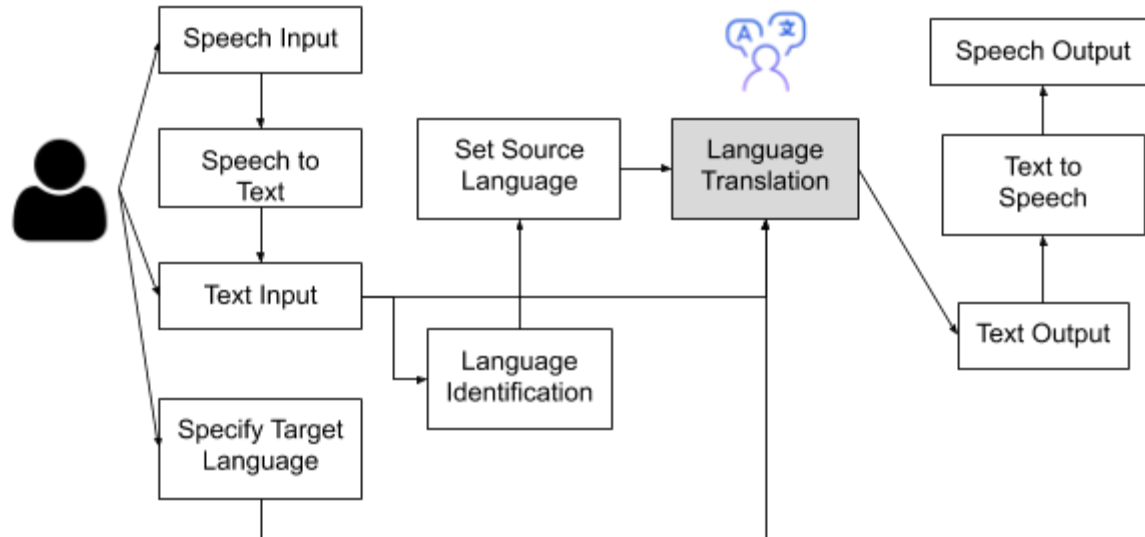


Fig. Personal Translator web app

In a web application which provides a personal translation service, the user has to give the input as speech or text. The speech support is limited to specific language and after providing the input the user has to select target language. Some of the languages don't have voice features so for those language translation output is in text only. User source language is automatically detected from the input text using language identification service. The text to be translated, the source and target language is then fed into language translation service which gives the output as text. The text is converted into speech for the specific available languages and also the user can see the information about detected source language.

