
RESEARCH PAPER ON RULE BASED CHATBOT**Vajinepalli Sai Harsha Vardhan^{*1}, Parsi Anurag^{*2}, Richa Sharma^{*3}**

^{*1,2}Student Member, CSE, The School Of Computer Science And Engineering, Lovely Professional University, Phagwara, Punjab, 144411, India.

^{*3}Fellow, CSE, The School Of Computer Science And Engineering, Lovely Professional University, Phagwara, Punjab, 144411, India.

ABSTRACT

A chatbot is a piece of programming that permits a client/human and a machine to impart in normal language, similar to how human chats are conducted. Chatterbots engage in a conversation with the client and respond to the client based on human input. It gives the impression that the user is conversing with a human when they was having a conversation with humans or with a computer. The chat bot program enables customers to obtain answers to their questions from any location with an internet connection and receive respective responses. This chatbot system saves the Owner's time by delivering the necessary information to the customer and reducing the Owner's workload by allowing him to focus on the customer's questions.

The general motivation behind this examination paper is to foster a calculated starting point for researching the client maintenance process, with the utilization of the ideas of consumer loyalty and relationship quality. Consumer loyalty is vital for insurance agency to screen to see which region of their client assistance are solid and which regions need improvement to keep up with or increment their participation base.

Keywords: Chatbot, Nodejs, Html, CSS, Javascript, NPM, Enquiry, Response, Query.

I. INTRODUCTION

A chatbot is a piece of software that helps in the natural development of a conversation with a user. AI has become increasingly complicated as data innovation and correspondence have progressed. Artificial intelligence frameworks mirror human way of behaving's like going with choices at the time, executing routine jobs, responding to users fastly , and answering questions. E-business, entertainment, virtual aid, and other electronic groups abound. In this generation, everything is becoming more and more connected to the internet. It's a very good way to manage and benefit from everything that's just outside your door. At runtime, they have a very limited knowledge base no way keeping track of all the talks. Chatbots employ machine learning to assist AI in understanding user queries/doubts and providing an appropriate response to the user. For conversing or engaging with the user, they are created utilizing the AI Markup Language. Answering engines are another name for chatbots. Because the knowledge has already been programmed in advance, this application works in a very straightforward manner. Design coordinating, normal language handling, and information mining are a portion of the methodologies utilized in the application. The chatbot looks at the client's provided sentence to a current example in the information base. Each example is assessed to the chatbot's information, and This data was accumulated from an assortment of sources. Consumer loyalty with an organization's administrations is as often as possible saw as the way in to an organization's drawn out progress and seriousness Customer satisfaction in the protection business, for example, charge card protection, is getting a great deal of consideration. A competitive market like credit card insurance, a solid marketing approach is essential [1]. Consumers are increasingly using credit cards, even though its elements are complicated and complex. Most credit cards include a complementary insurance product as part of their package. Consumers are frequently unaware of these complimentary items, and the inclusions and benefits might be difficult to comprehend. [3] Most cards and accounts, nonetheless, Clients are frequently uninformed about the subtleties encompassing what this cover incorporates, on the off chance that the cover incorporates family or voyaging friends, how the cover is actuated, and who to call when they need assistance or need to make a case. Consumer loyalty with an organization's administrations is in many cases considered the way to progress and long haul intensity for an organization; be that as it may, clients know nothing about the subtleties encompassing what this cover incorporates, assuming the cover incorporates family or voyaging colleagues, how the cover is enacted, and who to call when they [7] Insurance professionals also needed processes. Getting all of the data they require is a troublesome undertaking. To uncover the solution, insurance staff had to go through a mountain of paperwork.

[6] As a result, the only method to get immediate assistance was to call endorsing or deals support - even for simple "how-to" questions or answers to FAQs. [8] This system is overburdened. Call centers have long wait times. As a result, customers are disappointed and unsatisfied with their interactions, lowering throughput and business performance significantly. According to research, approximately 75 percent of clients have had terrible client service. [2]- [4].

