

# Design and Implementation of Student Chat Bot using AIML and LSA

K.Naga Lakshmi, Y. Kishore Reddy, M. Kireeti, T.Swathi, Mohammad Ismail

**Abstract:** Now-a-days students are facing many problems regarding the information of a college student details. There is no proper communication channel to know the required details of the students in a college. This paper focuses on the process of communication automation on web using computer programming. By using computer program a conversational agent is created which responds to the user statements called chat bot. It can take the input from user in many formats like text and speech. Using AIML (Artificial Intelligence Markup Language) and LSA (Latent Semantic Analysis) the relevant answer to the user query is generated. If the relevant answer to the user query is not found the system will automatically ping to the admin.

**Keywords:** AIML: Artificial Intelligence Markup Language, LSA: Latent Semantic Analysis

## I. INTRODUCTION

The idea of creating a machine that had human thought process made many scientists, philosophers and even sculptors fascinated of humanistic automation. Student Information Chatbot's are the communication interfaces that help the user to know the details of the students. Chatbot's came a long back in second half of the 19th century with a simple conversations and now turned into powerful tool for e-commerce and media brands.

The chatbots are broadly classified into two types as follows

- **First one**

It has a lot of predefined rules, conditions, streams and breakdown conditions pursued by triggers to react to the particular inquiries or directions. One straightforward model is the chatbot that tells the understudy data in a specific montage. One individual or client can solicit any number from precedents one such be name of the understudy with id number then the visit bot will scan for the appropriate response and returns the yield. This sort of chatbots are possibly shrewd when the designer (one who builds up the chatbot) is savvy and structure the chatbot by deduction each inquiry of the discussion.

- **Second one**

It utilizes the new advances like ML(machine learning) and simulated intelligence (Man-made reasoning) that comprehends the significance of the words for all dialects and comprehends the feeling which don't depend on just pre-characterized information. A client can ask "what's

going on in the class?" and the chatbot may convey the given by the engineer and uses that information to improve the precision after some time by understanding the obscure discussions.

The point of a chatbot is to lead discussion which permits clients can access to data through a lightweight application by informing. Essentially chatbots are partitioned into two sorts dependent on the information and methods for learning and they are as per the following:

- **Rule-based chatbot:**

The Standard based chatbot fill in as an intuitive chatbot that gives the appropriate response relying upon the principles given by the designer. They are additionally called as the FAQ bot. These sort of chatbots are given a lot of information with the two inquiries and separate answers by the software engineer. At the point when the client gives an inquiry it checks in guidelines given by the software engineer and reacts in like manner.

- **AI chatbot:**

AI(Artificial Insight) chatbots go about as fake human brain. It utilizes NLP (normal language ) handling strategies and as a modern intellectual. It comprehends the two solicitations and setting in the demand alongside the purpose of the question and feeling of the client. It consequently learns the substance structure the client discussions..

There is much more to learn by the AI chatbots. Now a days we are seeing big market players (players intends chatbots) like Google Home, Siri and Alex.

There are many obstacles that are to be overcome in the creation of chatbots are as follows:

- The bots ought to learn by it self so they ought to have the capacity to learn in the intelligent mode while utilizing by the client. One of the main trouble is maintaining the alluring mode for the client and makes them to utilize the bot longer time which help the bot to learn.
- The chatbots more often than not learn structure the tenets given by the engineer and the directions given by the client. They don't have any ethics to recognize which is great and which isn't great.
- A few directions are difficult to instruct to a machine. Give us a chance to consider a model understanding the feeling and learning it. This is the hardest piece of the chatbot challenge contrasted with the remaining however it is the main key for growing best chatbot.

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The first chatbot Eliza which is created in 1996 by the individual of MIT ( Massachusetts Establishment of Innovation) which mimics the psychotherapist, They are developing the lives step by step which has being utilized from most recent two years. One of the hallucination that there is best straightforwardness toward the front and there are numerous difficulties to be tackled that make a consistent ordeal by the client like improvement of stream, checking blunders API coordination and making deception live human discussion by acceleration.

Consider chatbots human-to-robot texting. Utilizing man-made brainpower and cautiously composed PC contents, chatbots can perceive regular language to have simple discussions with your clients – responding to questions and associating similarly as another human may.

**The main reasons for growing of chatbots usage are as follows**

- Growing Customer Expectations
- Changing Conditions for Organizations
- Technological Factors
- The result: Increasing use of chatbots

### A. Reason for Sometimes filing of chatbot:

Balanced discussion is simple when contrasted with one-with numerous discussions. Presently chatbots has one-to-numerous discussions where one server attempt to speak with different clients. In this the main undertaking is the manner by which every single discussion is scripted and the connection ability with the client. A few times chatbot fail to convey the right answer in light of the fact that the direction, inquiry is new to the bot or the failure of the database, because of the wasteful information , over-burden on the server, obscure feeling utilized by the client.

