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E-Commerce Website based on Chatbot

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Abstract: ***Nowadays, traditional markets are gradually are being replaced by many online marketplaces. Fierce competition in the online market demands excellent service from both sellers and buyers, so many online stores offer his 24-hour service. This service would certainly cost a lot of money if done manually. Chat bots can be used as a solution for automated shopping online. Second, the bot must be able to answer accurately and quickly. In this study, we propose an intelligent chatbot system based on AIML (Artificial Intelligence Markup Language) that can be used as an e-commerce assistant. Input questions from users are processed in her three phases: parsing, pattern matching, and AIML crawling the data. In the AIML process, user requests fall into his three categories: general questions, calculations, and inventory checks. Where compute requests intercept the order and payment process***

I. INTRODUCTION

In recent years, the worlds have seen the significant growth of the e-commerce industry. As an illustration, from a survey, the total worldwide revenue of the e-commerce in 2015 is around 1.55 trillion US dollars and projected to grow to 3.4 trillion US dollars in 2019. This significant growth can be happened since e-commerce offers a new business model in which a customer does not need to meet face-to-face with its seller counterpart. In this case, the seller does not need to provide a cost for renting a shop while the customer can order his/her favourite product with a minimal effort. Since seller and its customer are not required to meet each other, their interactions are usually done by exchanging e-mail or by utilizing an electronic messenger. The customer may ask several questions before deciding to buy a product. If the seller actively interacts with the customer, it may increases the reputation of the seller while the customer tends to purchase from a reputable seller. Thus, the seller responsiveness in answering any customer questions plays an important role in the success of a transaction. Nevertheless, in several condition e.g. in vacation or during a rest, the seller may unable to communicate with the customer. As a solution, the seller can employ several customer services to answer any questions from customer. However, it may involve additional costs for paying customer service officers. As an alternative solution, we can employ a system that can receive and understand the question from customer and, automatically, giving the best response in accordance to that question. Fortunately, in a last decade, many researchers are actively involved in the area of artificial intelligent and its related research topic including machine learning and natural language processing (NLP). With that advancement, we may able to develop a chat robot, or chatbot in short, which is an automated program that can interact with its communicating counterpart without any human intervention [2]. In order to build such a program, there are several challenges arise including : how to understand the asked question even though it contains any mistyped word, and then, select the best among several possible responses. In this paper, we propose the design and implementation of e-commerce chatbot system which provides an automatic response to the incoming customer-to-seller question. In general, the proposed system consists of two main agents : communication and intelligent part. In order to get the question message sent by the customer, the communication agent periodically performs a request to Telegram server using a standard HTTP protocol. Upon reception, it forwards that question to intelligent agent which then find the closest instance in predefined question-answer corpora. Notice that, we utilize the Levenstein distance to measure the difference between a submitted question with that of in predefined question-answer corpora. Once an closest instance is selected, the intelligent agent forward the answer to communication agent which then send the answer back to the sender through Telegram chat service.

II. EXISTING SYSTEM

The chat robot, or chatbot in short, is essentially a computer program which has the ability to perform a conversation with human in natural language. As a consequence, the chatbot program should be able to interpret the the sentences coming from its communicating counterpart although, in many conditions, the given sentence is not completely written or even contains a mistyped word. To do that, the chatbot developer should be familiar with several techniques including: text parsing, pattern matching, chat scripting language, and machine learning. In literature, there exists several research works that deals with the design of a chatbot for various purposes. In, the author presented the design of a chatbot with computational humor capability. It is able to interpret the humor from its chatting counterpart and express it in an avatar icon.

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Then, in author presented the design of chatbot which can simulate the history of a certain figure including his/her birthday, activities, political view and so on with the dataset taken from dbpedia and Wikipedia. In very different field, the chatbot can also be utilized to control a home device. However, as far as we are aware of, the research work on designing chatbot for e-commerce purposes is still very limited.

III. PROPOSED SYSTEM

A. Parsing Data and Pattern Mathing Data parsing is done as a process to determine whether a string / syntax of the query to be checked has been formulated in accordance with the syntax rules of the query in processing user requests in asking questions from the set of questions defined in the knowledge base of the chatbot, so it needs to be done a way to break down the series of input done by the user that will be used in the next compilation stage, namely semantic analysis. There are 4 stages that need to be done in the process of parsing data, namely: 1. Case Folding, is the process of converting all letters in a document into lowercase letters so that only the letters 'a' to 'z' are received when the user inputs the system because when the input there will be an uppercase such as "A" and lowercase like "a", this will inhibit the process of identifying queries in the data contained in the database. 2. Tokenizer, is a stage of cutting strings to input based on each word that composes them by dividing a set of characters in a text into words to distinguish certain characters that can be treated as word separators. 3. Filtering, is a stage of taking important words from the results of the tokenizer process by removing the less important words and storing important words contained in the database. 4. Stemming, is the stage of finding the root word of each word resulting from filtering to create an index that is done because a document cannot be recognized directly. At this stage, the process of returning various forms of words to the same representation is used to reduce the number of different indexes of a query. With the efficient data parsing, the pattern matching process can be used to analyze relevant texts [9] by forming a pattern that is applied sequentially to extract useful information by removing irrelevant details by selecting [10] to help pattern matching become an easy and efficient process. This technique is used in most Chatbots and is quite common in the question and answer system depending on the type of matching, such as natural language questions, simple statements, or semantic questions.