3.2 Hardware/ Software Designing

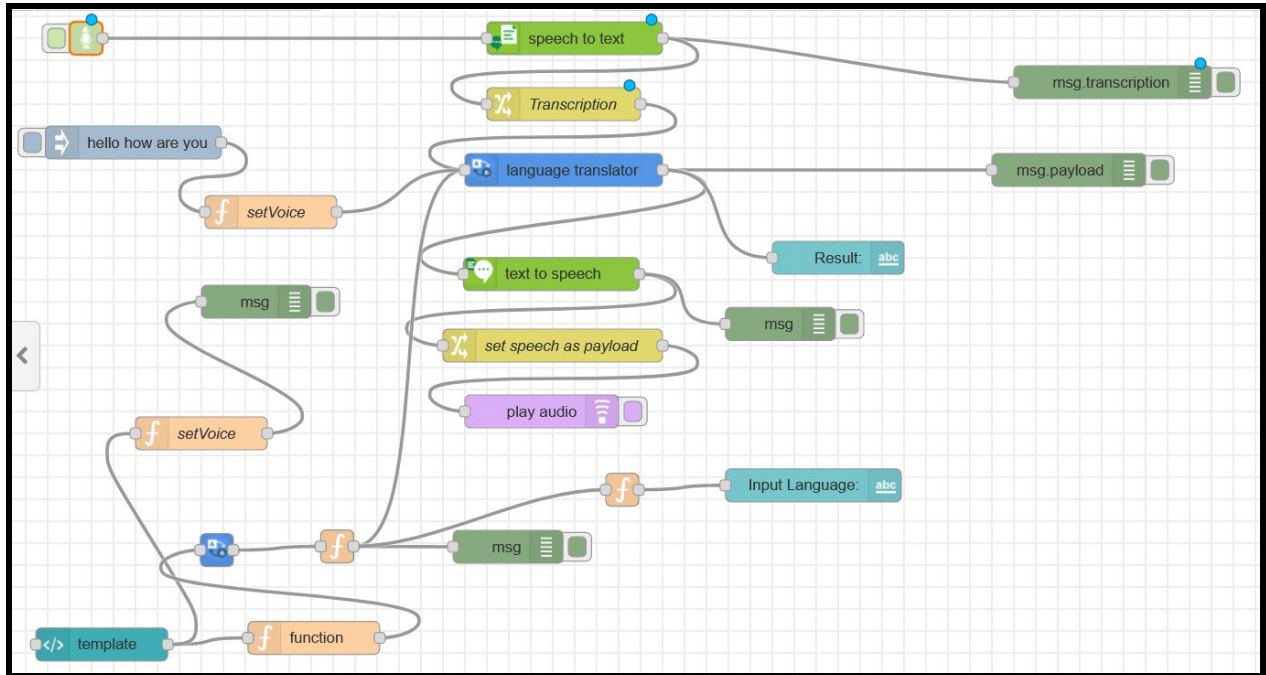


Fig. Flow for web app based personal translator in Node-RED

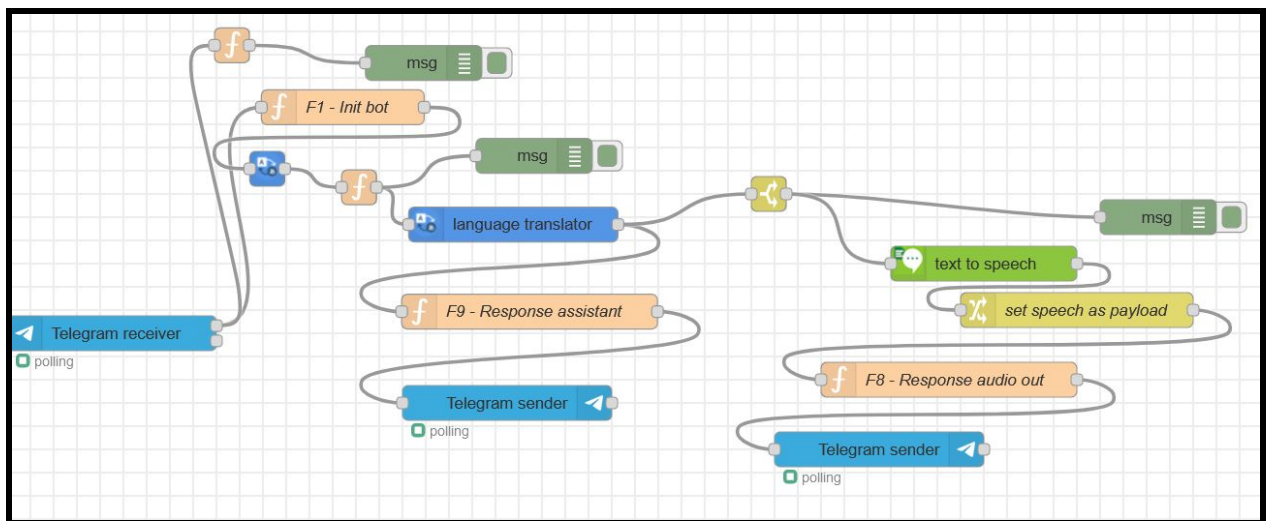


Fig. Flow for telegram bot based personal translator in Node-RED

Chapter 4

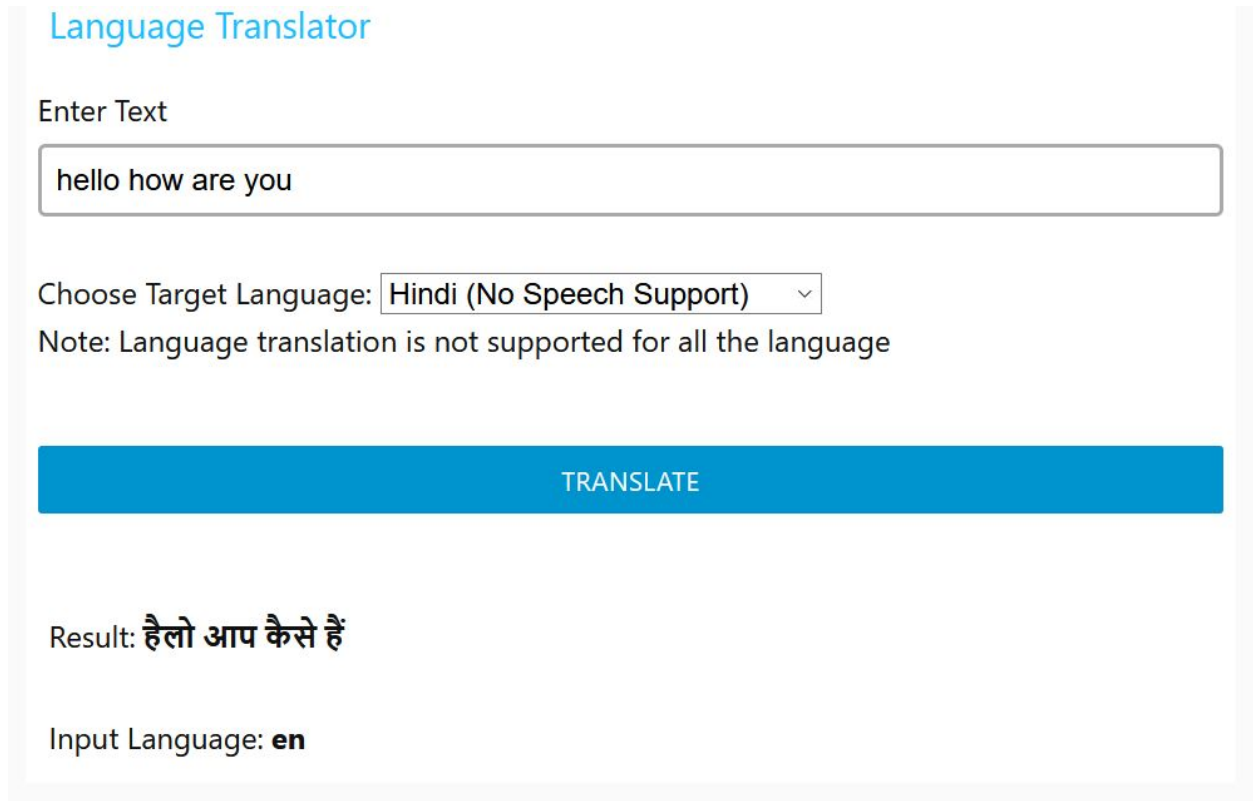
Experimental Investigations

Machine Translation is a challenging research area with numerous issues due to language ambiguity like grammar, structure and even fluency of use. For neural machine translation the dataset size for language pairs does play an important role in accuracy of translation. Sometimes during the process of translating the source language word is only transliterated to target language and the actual word in target language is not provided. English language which is the most used language over the globe seems to have many language pairs. Indian languages Hindi, Bengali can be translated to English and vice versa but there is no support for many Indian languages. For other Indian languages custom models can be built. Speech to text service is very much accurate but if one word is not recognised correctly then the input text can contain incorrect information and leads to error in translation service. Another noticeable part is still machine translation does not replicate actual human tone, dialects and emotion during the translation which in itself is a bigger problem.

Chapter 5

Results

The personal translator works for most of the inputs, a sample output for the translation of text from English to Hindi is provided in the below figure in web application based personal translator.



Language Translator

Enter Text

hello how are you

Choose Target Language: Hindi (No Speech Support) ▾

Note: Language translation is not supported for all the language

TRANSLATE

Result: हेलो आप कैसे हैं

Input Language: en

Fig. Web Application GUI for Personal Language Translation

As we can see here hello is not converted to namaste, like this there may be few words and phrases which won't be translated properly but still the translation service can give a decent output whenever required. Also as you can see in the Telegram Personal translator bot for the same input we are getting different response this also depends on the processing of NMT