### B. History of chatbots

The first chatbot was created by Joseph Weizenbaum in 1966 and named as Eliza chatbot which appeared as a psychotherapist who reacted to the client with essential inquiries. It gave a deception of comprehension with scripted reactions. In 1972 Kenneth Colby turned out with a progressed chatbot Repel than Eliza which is a chatbot that could mimic an individual with distrustful schizophrenia. Later on in 1988 an endeavor is made in making chatbots with AI (Man-made consciousness) through human cooperation and named the chatbot as Jabberwacky. Later on in 1992 Imaginative labs for MS-Dos makes a chatbot named Dr.Sbaitso which is consolidated with AI and it is intended to exhibit a digitized voice. In 1995 utilizing regular language preparing Counterfeit Phonetic Web PC Element (A.L.I.C.E chatbot) chatbot is create where heuristic example is utilized for coordinating tenets to human contribution to request to have discussion. In 2001 a canny bot is made which is generally disseminated crosswise over sms systems called smarterchild. Later on IBM's Watson was planned in 2006 where normal language handling and machine learning is utilized to uncover inside and out information from substantial measure of information. In 2010 an astute individual right hand chatbot named siri appeared which utilizes common language UI to respond to questions and perform different demands and is a piece of Apple's IOS

which go about as the base for all later chatbots. Google propelled Google Now in 2012 which is cell phone based application. Presently it turned into the piece of updates and UI alterations for portable pursuit. Later on in 2015 bots ended up well known with further developed highlights like voice collaboration utilizing language preparing calculations in Alexa bot and Cortana bot that is available in various dialects which perceives common voice directions. These bots likewise performs web seeking. In 2016 Facebook propelled bots for flag-bearer stage where creates can make chatbots and collaborate with Facebook clients.

There are distinctive chatbots available for clients which made them to utilize them for various purposes, for example, NIKA(for timesheets),ACEBOT(for costs), TWYLA bot (for client administration), QnA bot (for FAQ ) and WIZU bot (for inputs).

## II. LITERATURE SURVEY

### Artificial Intelligence Chat bot in Android System using Open Source Program-O:

The framework works in two modes, content and voice. At the point when client gives the contribution to content configuration the principal mode is actuated. The client input is passed to the middleware API for the reaction. On other hand when client gives the voice input at that point second mode is initiated, In this voice mode we first proselyte the voice into content before sending it to middleware API. Middleware is the model which interfaces the AIML contents with our android application. At the point when client input is gotten at the middleware, it is passed to the example coordinating calculation which keeps running over the AIML contents. In this procedure, right off the bat the example coordinating calculation is executed for coordinating of the substantial reaction from the available AIML contents. At the point when design is coordinated, the comparing layout is come back to the middleware. At that point Middleware encodes the layout into the JSON design and sends the answer to the android application. Subsequent to accepting the reaction application interpret the JSON and gives the reaction to the client.

The response generation process is carried out with two phases:

- A. Preparation of Pattern Matching
- B. Pattern Matching Behavior

Implementation:

1. Detailed implementation of text based chatbot.
2. Detailed of the implementation of voice based chatbot..

### A. An E-business Chatbot using AIML and LSA:

For e-plans of action Web based business is one of the for the most part used to work together over the web or web. One of the real downside in this field is client administration quality which they are giving. In every single e-plan of action, clients need to wait for the reaction for longer time from the client administration agent or structure the partner side answer. As an answer for this issue, another chatbot which can consequently offers reactions to the clients with in a matter of seconds



(division of seconds) in view of the informational collection given by the designer and the Every now and again Addressed Questions(FAQs), utilizing AIML and LSA (Man-made reasoning Markup Language and Dormant Semantic Examination ).

**B. Web Navigation Prediction Using Multiple Evidence Combination and Domain Knowledge:**

Fake neural networks(ANN's) system is utilized in this. This paper mainly focuses on the web in which the client movement can be utilized as the information for recommending the following site pages that the client is going to open. It utilizes Counterfeit neural systems and markov models. At the point when the client asks for the WWW(world wide web) the demand is handled and relying upon the past history of the client the following site page that the client may open can be recognized so as to stack it for quick access of the client.

**C. College Enquiry Chatbot Using A.L.I.C.E:**

A.L.I.C.E is a characteristic language handling and man-made reasoning visit robot.The programming used to make is from open source (which can be uninhibitedly utilized by everybody) called Alice bot programming and AIML programming. Here a chatbot is tailored as an application which encourages new understudies to take care of few of the issue they are confronting and responds to inquiries for the understudies that are raised amid confirmation. AIML is a mediator that takes the contribution from the client and applies design coordinating calculation utilizing AIML contents and creates the output. It additionally helps while infusing the recently formed information or learning into the information base.

