

AIML Based Human Interaction Bot on Android Operating System

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Abstract: It is artificial intelligence based chatbot using AIML built on Android. It presents the conversational system between human and computer using natural language processing. As an enhancement to well-known conversational agents like chatbots, in the proposed setting, the dialog between human and machine is intended as a query/answer monotonic process whose goal is reducing semantic ambiguity within communication and delivering the required output. The popularity of chatbots has made it useful in great variety of applications. This application will interact with the users and provide solutions to the problems. Artificial Intelligence Markup Language (AIML) comes from Extensible Markup Language (XML) which is used to build up artificial intelligence bots. In this project, AIML language is used for intelligent conversation between human and machine.

Keywords: Chatbot ,AIML, ALICE,Android

I. INTRODUCTION

The chatbot is an agent where the computer program is designed to have an intelligent conversation with the user. But to do this, AIML language is used as it is efficient and lightweight.. ALICE is the most popular open source AIML based chatbot which won Leobner Price three times (2000,2001, and 2004). So, now a day, various kinds of organizations are interested to implements AIML based chatbot to get conversation with customers with minimum configuration and cost. In tills paper, we focus on several applications whose implements AIML based chatbot with additional software packages to develop efficient applications. It exists a grammar based parsing which helps to understand the sentence intended by the user.. The efficiency of the parsing strictly depends on the complexity of the grammar involved. Polynomial-time parsers are largely available for context-free languages, which represent the formal base for most programming languages. In this paper, a dialogue-oriented technique for chat-based interface is presented. User can request for services in natural language by chatting with the system. If the content of the message is correctly interpreted, the corresponding service is delivered, otherwise a dialogue is instantiated to disambiguate the meaning of the request. The challenge of the proposed system is twofold:

1. make the HCI resemble an ordinary human-human conversation as much as possible;
2. let the user converge towards an unambiguous query formulation.

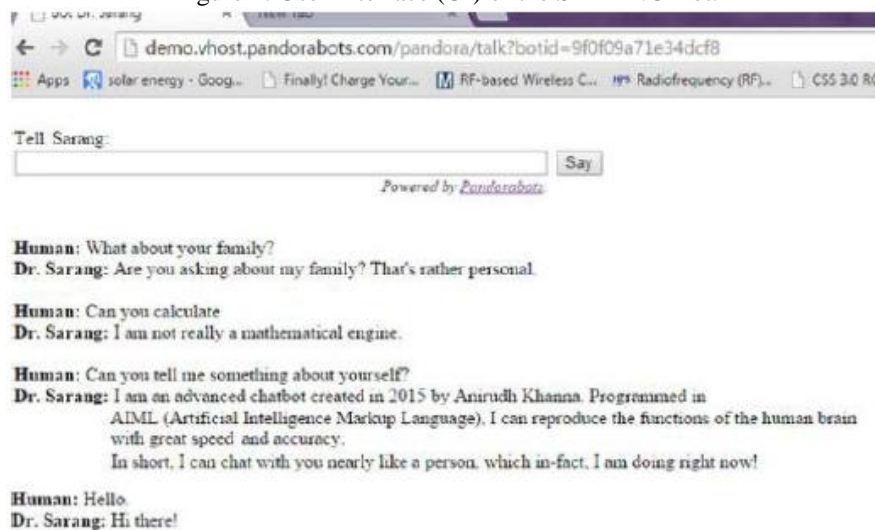
First point is obtained with the system providing disambiguated alternatives to user and asking him/her for missing pieces of information; the second point is fulfilled by reckoning a semantic score that allows for measuring the actual distance between the user query and the query interpretations performed by the system.

II. STUDYING CHATBOTS - ALICE, SARANG, FUTURE

FUTURE and SARANG are the names of the chat bots that were developed. They have written FUTURE bot in C++ which contains hundreds of responses. FUTURE Bot contains hundreds of if-else structure, loops and data file handling along with some other programming concepts. It has database consisting of hundreds of responses which are open source. Hence FUTURE is a rather rudimentary chat bot script when compared to others. The SARANG bot is more advanced since it is written in AIML language and has a large database of more than 50,000 responses. Choosing AIML provided the advantage of adding the open-source ALICE AIML set to SARANG Database directly and made it more efficient for research [3]. They have hosted this bot online for more research. To enhance productivity, we incorporated a calculator application in FUTURE

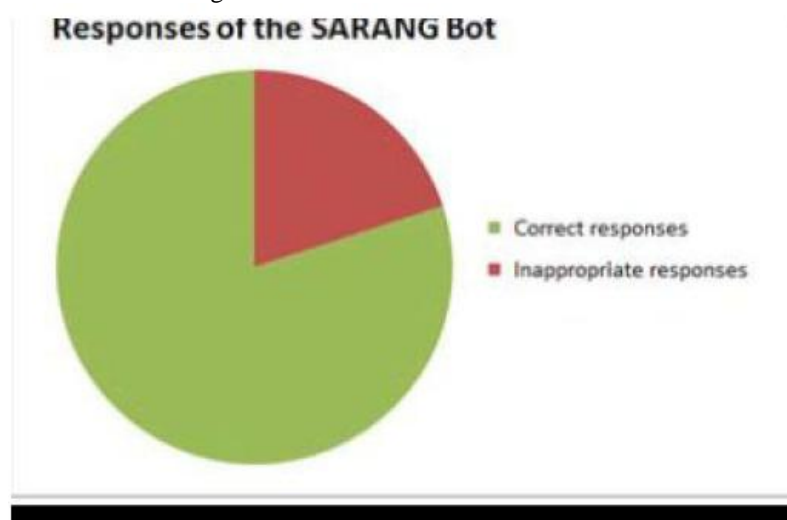
and some word games in SARANG and systematized their construction into logical parts. Moreover, we analyzed the capability and caliber of these chatbots and also made predictions about what improvements could be practiced for improvement. Fig. 1 shows the user interface of the SARANG Bot during a conversation.