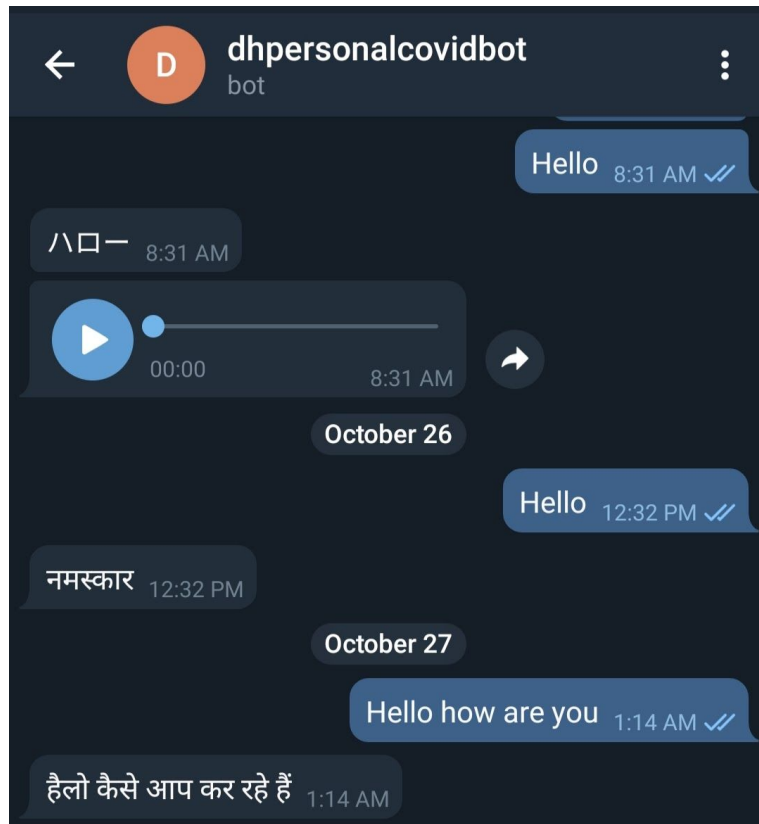


Fig. Telegram bot Personal Translator

Chapter 6

Applications

Language translation plays an important role while conversing with people of another language in foreign places of the users. Also many times some important information is present in another language which we need to translate to the language of our understanding to read the contents. The telegram based personal language translation bot will be useful for users to translate language in group chats with people using other languages. Language translation can be also applied on the output of caption generation from the image to get the caption translated to required language.

The advantages of machine translation is when time is a crucial factor, machine translation can save the day. You don't have to spend hours poring over dictionaries to translate the words. Instead, the software can translate the content quickly and provide a quality output to the user in no time at all. Compared with professional translators, machine translators usually translate text which is in any language so there is no such major concern while a professional translator specializes in one particular field. Primary disadvantage is that accuracy is not offered by the machine translation on a consistent basis. You can get the gist of the draft or documents but many machine translation only does word to word translation without comprehending the information which might have to be corrected manually later on. Systematic and formal rules are followed by machine translation so it cannot concentrate on a context and solve ambiguity and neither makes use of experience or mental outlook like a human translator can.

Chapter 7

Conclusion and Future Scope

Machine Translation is an allied field of Natural Language Processing which is part of Artificial Intelligence. There is huge geographical, cultural and lingual diversity between people of various countries and states. Interest of people from one society has amplified to study the literature of other societies due to enormous expansion in communication channels. The major obstacle in this is lack of lingual knowledge of other societies. This has given a major boom to the research in the area of Machine Translation. For creating personal translators we have used IBM Watson translator service with support of Speech to text and text to speech module to provide hassle free translation to the users. With the help of telegram bot based translation users can translate at the same time during conversation with people of other languages.

Google Translate, IBM Watson and all the other translators currently cover just 80 to 100 of the estimated 6,000–7,000 languages spoken on the planet. Saying we're a long way off to actually get a universal translator is not fatalistic. Also removing the human mind from translation might not actually be a utopia after all. Also chatbots would be benefited with added modules of language identification and translation to converse with people from different places in the world.

Bibliography

1. <https://nlp.stanford.edu/projects/mt.shtml> Last accessed on 26 October 2020
2. <https://towardsdatascience.com/machine-translation-a-short-overview-91343ff39c9f> Last accessed on 26 October 2020
3. <https://www.ibm.com/watson/services/language-translator/> Last accessed on 26 October 2020
4. <https://www.ibm.com/in-en/cloud/watson-speech-to-text> Last accessed on 26 October 2020
5. <https://www.ibm.com/in-en/cloud/watson-text-to-speech> Last accessed on 26 October 2020

Appendix

Telegram bot link :

Translator service will play voice only when translating to the destination language Japanese.
Use command set language language name to set destination language, source language is automatically detected

For example set language hindi
set language japan
set language german
set language spanish
set language france
set language arabic

Translation between English and all the above language is supported including the reverse flow which is hindi to english

http://t.me/dhpersonalcovid_bot

Web application link :

<https://node-red-vhruj-2020-10-19.eu-gb.mybluemix.net/ui/#!/0?socketid=Yt99IMsgRQApLzMzAAAB>

