

## Survey On Chatbot Work and Design

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**Abstract**— The computer program that talk to human in natural simple language is called a Chatbot. Chatbots are intelligent, conversational software or software agents that takes input in the form of text and voice. They provide the response of the input in the form of output.

The chatbot software technology was developed in the 1960's. Now the chatbot easier to train and implement. It is an open source code, so its development platform is widely available. It is used to improve customer understanding and supporting learning. These paper presentation analysis about chatbot. The paper discusses about different Chatbots on different technology and uses in different areas.

**Keywords**— Rule Of Chatbot Response, Response, AIML

### I. INTRODUCTION

The aim of chatbot is to improve the human interaction to technology in easy way. The concept of chatbot improve interaction between the human and the machine in order to simulate human-machine speech interaction also chat messages. Towards the chatbot interest increasing with contributions from Google, Android and IOS. Because graphic-based interfaces less natural then chatbot. In this system, the communication between the human and chatbot is start form primary method. Therefore, chatbot system widely used and will play a significant role in the near future.

In present day, the way of acquired and learning information has totally changed and easy with the invention of new computer science technology and existence of new means of communication for example *forums, FAQ, social networks, semantic search engines, mobile applications, and text to speech systems* which helps in dealing with the provide information on the web because its provide various facility and method. The implementation and approach of more complex systems which have capability of interpreting natural language is assisting end-users like *Chatbots, Expert Systems, multi agent systems, and Question Answering systems* proposed from the research in Natural Language Processing (NLP) and Semantic Web domains. Chatbot system classification in two categories: Question Answering Systems and Dialog Systems. Question Answering systems aim to answers the queries of user in that is in the form of Knowledge Base or raw text. The answer obtained by applying Natural Language Generation techniques, that can

be in the form of textual string or it can be enhanced by other meta-information or well-formed sentences. QA systems can get answers from an unstructured collection of documents like *web pages, compiled newswire reports, Wikipedia pages etc.* And in Dialog Systems aim ensure a logical conversation mode with the user by keeping links in memory between consecutive questions in logical conversation order. Dialog system communicate with human with coherent structure. In this system employed various mode like text speech, gesture for communication on input and output channel. And in which consist various manager for manage different functionality.

The first chatbot developed by Joseph Weizenbaum is Eliza. It is a natural language processing computer program. It gets response on the basis of (i) *Knowledge Representation* (ii) *Pattern Recognition* (iii) *Substitution of key words into known phrases*. Example of chatbot how it work.

<User> Hello

<System> Hi

<System> Do you like games?

<User> YES

<System> What is your favorite game?

Not only ELIZA was one of the first Chabot, also it was one of the first programs that was capable for passing the Turing Test. The chatbot program uses scripting programing

language and other markup languages like xml in AIML file. IN Eliza has the ability to attach the human to association in terms of prior experience. It uses Input rules, keyword patterns and output. Eliza gives the response according to the first Keyword pattern matched.

## II. RULE OF CHATBOT RESPONSE

The different type of chatbot have use different techniques and method for example Alice is also a chatbot that uses different method and techniques from the Eliza chatbot for given the response. for response used various rule and regulation.in chatbot for respond various steps are follows such as knowledge representation and pattern matching and interpreted and matching pattern for AIML file that contains predefine information or script in the form of text.

### A. Response

In chatbot system is a first bots are trained with the actual data. Chatbot uses for first level of communication. So Developer firstly

Predict or analysis the possible question of user and save the logs in database. Developers use the logs of those companies that have already

Chatbot and companies have a chatbot log of conversations logs. Developers match Queries that customer asks and answers with the best suitable answer, it is possible with the combination of Machine Learning models and tools built.

Basically Chatbots works by 3 adapting classification method:

#### 1) Pattern Matchers:

For identifying the text and provide a suitable response to the customers chatbot uses pattern matching method. The suitable response stored in the AIML file. AIML define as standard structure pattern is “Artificial Intelligence Markup Language” (AIML).

**1.1) AIML:** It is Artificial Intelligence Markup Language.in which use XML scripting programing language for define the structure of pattern.

There are two types of AIML Object.

- **Topic**-In AIML it is optional and top-level element under which define category elements.
- **Category**-In which define pattern that is input question and template that is output answer.

For example:

```
<aiml>
  <topic name="Chatbot" >
    <category>
      <pattern>PATTERN</pattern>
      <that>THAT</that>
      <template>TEMPLATE</template>
```

```
</category>
</topic>
</aiml>
```

AIML (Artificial Intelligence Markup Language) object:

```
<category>
  <pattern>Hello!</pattern>
  <template>Hi there!</template>
</category>
```

Sequence of chat

User: Hello!

Chat Bot: Hi There!

2) **Algorithm**-Various Algorithms are used to create a manageable structure and reduce the problem of pattern matching. In the database a unique pattern must be available to provide a suitable response for each types of question. For generate the more manageable structure and for reduce the classifiers we use Algorithm It is also called “Reductionist” approach- it provide simplified solution and reduces the problem.

*Example of Sample Training set*

class: example

“How you doing?”

“good morning”

“hi there”

Some sample Input sentence classification:

input: “Hello good evening”

term: “hello” (no matches)

term: “good” (class: example)

term: “evening” (class: example)

classification: example (score=2)

The score represent which intent is most match to the given sentence but does not sure it is the perfect match.

3) **Artificial Neural Networks**-Neural Networks is used for calculate the output from input. The output is calculated using weighted connections that is calculated in thousand times during training of data for achieve accurate weighted connection. Every Sentence is divided into different words and for neural network each word treated as input.

## III. CONCLUSION AND FUTURE SCOPE

In this paper, the focus on design of chatbot and its work. Main purpose of chatbot is to reduce the human work or can say that minimize the human work and easily interaction of human and machine with natural language. The work of Chatbot can be improve with the use of various algorithms, training and pattern matching. The use of chatbot can improve the system performance. It can be used for commercial use such as help on commercial site like web shop and e-

commerce sites. It receive complaints from users online and provide the suitable solutions. But not limit the human conversation perfectly i.e. not to replace human role completely. So in future using upcoming chatbot all information user require, will get anytime and anywhere.

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