A. Artificial Intelligence Markup Language (AIML)

AIML is a display similar to XML because this algorithm contains a collection of patterns and responses that can be used by chatbot to trace answers to each sentence given in various programming languages so that the process of making chatbot can focus on the preparation of AIML documents. In AIML has two stages in the process of reading the text, viz:

1) The first step by reading the text of the dialog that has been inputted by the user and putting it in the vector.

2) The second stage uses a converter module, where the previously processed text is forwarded to the converter to consider the first turn as a pattern and the second as a template and continue by deleting all punctuation marks from the pattern and turning them into letters that are carried out during this phase. At this stage, there is a context vector which is the input from the user to get the reply vector as the appropriate response output so that data crawling is needed in the database .

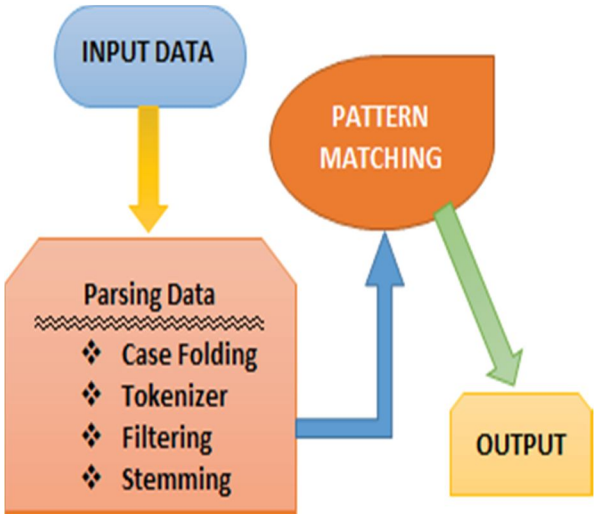


Fig. 1. Parsing Data and Pattern Matching Architecture

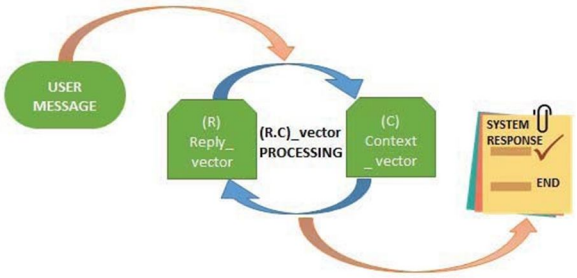


Fig. 2. AIML Architecture

1) Architecture Diagram of Proposed System

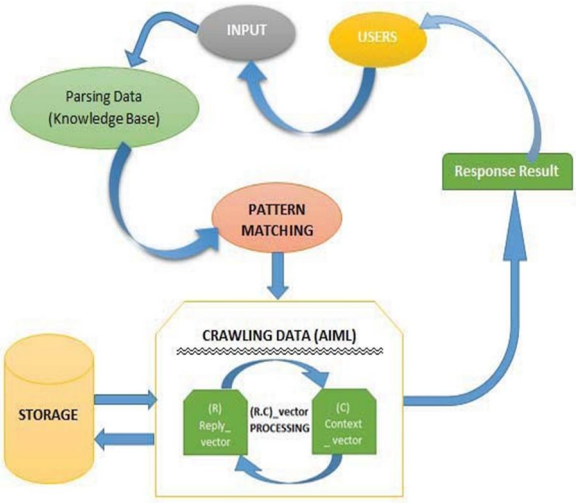


Fig.1 -Architecture of proposed system

2) Data Flow Diagram Of Proposed System

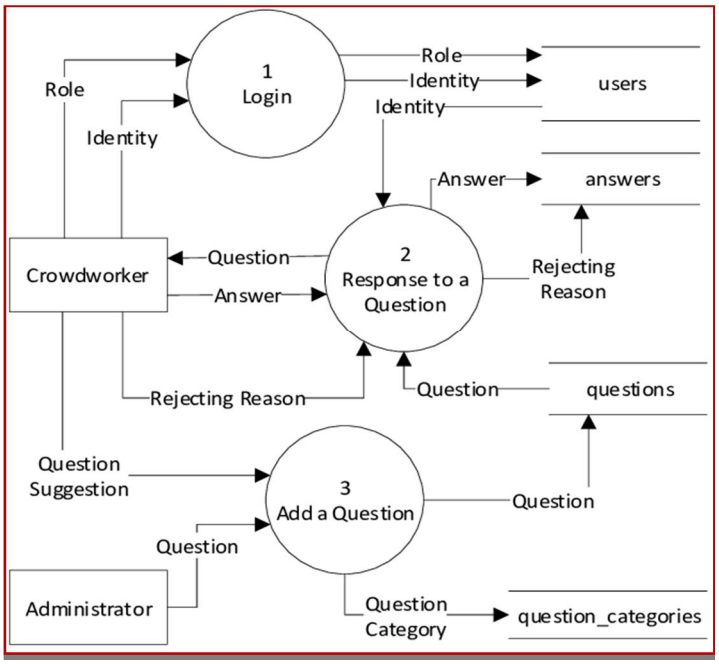


Fig.2- Data flow Diagram of proposed system

IV. COMPARISION WITH EXISTING SYSTEM

Table I: Comparion Of Existing System And Proposed System

Features	Existing System	Proposed System
User Interactive		
User Friendly		
Payment Gateway		
Overview Of Products		
Images and information about products		
User		