Node-RED link:

<https://node-red-vhruj-2020-10-19.eu-gb.mybluemix.net/red/#flow/481289ed.bd2438>

Github Link:

<https://github.com/SmartPracticeschool/SPS-7229-Personal-translator-using-IBM-cognitive-services>

Source Code

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p":"86c8ce21.06cfe","order":4,"width":12,"height":1,"name":"","label":"Input Language:
","format":"{{msg.payload}}","layout":"row-left","x":737.3333129882812,"y":507.33331298828125,"wires
":[],{"id":"d2269d78.bc393","type":"function","z":"c743e174.d50d78","name":"","func":"msg.payload=
msg.srclang;\nreturn
msg;","outputs":1,"noerr":0,"initialize":"","finalize":"","x":563.3333129882812,"y":511.33331298828125,
"wires":[["161ac6b.dc85639"]],{"id":"5f43fae6.c15d14","type":"function","z":"c743e174.d50d78
","name":"setVoice","func":"var trlang= msg.tlang;\nswitch (trlang) {\n case \"en\":\n
msg.voice=\"en-US_AllisonVoice\";\n  break;\n case \"ar\":\n  msg.voice=\"ar-AR_OmarVoice\";\n
break;\n case \"fr\":\n  msg.voice=\"fr-FR_ReneeVoice\";\n  break;\n case \"de\":\n
msg.voice=\"de-DE_BirgitVoice\";\n  break;\n case \"it\":\n  msg.voice=\"it-IT_FrancescaVoice\";\n
break;\n case \"ja\":\n  msg.voice=\"ja-JP_EmiVoice\";\n  break;\n case \"es\":\n
msg.voice=\"es-ES_EnriqueVoice\";\n  break;\n default:\n
msg.voice=\"en-US_AllisonVoice\";\n}\n\nmsg.voice=\"it-IT_FrancescaVoice\";\nreturn
msg;","outputs":1,"noerr":0,"initialize":"","finalize":"","x":180,"y":460,"wires":[["5945f705.40e3c"]],{
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msg;","outputs":1,"noerr":0,"initialize":"","finalize":"","x":243.3333282470703,"y":258.3333435058594,"
wires":[["da37bd08.86c0a"]],{"id":"2e4aee5.2af3f2","type":"telegram
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":false,"x":90,"y":280,"wires":[["d6aab0df.6c59e","8ab92e7.1c1a8d"],[]],{"id":"d6aab0df.6c59e","type":
"function","z":"481289ed.bd2438","name":"F1 - Init bot","func":"msg.chatId =
msg.payload.chatId;\nmsg.user = msg.payload.chatId;\nmsg.payload = msg.payload.content;\nreturn

