

# VAANI: Human Interaction System

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**Abstract** - This research is all about simplifying the ways of communication and searching in today world that we all are facing due to very large amount of data on server and website, everyone has some query that he/she not able to get answer through searching and scraping website or even after trying google search or by using other search engine. And after spending lots of time over internet we always get list of solution but the probability to get right answer is very low, all because we never get solution from the owner for which we are query for. Although many website have chat system to communicate but still that's not that sufficient to work perfectly as many times real person has to answer your query. After seeing through this type of problems we made a system for everyone queries, to get their perfect answer from the right owner.

**Key Words:** VAANI, CHATBOT, conversation system, machine learning, programing, Levenshtein distance, Sentiments analysis, most occurrences.

## 1. INTRODUCTION

In today's world people are highly progressive in adapting thing in their life as they value knowledge over other means that waste their time, everyone wanted to spend less time on unusual work over internet, so after figure out from lot of research and asking people from every age, groups, about their difficulties in searching something over internet, then we find the perfect solution for them that works really great through changing their way for searching anything over internet. A simple question to ask, Why do we need to search when we can have some conversation?

A simplified well planned text ML conversation system called VAANI has been design, which can interact with user to get their perfect solution to their queries, and even after having some conversation, if user not get satisfied to given solution, then system has all the abilities to redirect user to specific merchant profile. Then a person can able to have conversation to ML base chat system from merchant profile, to answer queries related to that particular domain the merchant working in. Every verified institution, Store, banks, IT companies, School, various state government

authority and services giving companies are able to have account on VAANI. Which can act as the merchant profile for every other user who wanted to gain information from then through conversation.

## 2. DIFFICULTIES IN PREVIOUS WORKS

Conventional way of searching in today time is passing query through search engine and get list of unpredictable solutions and with other website who opt to have solution, but its:

1. Difficult to figure out the correct answer.
2. Needs to search and read data from different website and after spending lot of time, we may or may not able to find solution.
3. Time consuming method.
4. Sometimes boring, while are not able to figure out the solution.

## 3. VAANI

VAANI is a Web Application to process conversation with user to sort out their problems. It is a Machine Learning base chatting application, which learns more with more time in conversation. To automate the process of query simply visit application and having some conversation with VAANI, it will guide you till you get your solutions, that's all the system have. It just simplified version of everything you need to know. Simple but very effective.

VAANI can be access through any browser. It is Python base conversation application, with RESTful API written in JavaScript Framework for accessing whole working application solutions to work for user.

Application perform tasks:

- Admin Login form and profile with different option to train more data to python ML script.
- Registering/ Login to every verified merchant.
- Separate profile for verified user.
- Form, where merchant can able to train data for them with different database for their particular users.

- Link to redirect user to merchant profile.
- Communication with bi-directional event-based system to increase its speed to interact.

#### 4. IMPLEMENTATION

##### 4.1 Base

VAANI is highly interactive application runs on cloud services such as AWS. On above all this MongoDB database is used to work with NODEJs App and python script that's runs in background to support conversation with ML technique that fully written in python.

Figure 1 Explain the basic process of implementation of technologies used:

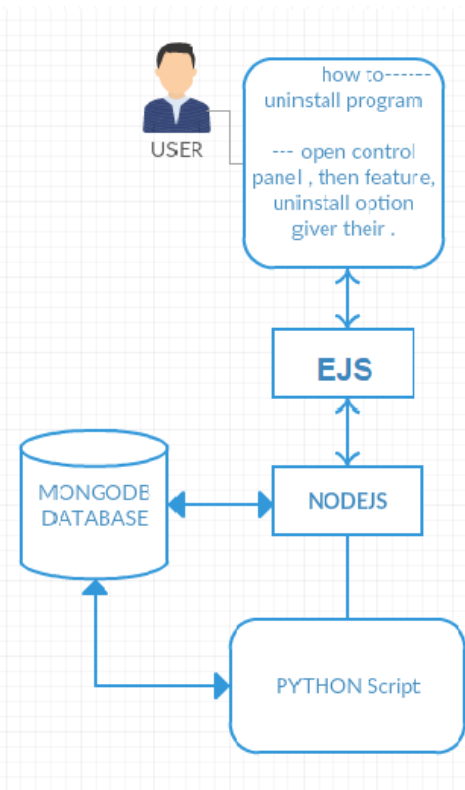


Fig - 1: Process

##### 4.2 TECHNOLOGY APPLIED

ECMAScript frameworks: NODEJs, Socket.io, Express, EJS, PASSPORTJs, Python, Scripting Language, Child-Process, Natural language understanding