Figure 1: User Interface (UI) of the SARANG Bot.



The figure shows the text input of the conversation with the user. ALICE is the pattern based bot using AIML It is open source and award winning bot. Also, the testing of SARANG bot was done by us. Of course because of their rather astounding human 1500 queries asked from it. The bot could give accurate and profile, chat bots can be of a source of entertainment and can satisfactory replies to nearly 1200 of them, which gives its assist users when they are bored. accuracy to be around 80%, which has been shown in Fig. 2.

Figure 2: Performance of SARANG Bot.



III. ARTIFICIAL INTELLIGENCE MARKUP LANGUAGE

AIML language is used for implementing artificial intelligence based projects especially for chatbots. The program has an object called as AIML object. It consists of topic and categories. The categories are the

basic units of knowledge in AIML. Each category contains pattern which contains input and template which consists of the answer of chatbot. Besides, there are containing some optional context called "that" and "topic". <that>contain chatbot the last utterance of a <topic>contain a collection of categories together.. AIML consists of words, underscore symbols and wildcard symbol like _and *. It is also case invariant. There are three type of categories.

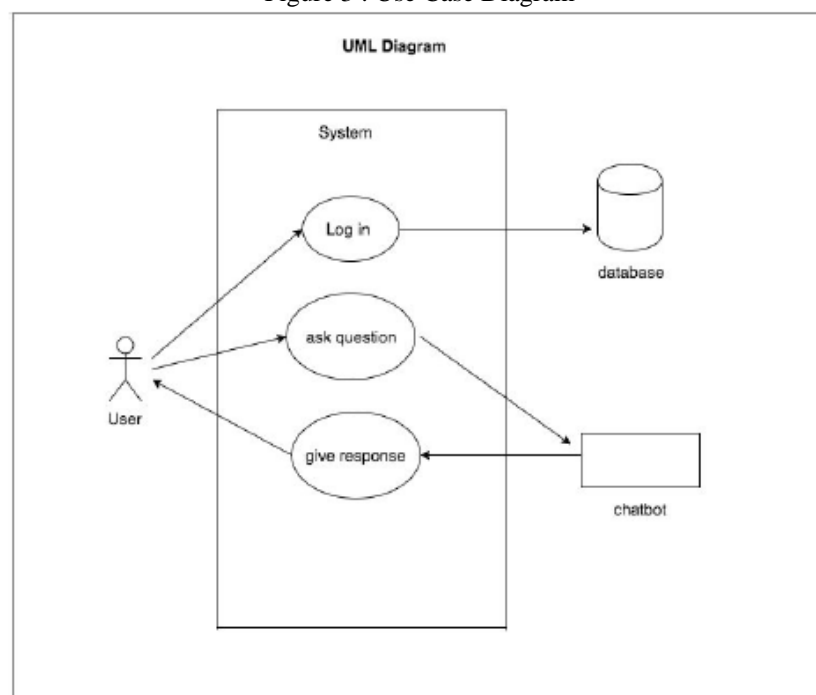
1. Atomic categories: These categories are patterns which have no wildcards.
 2. Default categories: These categories are those patterns which have some wildcards _like *. They have to match any input but differ with their alphanumerical order.
 3. Recursive categories: These categories are those having <sr>and <sr>tag which simply refer to recursive and symbolic reduction.
 - 1) Symbolic
 - 2) Divide and Conquer: It splits an input into two or more subpart and combines the response to each.
 - 3) Synonyms: It return similar answer in a pattern for nearest user pattern of it.
- Reduction: It reduces the complex grammatical forms to the simpler ones. AIML interpreter tries to match word by word to gain the longest pattern matching and try to find which the best one is. This behavior can be described with Graphmaster set of files and directories containing a set of nodes which is called node-master and branches represents first words of all patterns and wild card symbols.

IV. PROJECT OVERVIEW

User queries can be ultimately considered as objects with a particular lexical-semantic structure. These objects have to be retrieved from a set of possible records stored in a database (DB). In traditional keyword-based information retrieval (IR) systems, keywords are the entry to a term- document matrix, hence the use of correct keywords is essential for the user to get relevant results. Chatbots can be of great help as one can retrieve some necessary information while just having a casual conversation. A chat bot with access to vast Internet databases can be really versatile information source. They can answer questions like “what”, “where”, “when” and “how” in a conversational tone. Because of this, many companies install chat bots for their support question- answer services.

The system will have various modules like log in, register, responses, etc. There will be a local database which store user interests. The user can ask the question to the system and the system will respond to the user. The chatbot will be the server which will respond to user using AIML. It will contain 50000 responses stored in it already. It will need internet to get the responses from DB for efficient working. If not, the chatbot will reply with predefined pick up lines. In fig.3 we have use case of chatbot

Figure 3 : Use Case Diagram



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