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msg;\n","outputs":1,"noerr":0,"initialize":"","finalize":"","x":288.6666564941406,"y":85.33333587646484
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81289ed.bd2438","name":"","service-endpoint":"https://api.eu-gb.language-translator.watson.cloud.ibm.co
m/instances/b55a78de-bbbc-4171-bd31-74505e0cc3b5","x":223.66665649414062,"y":138.33334350585938,"w
ires":[[{"41ef8ea6.54929"}],{"l":false},{"id":"41ef8ea6.54929","type":"function","z":481289ed.bd2438,"n
ame":"","func":"msg.srclang= msg.lang.language;\nmsg.destlang =
flow.get(\"destlangm\")||\"hi\";\n\nif(flow.get(\"voicea\")){\n      msg.voice =
flow.get(\"voicea\");\n}\n\nelse{\n      msg.voice = \"na\";\n}\n\nreturn
msg;","outputs":1,"noerr":0,"initialize":"","finalize":"","x":302.66664123535156,"y":154.3333435058593
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z":481289ed.bd2438,"name":"F9 - Response assistant","func":"\nmsg.payload = {\n  \tchatId :
msg.chatId,\n  \ttype : \"message\",\n  \tcontent : msg.payload\n};\n\nreturn
msg;\n","outputs":1,"noerr":0,"initialize":"","finalize":"","x":449.33331298828125,"y":261.333343505859
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asemodel":"ar-en","domain":"general","srclang":"en","destlang":"it","password":"","apikey":"1qGg1z
B5XbMg_zloTnlbun-xBHPJA1bZuUCf5ShxLNmu","custom":"b1809e78-f34b-48ed-8a8a-c31e6245565f","d
omainhidden":"general","srclanghidden":"en","destlanghidden":"it","basemodelhidden":"ar-en","custo
mhidden":"","filetype":"forcedglossary","trainid":"","lgparams2":true,"service-endpoint":"https://api.eu
-gb.language-translator.watson.cloud.ibm.com/instances/b55a78de-bbbc-4171-bd31-74505e0cc3b5","x":435.3
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2.914e2e","type":"function","z":481289ed.bd2438,"name":"F8 - Response audio
out","func":"msg.payload = {\n  \tchatId : msg.chatId,\n  \ttype : \"voice\",\n  \tcontent :
msg.speech\n};\n\nreturn
msg;\n","outputs":1,"noerr":0,"initialize":"","finalize":"","x":810,"y":320,"wires":[[{"b7958761.664b8"}]
},{{"id":"8ab92e7.1c1a8d","type":"function","z":481289ed.bd2438,"name":"","func":"if(msg.payload.co
ntent.includes(\"set language\")){\n\nvar trlang= msg.payload.content.split(\" \")[2];\nswitch (trlang) {\n
case \"english\":\n      msg.destlang=\"en\";\n      flow.set(\"destlangm\", \"en\");\n
flow.set(\"voicea\", \"na\");\n      break;\n case \"arabic\":\n      msg.destlang=\"ar\";\n
flow.set(\"destlangm\", \"ar\");\n      flow.set(\"voicea\", \"na\");\n      break;\n case \"france\":\n
msg.destlang=\"fr\";\n      flow.set(\"destlangm\", \"fr\");\n      flow.set(\"voicea\", \"na\");\n      break;\n case
\"german\":\n      msg.destlang=\"de\";\n      flow.set(\"destlangm\", \"de\");\n
flow.set(\"voicea\", \"na\");\n      break;\n case \"italic\":\n      msg.destlang=\"it\";\n
flow.set(\"destlangm\", \"it\");\n      flow.set(\"voicea\", \"na\");\n      break;\n case \"japan\":\n
msg.destlang=\"ja\";\n      msg.voice=\"ja-JP_EmiVoice\";\n      flow.set(\"voicea\", \"ja-JP_EmiVoice\")\n
flow.set(\"destlangm\", \"ja\");\n      break;\n case \"spanish\":\n      msg.destlang=\"es\";\n
flow.set(\"destlangm\", \"es\");\n      flow.set(\"voicea\", \"na\");\n      break;\n case \"hindi\":\n
msg.destlang=\"hi\";\n      flow.set(\"destlangm\", \"hi\");\n      flow.set(\"voicea\", \"na\");\n      break;\n
default:\n      msg.destlang=\"hi\";\n      flow.set(\"destlangm\", \"hi\");\n
flow.set(\"voicea\", \"na\");\n}\n\n}\n\n}\n\nelse{\n      if(flow.get(\"destlangm\")){\n      msg.op
=flow.get(\"destlangm\")\n      }\n      else{\n      {\n      msg.destlang=\"hi\";\n      flow.set(\"destlangm\",
\"hi\");\n      flow.set(\"voicea\", \"na\");\n      }\n}\n\nreturn
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.a2f514","type":"debug","z":481289ed.bd2438,"name":"","active":true,"tosidebar":true,"console":fals
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"langcustomhidden":"","voice":"ja-JP_EmiV3Voice","voicehidden":"en-US_LisaV2Voice","format":"audio/wav",
"password":"","apikey":"gzV0mqKM0Z-TEYMf01kUkIGAewSxRM68M1RWseP8rK7n","payload-response":false,
"service-endpoint":"https://api.eu-gb.text-to-speech.watson.cloud.ibm.com/instances/f3779dc5-fc07-49fb-b7fe-2ab4ad749aa8",
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"z":"481289ed.bd2438","name":"","property":"voice","propertyType":"msg",
"rules":[{"t":"eq","v":"ja-JP_EmiVoice","vt":"str"}],"checkall":"true",
"repair":false,"outputs":1,"x":655,"y":160,"wires":[["910a66e3.a32968","53e9d270.10279c"],"l":false},
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"z":"481289ed.bd2438","name":"","bot":"18d3efb6.eced28",
"x":750,"y":380,"wires":[]},{ "id":"63d4afc5.cbefb","type":"change",
"z":"481289ed.bd2438","name":"set speech as payload",
"rules":[{"t":"set","p":"payload","pt":"msg","to":"speech","tot":"msg"}],
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