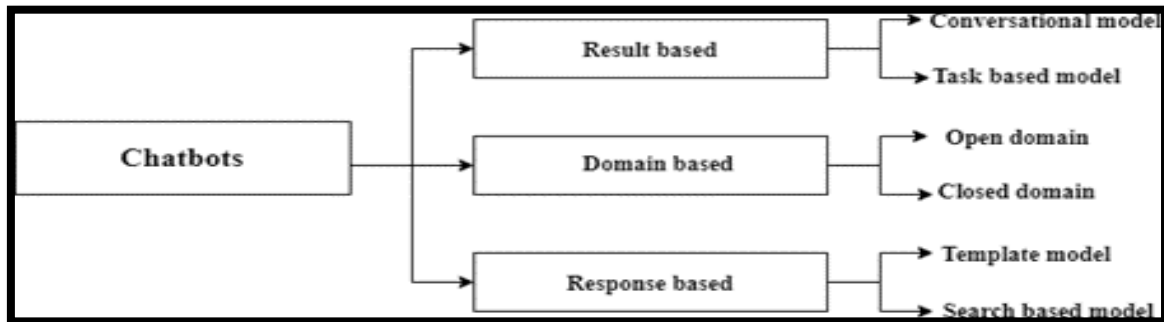


Fig 1: Classification of chat bot model [5]

History:

One of the first recognised chat bots was ELIZA, a computer software built at the MIT AI Laboratory in 1964. To comprehend the intricacies of human language, ELIZA uses a technology known as natural language processing. It recognised key tags (essential phrases) and was able to answer some basic decision tree problems [1]. The creation of ELIZA signalled the start of the first generation of conversation bots. Organizations like MSN and AOL started involving this innovation in robotized phone frameworks that utilized incredibly crude choice trees in the late twentieth century. ELIZA was quickly followed by PARRY, a far more sophisticated bot. Kenneth Colby, a psychiatrist, came up with PARRY. Parry as able mimic the actions of a person suffering from paranoid schizophrenia. By the late 1970s, a growing number of bots had been developed to replace the previous generation bots. [9] Chatbots were quickly adopted by the general public. A chatbot, was develop as another breakthrough in this discipline. A.L.I.C.E was the most powerful natural language processing chatterbot at the time. That was utilised (AIMarkup Language) [10]

Table 1: Techniques and models used in some chatbots.

CHATBOT NAME	MODEL	TECHNIQUE USED
ELIZA	Template Based	Identification of keyword and Pattern matching
PARRY	Conversational model and Template	Pattern matching with transformation rules

II. LITERATURE REVIEW

Many programmes consolidate a human look and attempt to replicate human communication, but in the vast majority of situations, the information needed for bot conversation is stored in a database established by a human specialist. We may create several types of chatbots using AI; for example, in this work, we created a Food Delivery chatbot. [16] It includes features such as the Enquiry Process, Tracking, Price Details, Size, and Additional Ingredients. This study shows how we can deal with recognising the most important facts in writings describing the life of a real person in order to create a conversation operator that might be used in middle school CSCL circumstances. CSCL is used both online and in the classroom, It happens both synchronously and asynchronously in classroom learning situations. [11] Informative innovation, instructive brain research, human science, mental brain research, and social brain science are only a couple of the intellectual areas that investigate CSCL learning. A chatbot, according to Benton and Radziwill (2017), is a method of engaging with humans online through computer software that is brought to life through natural language input. Others define it as an artificial intelligence-based computer application that mimics human communication. [14]

According to Schlarl (2004), a chatbot is software that allows natural language textual communication. Users find it difficult to understand that the chatbot isn't a real person, which emphasises the significance of a huge

information base, which is the current arrangement of rules a chatbot has.