V. SUMMARY

We design and implemented the ecommerce chatbot system which provides an automatic response to the incoming customer to seller question. This present NLU trains its classifier from the classified training data by the admins. Also it is based on SVM. Artificial Neural Network can be used to improve the accuracy of NLU Engine. Also a semi- supervised learning system can be implemented in order to increase the dataset. The platform can be made available to word press based system because 60% e – commerce websites are provided by woo commerce which is a word press plug-in. A website based chatbot that attempts to improve user interaction with the E- commerce website. The chatbot has stored set of responses, but also takes dynamic user input into account and thus tends to provide relavent responses and product suggestions.

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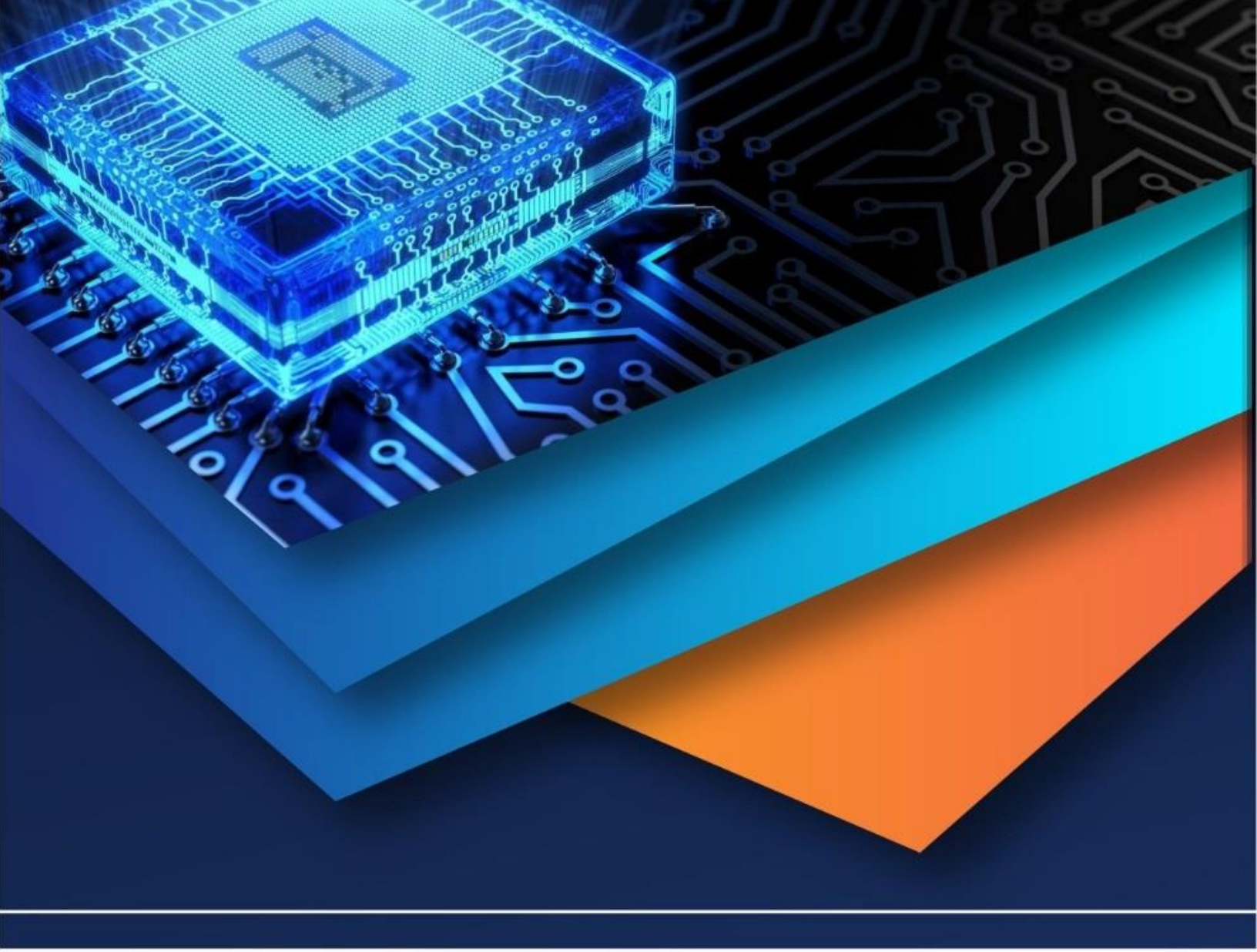
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