**D. Leveraging Question Answer technology to address terrorism inquiry:**

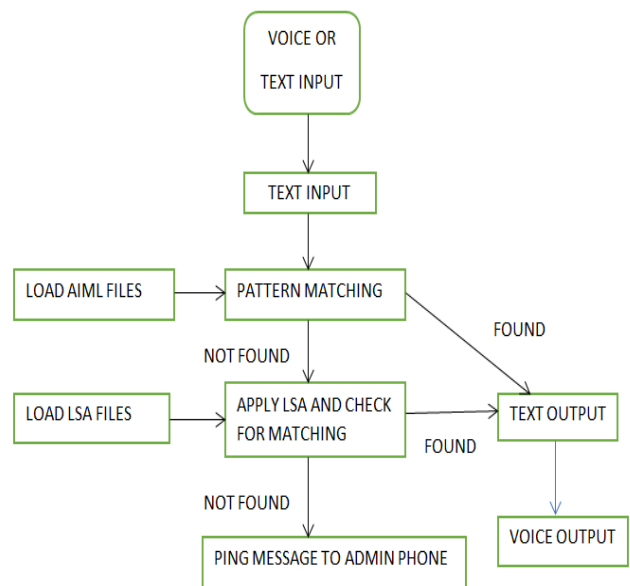
This paper researches the potential utilization of discourse based ALICE bots in scattering fear mongering data to the general public.Created the Psychological warfare Movement Asset Application (TARA) framework, which depends on an adjusted adaptation of ALICE Program D that can be unreservedly obtained from www.alicebot.org. Both TARA and ALICE share a considerable lot of similar segments.

**E. Android based Chat-Bot:**

This framework has been executed to incorporate with any Inn The board Android Application to facilitate the procedure of lodging booking. ALICE utilizes design coordinating and spares the data in Man-made reasoning Increase Language (AIML) records. ELIZA is a visit bot that is utilized mainly to chat with the client. It is mainly utilized for easygoing correspondence with user.chat-bot has worked in information base, conversational capacities, constant help, and human visual look. It can go about as an extraordinary remote helper for lodging booking and can perform multi-dimensional assessment.

**III. PROPOSED MODEL**

The framework works in two modes content and voice. At the point when client gives the contribution to content organization the principal mode is actuated. The client input is passed to the middleware API for the reaction. On other hand when client gives the voice input at that point second mode is actuated, in this voice mode we first believer the voice into content before sending it to middleware API. Middleware is the model which associates the AIML contents with our web application. At the point when client input is gotten at the middleware, it is passed to the example coordinating calculation which keeps running over the AIML contents. In this procedure, right off the bat the example coordinating calculation is executed for coordinating of the legitimate reaction from the available AIML contents. At the point when design is coordinated, the comparing format is come back to the middleware. On the off chance that the example isn't coordinated, at that point the info keeps running over the LSA scripts. If the example is discovered the it returns the output to the middleware.



**Figure 1 Block Diagram show an overview of the proposed model**

In Middleware encodes the layout into the JSON design and sends the answer to the client. In the wake of accepting the reaction web disentangle the JSON and gives the reaction to the client. On the off chance that the example isn't coordinated utilizing both AIML and LSA contents it pings to the administrators telephone as a message. The figure1 demonstrates the diagram of our proposed model.

**A. Pattern matching:**

It is the demonstration of checking a given grouping of tokens for the nearness of the constituents of some example. In qualification to design acknowledgment, the match commonly must be definite: "it is possible that it will or will n't be a match." The normally for the most part have the state of either arrangements or tree structures.

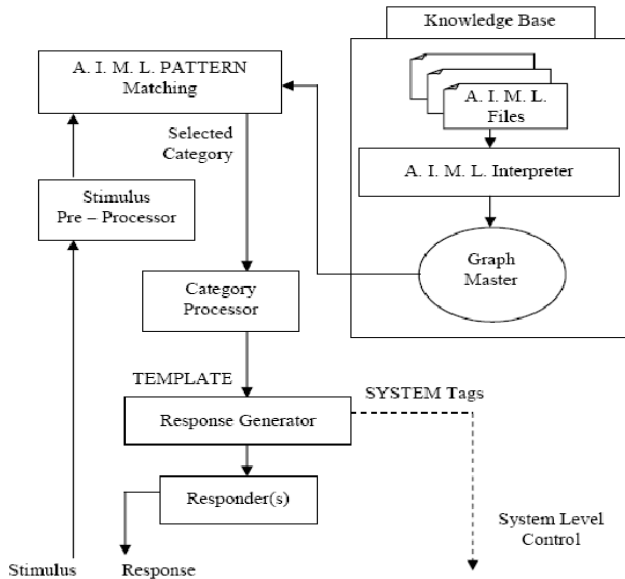


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Employments of example coordinating grasp yielding the areas (assuming any) of an example inside a token succession, to yield some piece of the coordinated example, and to substitute the coordinating example with some another token arrangement.