Chatbots will before long become perhaps the best ways for business to speak with individual clients and quickly resolve their issues. Furthermore, the recent interest in chatbots has greatly contributed to key developments involving the rise of messaging services and breakthroughs in AI. (Guzman&Pathania,2016) Chatbots live in task-specific applications, imitating a human dialogue for educational, conversational, or esteem-based purposes.[16]

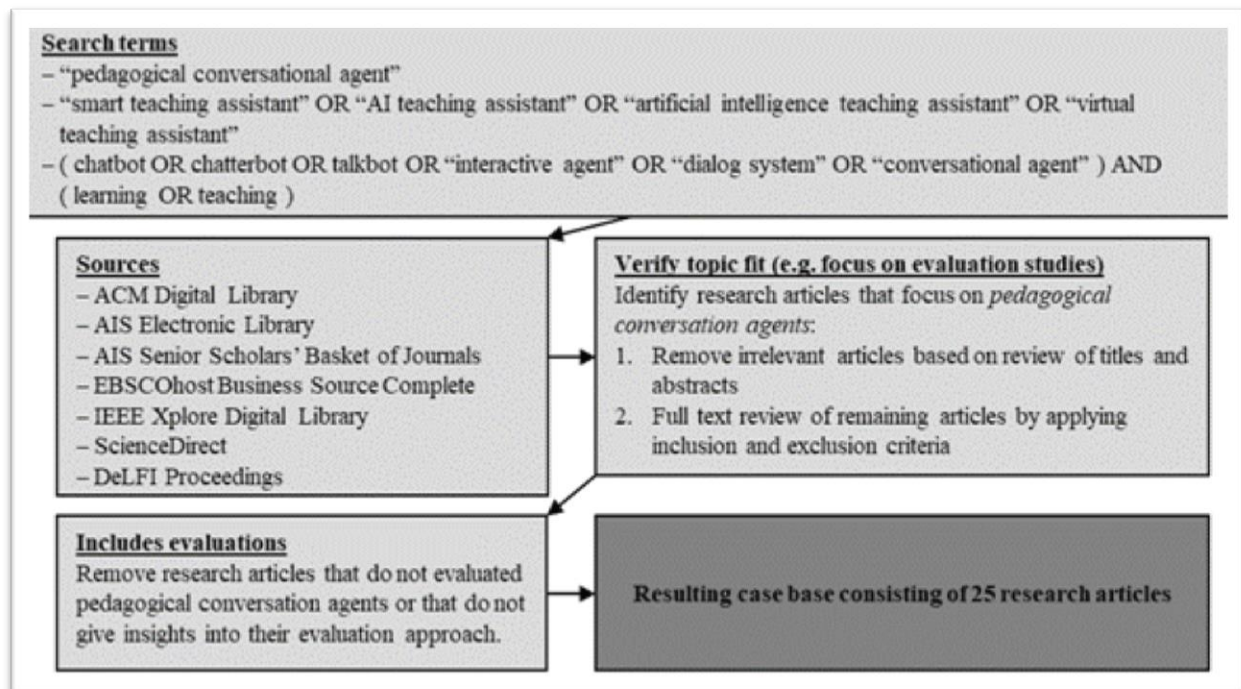


Fig 2: Chatbot using AI [8]

III. PROPOSED SYSTEM

Enquiry Chatbots are created with the help of the chatterbot calculation, a Python module that simplifies it to produce mechanized reactions to client input. Developers may easily create chat bots and automated chats with users as a result of this. [15] Presenting information and taking inputs are two of the chatterbot's tasks. The suggested system consists of an online application that responds to the Provider's inquiries [14]. Users will ask questions through the chatbot, which is utilised for talking. Questions might be related to the Enquiry process or to solving the customer's problem.

The responses are determined by the user's inquiries. Users are not required to visit the for inquiries on a regular basis. The chatbot evaluates the question and then responses to the user. The framework responds to the user's questions as if it were being answered by the individual. [14]

