iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 14 **Issue:** VII **Month of publication:** July 2026

DOI: https://doi.org/10.22214/ijraset.2026.84205

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 14 Issue VII July 2026- Available at www.ijraset.com

Automatic Question Answering Systems: A Comprehensive Review

Sanah Nashir Sayyed[1], Bharat shelke[2], C. Namrata Mahender[3]
[1]*Research Scholar, Department of Computer Science & IT, Dr Babasaheb Ambedkar Marathwada University, Chh.sambhajinagar*
[2]*Professor, Department of Computer science, SCS college, Omerga, Dharashiv*
[3] *Professor, Department of Computer science & IT, Dr Babasaheb Ambedkar Marathwada University, Chh.sambhajinagar*

Abstract: ***Users can use search engines such as Google and Yahoo! to search for documents on the World Wide Web. It takes time, but the user of a search engine must go through each document to find an answer that is relevant to the question. The Query Answering (QA) method reduces the amount of time spent searching for the exact answer to a question. The study of question-answering systems is an important aspect of the field of information retrieval. The year 1960 saw the start of research into question-answering systems, and since then, a plethora of different question-answering systems have been developed. The Question Answering system combines research from several fields, including Natural Language Processing, Artificial Intelligence, Information Retrieval, and Information Extraction. The goal of a question answering system is to provide a precise response in natural language to the user's question. The availability of various resources for responses is used to differentiate between different types of question answering systems. In comparison to the open domain question answering system, the closed domain question answering system provides more precise and accurate responses.***
Keywords: Query Answering (QA), Classification Automatic Question and Answering System, Question and Answering System's General Architecture etc.

I. INTRODUCTION

There are many rising online sites to receive information connected to a variety of issues, such as health, economics, education, and industry news, and the amount of people using the internet is on the rise. Search engines like Google and Yahoo can be used to locate a ranked list of pertinent web pages in response to user-formulated queries based on various metrics such similarity detection, frequency of document visit, etc. Using search engines requires users to examine each document separately to acquire the necessary information, which makes the procedure time-consuming. The much more suitable and precise response to a question being asked by a human in Natural Language is obtained by using current Question Answering (QA) technologies. Information Extraction (IE), Natural Language Processing (NLP), Information Retrieval, and Computer Science are some of the subjects that make up the rapidly expanding research field of question answering (IR). To provide accurate responses to natural language inquiries, Question Answering systems require general natural language processing techniques [1][2]. Instead of returning the entire document, the primary goal of a Question Answering system is to provide only the answers to the questions asked. When users want answers to their questions but prefer to phrase them in natural language rather than a query, question answering provides the ideal option. Section II describes literature review on automatic question answering system. Section III describes classification automatic question and answering system. Section IV describes Classifications of questions. Section V shows general architecture of question and answering system. Section VI shows Approaches of Automatic Question Answering System. Section VII includes conclusion.

II. LITERATURE REVIEW ON AUTOMATIC QUESTION ANSWERING SYSTEM

Author and Year	Techniques	Lacuna
Maria Vijoy et.al.,(2016) [3]	Jaccard similarity	There is need to work on synonym checking to improve the result
Junichi Fukumoto et.al.,(2007) [4]	BE method	It is important to work on lexical and syntax structure toget better performance of BE matching.
Tilani Gunawardena met.al.,(2015) [5]	Random Classification of Templates, Similarity Based Classification, Weighting Template Classification	There is need to work on to weighting method and generate template automatically.

Shervin Minaee et.al.,(2017) [6]	Deep learning method	There is test the result with another technique also
ChaninPithyaachariyakulet.al.,(2018)[7]	TREC LiveQA 2015 and 2016datasets,LambdaMART, TF.iDF, Okapi BM25, cosine similarity	There is need to work on other datasets also
Wenxiu Xie et.al.,(2018) [8]	Perceptron, Random Forest, Gaussian Naive Bayes, and k-Nearest Neighbor, support vector machine.	There is need to test the result with another dataset also.
VishwajeetKumar et.al.,(2019) [9]	BERT Model	To improve result by using different techniques.
David Dominguez-Salet.al.,(2006) [10]	Maximum Entropy, Ad- aBoost and SVM	There is need to work on different methods to check the accuracy of result
ShivaniG.Aithal et.al.,(2021) [11]	SQUAD2.0, Cosine Similarity	The identification of the unanswerable questions remains an open challenge
Jafar A. Alzubiet.a;.,(2021) [12]	TF-IDF vectorizer, Bidirectional Encoder Representations from Transformers (BERT), SQuAD 1.1 dev dataset	There is need to add multilingual feature in model.
Tilani Gunawardena et.al.,(2010)[13]	template based method	One of the disadvantages of template-based method is that we must write template manually.
J. Gregory Caporasoet.al,.,(2006)[14]	Latent semantic analysis	It is important to work on other dataset to get the better accuracy in result.
Shilpa Sharma et.al.,(2018)[15]	Preprocessing technique and web crawling	One of the disadvantages of proposed system is that it depended on the performance of search engine.
ShiyanOu et.al.,(2008)[16]	ontology parsing	One of the disadvantages of using this system it cannot cover all types of questions.
Min-kyoung Kim et.al.,(2008)[17]	Named Entity Recognition, sentence splitting, sentence filtering	There is need to work on search engine which responds in the form of question and answer instead of returned set of web articles.
Yikang Shao et.al.,(2020)[18]	TF IDF	It is important to work on automatic or semi-automatic generation method of the intent identification.
Pawan Kumar et.al.,(2014)[19]	Named Entity Recognition, sentence splitting.	There is need to improve the performance of system by applying different techniques.
Meera Udani et.al.,(2013) [20]	Preprocessing techniques.	There is need to add speech recognition feature in the current system that will be helpful for the disabled people also.
Shen Song et.al.,(2018)[21]	Clustering, rule-based method, BLEU similarity measurement technique.	There is need to work addition of another method to get the accurate answers.
Widodo Budiharto et.al.,(2020)[22]	Deep Learning, RNN and CNN	There is need to work on the squad 2.0 dataset to answer the unanswerable questions.
Francesca Alloatti et.al.(2019) [23]	Deep Learning, BERT	There is need to compare the result with BERT and other tools also.
Yikang Shao et.al.(2020)[24]	TF IDF	There is need to work on the automatic or semi-automatic generation method of the intent identification.