##### 4.3 Processing System

User - are the person interacting with Chat Interface to have conversation to VAANI and these users are not need to login

or sign up for interaction. Only the verified merchant can do login to train their profile data for their specified user.

Merchant can be:

1. School/College/University
2. State Government Authorities ,PMO office
3. DOCTORS
4. ADVOCATES
5. Teachers
6. Branded Shop, etc.

EJS – this is embedded ECMAScript, same as Html code with addition dynamic code writing to have great method to implement change feature of webpage.

NODEJs- This is most interesting project done on V8-Chrome-Engine to enable asynchronous programming on Javascript to make a pure sever side program with event drive no I/O blocking system. And with their standard repository called as NPM it become a powerful system.

PYTHON SCRIPT- this is strong language preferred when you to work on scientific calculation, its library and module make this language so valuable that it forced to include in this project so that we can have better result.

MongoDB- A NOSQL database entire used to have manage large file with less space with strong response time, as it used JSON datatype of format to store data inside them.

Other Technologies Included-

1. Socket.io –to enable instant dialogues with system in really time without using AJAX, and we all not need to refresh page.
2. EXPRESSJs- a routing module for NODEJs, used to route to different page.
3. Child-Process – used to initiate sub-process, this module we used to initiate python script to process in data that send and retrieve the output from the script.
4. PASSPORTJS- used to authenticate user.

##### 4.4 WORKING PROCESS

There is chat interface form on EJS-Script where any VAANI user can come and can have conversation with her. When user enter data in input field and hit enter button , this will initiate onclick( ) function , and in that function we used socket.emit function which will send data to socket.on on nodejs file , this means data is transfer over http without any extra function . Socket.emit is used to send over http and socket.on is used to receive data over http .Although this conversation start with .io function which is instant of socket.io module.

When socket on received data , it further starts its function with that data which was received earlier and further start the child-process where we are going to run python script

with that data and wait for return from that process . Then after receiving new data from that process we emit that data through socket emit in nodejs file to socket.on in EJS file, then we are going to print that data into ejs file and its DONE !

Know working in python file, through sys module we import the arguments from the node file which send data to this python file, NODEJs send data to python in list form, then doing some process we evaluate needed data. Using PYMONGO we setup mongo database with collection called as statements. All the file saved in MongoDB are JSON file and system as BSON format .We need to setup some input adaptor, output adaptor, to print response with logical adaptor for sentiment analysis, best match, Levenshtein distance and Synset and then compare their response through comparison system in ML and filter out the best response with most possibility. And send this data back to node file.

Natural Language Processing, consists of two system processes, one is natural language understanding and other is natural language generation, our work only based on understanding language, NLP process which includes parser , tokenization ,POS.

## 5. APPLICATION

VAANI is highly useful web application for everyone from any age group, anyone can have conversation and get his all queries perfectly answered. Feature like verified merchant or government or private official chatting system which can be trained by themselves, which enhance VAANI productivity and ultimately result in better result to your queries. Can assist you in emergency situations, can act as tourist guide, help in booking tickets, can query government procedures, aid for financial advice, doctor advise, court procedure and mainly more. Increase in joining people to this platform leads to best system.

## 6. CONCLUSIONS

We perfectly manage to deploy this conversation portal system. This portal is highly useful as we all need to change the way of searching web and communicating someone through mail just to asked usual question every time.

VAANI bot is a easy way to retrieve information from a conversation ML dialogues system. NODEJS given this planform highly responsive to users .

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