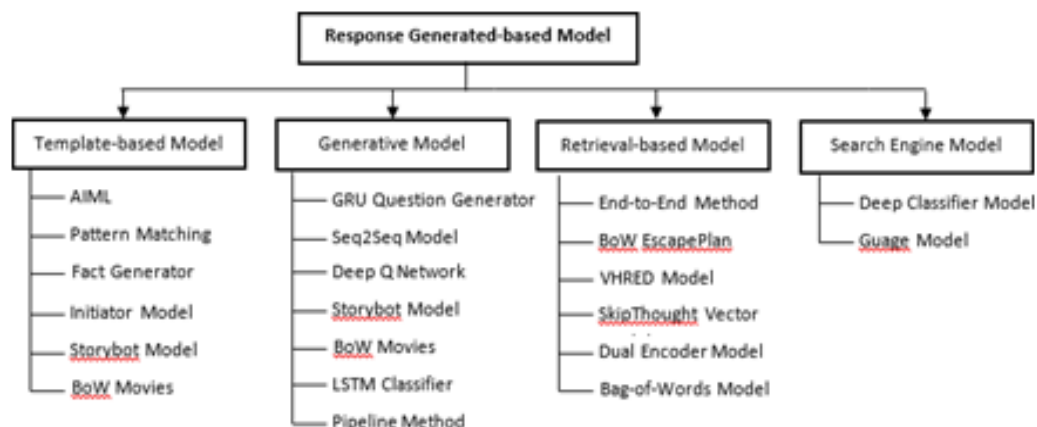


Fig 3: Types of chatbot models. [14]

The proposed system simply receives an inquiry from a user, which may be a customer, and the chatbot matches it with the knowledge base and provides an appropriate response. The Enquiry Chatbot[12] allows users to raise any query-related activity. The Chatbot system responds to the enquiry as if it were being answered by a human. The chatbot responds with the help of a decent UI that makes it appear as though a real person is reprising the user. With simply a click on the chatbot, the Customer is guided through the chatbot enquiry process. [9] The proposed technology can also answer general questions about the college application process. The flow chart below depicts the entire system's algorithm.

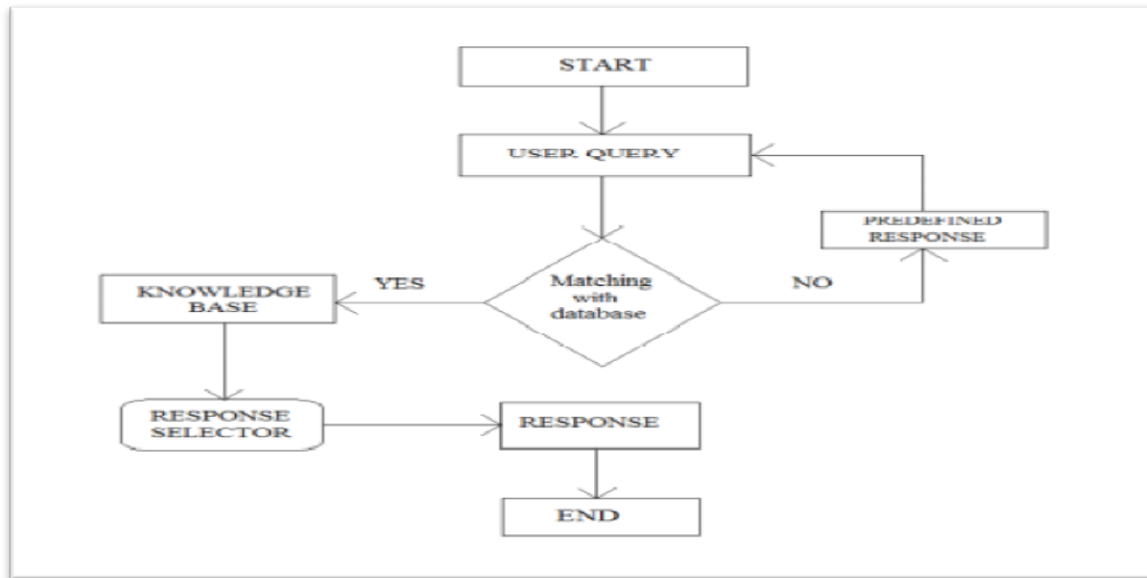


Fig 4: Flowchart of Query solvers. [11]

IV. APPLICATIONS

- Conversational enquiry chatbot helps Customers to get the right source of information.
- Not only our chatbot but any chatbot will provide them with an instant as well as accurate response.
- AI based Chatbot system can be used by colleges and businesses.