### B. AIML:

Artificial Intelligence Mark-up Language (AIML) is derived from Extensible Mark-up Language (XML) which is used to build up a conversational agent (chatbot) artificially. In this we use "program-O" which is an AIML interpreter for generation of the responses of users input. We have used this method for developing an android application chatbot. which will interact with user using text and voice responses.

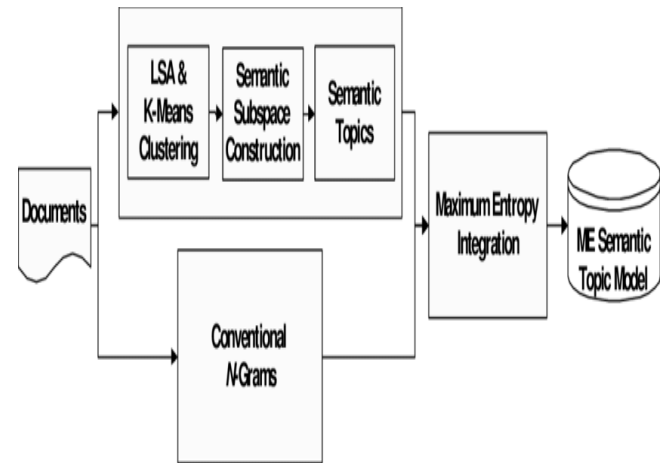


Among s Natural Language Processing begins when the client submits an inquiry to Visit bot. This inquiry is gotten by the AIML mediator that answers utilizing a learning base (Jindal et al, 2004) and there is a detailed task at Figure 4. This information base was executed in AIML language comprising of labels on class structure. In every class we have the inquiry and the appropriate response, utilizing individually, the example and layout labels. To improve the collaboration, making it as reasonable as could be expected under the circumstances, we can utilize more than one response to one inquiry when we have a similar inquiry, done in various ways. In the event that the inquiry isn't in the learning base chatbot, a reaction is produced haphazardly by the framework, keeping the client dependably find a similar solution. We can all the more likely comprehend the utilization of these labels by above figure.

### C. LSA:

Latent Semantic analysis (LSA) is a thought and approach for separating and speaking to the relevant utilization which methods for words by method for factual calculations actualized to an enormous corpus of literary substance. The fundamental idea is that the totality of certainties pretty much the majority of the word settings wherein a given word does and does not appear bears a rigid of shared constraints that in extensive part decides the likeness of importance of expressions and set of words to each extraordinary. The ampleness of LSA's reflected picture of human information

has been snared in a repercussion of techniques. for instance, its rankings cover the ones of people on in vogue vocabulary and issue matter appraisals, it copies human expression arranging and classification decisions, reenacts word-expression and section word lexical preparing data and, as expressed in organization Papers, effectively gauges entry soundness, learnability of entries by means of individual understudies and the fine and amount of mastery contained in an article.



LSA works in the following way:

## IV. RESULTS

```
>>> text-r.recognize_google(audio)
>>> kernel.learn("Learn.aiml")
loading Learn.aiml...done (0.02 seconds)
>>> kernel.respond("LOAD")
loading ai.aiml...done (0.02 seconds)
loading astrology.aiml...done (0.00 seconds)
loading atomic.aiml...done (0.27 seconds)
loading biography.aiml...done (0.00 seconds)
loading bot.aiml...done (0.22 seconds)
'
>>> kernel.respond(text)
Artificial intelligence is the branch of engineering and science devoted to constructing machines that think.'
>>>
```

## V. FUTURE SCOPE & CONCLUSION

In our project we implemented conversation of voice input to text input and applying AIML scripts for both the inputs and generating the output using which acts as a simple chatbot. We can use any interface that acts as an intermediate channel between AIML, SQL, and backend. In our implementation we are using python as an interface as python in platform independent and it contains many inbuilt functions and has many advantages. In upcoming days this chatbot is applied with LSA and returns the appropriate output to the user query and if the output is not found by applying both LSA and AIML the query is pinged to the admin using python as an interface and android development. This prototype can give upto 90% accuracy and helps the user to get the response in shorter time and with appropriate results. This bot implementation can be used in different business sectors by utilizing this technique and applying for that particular business.



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