V. RESULTS AND DISCUSSION

The proposed system was put to the test and proved to be effective and feasible. It saves the owner's and workers' time and manpower. It also saves workers the time and effort of going all the way to the restaurant store to inquire. In this work, we designed a chatbot that would communicate with users and deliver all information connected to food orders. A chatbot is used to communicate between the customer and the owner. The owner admin will update any inquiries that the chatbot does not answer.

VI. FUTURE SCOPE

In the future enhancement of our enquiry chatbot, we can make it more interactive in various languages for users located in different regions. we can include speech-based questions and responses for people who cannot read and type their queries. The future chatbot should not only provide the answer but also the solution to the problem of the customers.

VII. CONCLUSION

The main objective of this chatbot was to develop an algorithmic program which can establish the user queries or queries and answer according. To develop a info where all the connected knowledge is kept and matched with the queries once a question is raised. we tend to with success developed a chatbot within which the client will raise a question associated with the Enquiry method. The chatbot analyses the question and provides the response consequently. Superannuated practices have long slowed the insurance industry. However, combining a new way of thinking with newly emerging computing technology can possibly totally change the 60-client experience, permitting it to offer superb support such that requests to present day clients. This paper

examines the consecutive consideration instrument in profound rehashing brain organizations, as well as the related plan for an AI chatbot framework with self-learning abilities. The primary objective is to address a critical hole in this investigation field by giving an adaptable talk connection point to request reaction.

VIII. REFERENCES

- [1] R. A. Girle, "Eliza and the Automata," Proceedings of the Third Annual Conference of AI, Simulation, and Planning in High Autonomy Systems 'Integrating Perception, Planning and Action', Perth, Australia, 1992.
- [2] Punith, Chaitra, Veeranna Kotagi, Chethana R M, "Chatbot for Student Admission Enquiry" in Journal of Advancement in Software Engineering and Testing.(2002)
- [3] Emil Babu and Geethu Wilson, "CHATBOT FOR COLLEGE ENQUIRY" in International Journal of Creative Research Thoughts.(2008)
- [4] Hattie, J. Visible learning for teachers: Maximizing impact on learning.(2012)
- [5] Ayedoun, E., Hayashi, Y., & Seta, K. A Conversational Agent to Encourage Willingness to Communicate in the Context of English as a Foreign Language. Procedia Computer Science, (2015).
- [6] Ashok, G., Brian, C., Mithun, K., Shanu, S., Abhinaya, S., & Bryan, W. Using Watson for Enhancing Human-Computer Co-Creativity.(2015).
- [7] Guruswami Hiremath, Aishwarya Hajare, Priyanka Bhosale and Rasika Nanaware, "Chatbot for education system" in International Journal of Advance Research, Ideas and Innovations in Technology. (2016)
- [8] How AI& machine learning produced robots we can talk to. Business Insider. (2017).
- [9] M.Nofer, P. Gomber, O. Hinz, and D. Schiereck, "Blockchain," Business & Information Systems Engineering, Jun 2017.
- [10] Kumar Shivam; Khan Saud; Manav Sharma; Saurav Vashishth; Sheetal Patil, "Chatbot for College Website" in International Journal of Computing and Technology, June 2018.
- [11] Winkler, R., Söllner,: Unleashing the Potential of Chatbots in Education: A State-Of-The-Art Analysis. In: Academy of Management Annual Meeting (AOM). Chicago, USA.(2018)
- [12] Colace, F., De Santo, M., Lombardi, M., Pascale, L., Pietrosanto, A. Chatbot for E-Learning: A Cases Study. International Journal of Mechanical Engineering and Robotics Research September. (2018).
- [13] Lip ko, Meet Jill Watson: Georgia Tech's first AI teaching assistant. Retrieved on March 9, 2019.
- [14] Johan Redström, Patricija Jaksetic and Peter Ljungstrand, "The ChatterBox" in RISE Research Institutes of Sweden.(2019)
- [15] Chatbot ALICE, ALICEAL Foundation, Virtual Assistant ALICE (Accessed: 1 January 2020).