III. CLASSIFICATION AUTOMATIC QUESTION AND ANSWERING SYSTEM

A. Open domain question answering system:

In contrast to specialized systems, those in the "open domain" can respond to questions posed in any language and in any context. Most web-based QA systems are public domain, making the web the best place to look for answers in this age of widespread internet use [8]. An open-domain QA system uses resources like the Internet and a unified taxonomy to provide comprehensive question-and-answer coverage of virtually any topic [25].

If you're looking for a QA solution that doesn't rely on a specialized lexicon, go no further than open domain QA. Users can ask inquiries without having any prior background in the subject area. The questions and answers in open-domain QA systems are typically sourced from a sizable database. Wikipedia is a valid resource for open-domain QA tools. The answers supplied by people in open-domain QA systems are of poor quality. Unlike closed-domain QA tools, open-domain tools rely on global data and a common ontology.

B. Closed domain Question Answering System

Questions in a Closed domain QA system are only relevant to the subject area that they are based on, which means that the system restricts itself to being web-based. A closed domain question-and-answering system has access to a restricted number of questions and can only answer a small subset of those questions. Therefore, the quality of the replies is good in question answering systems for closed domains. Closed domain QA systems provide responses to questions pertaining to the closed domain, and the responses are searched for within the closed domain's document collections. Closed domain question answering systems are meant to extract answers from structured data (such as databases), unstructured data (free texts), and semi-structured data (such as XML-annotated texts) [26]. Closed domain question answering systems make use of terminology and ontology that are unique to the closed domain. There are a variety of Closed domain question answering (QA) systems that have been developed, such as the medical domain question answering system, the temporal domain question answering system, the community-based question answering system, the geospatial domain question answering system, the patent question answering system, and so on. It is possible to create open-domain question answering systems by merging multiple closed-domain question answering systems. Closed domain question answering systems have a limited work domain and are more valuable to users who experts in the closed domain.

IV. CLASSIFICATIONS OF QUESTIONS

The process of answering users' questions based on the categories of those inquiries. This means that the queries requested of Question Answering systems get an immediate impact on the results. There are many distinct question types, therefore we've categorized them accordingly. Here are some broad classes of questions to look out for:

A. Factoid type questions [what, which, when, who, how]

The wh-word is frequently used to introduce questions of the factual nature. The responses to these questions can be given with a single sentence or a few words at the most. Such factual questions as "Who is the prime minister of India?" require only a name to be provided as an answer, drastically cutting down on the solution space for probable solutions [27]. Named entities typically serve as the answer types for factoid-style questions. Factoids-style queries are easy to answer satisfactorily. Factoid inquiries typically have a big pool of questions. Answers to factoids-type inquiries can be obtained without sophisticated natural language processing. Classifying factoids and subcategorizing them is a question-answering system research problem. Short phrases, such as organizations, people, dates, and places, can be used as answers to factoid-type questions.

B. List type Questions

To answer list-style questions, such as "list the names of some national leader?" you'll need to provide a list of relevant data or names. The response categories for the list-style questions are identified by their names. Therefore, the results of list questions can be very reliable. When it comes to answering list-style questions, Q&A systems don't need sophisticated natural language processing. The strategies used for answering "factoid" questions are also applicable to "list" questions [28]. Defining a minimum required quantity of an entity or number is a common requirement in list-style questions.

C. Confirmation Questions [yes or no]

Confirmation questions require yes or no answers. For example, the confirmation type question "Is raju going to college? requires a yes or no answer. Answering confirmation questions requires world knowledge, an inference mechanism, and common-sense reasoning. One of the benefits of asking Confirmation type questions in QA systems is that some expert users may want to investigate for information that requires common sense reasoning and world knowledge. Confirmation questions in QA systems have a drawback in that they necessitate advanced knowledge acquisition and retrieval methods, that are currently in the research and development phase. Aside from the issues of confirmation that were discussed previously, there may also be questions of opinion that require knowledge that is more subjective regarding an event or an entity. Techniques involving the social web and opinion mining are utilized by QA systems to collect responses to queries of the opinion variety [29].

Because consumers can benefit from hearing public perspectives from opinionated data sources, which can help them develop judgements about many things, it is beneficial to do searches of this kind. One limitation of opinion-based queries is the difficulty that arises when trying to truly mine the text for opinions due to the detection of spam or fraudulent information.

D. Causal Questions [why or how]

The responses to factoid-type inquiries, refer to specific people, places, or things but casual questions do not refer. Causal questions demand replies to explanation about a thing. Users who are looking for answers such as reasons, explanations, elaborations, and the like in relation to certain objects or occurrences are the ones most likely to pose causal queries. For example, why is sir taking a lecture in the meeting hall? Answers to causal inquiries are often descriptive and can range in length from a few phrases to several paragraphs or perhaps an entire essay [30].

E. Hypothetical Questions

There is no requirement for providing precise answers to hypothetical questions. It is common practice to begin discussions on hypothetical circumstances with the question "what if?" These questions have a poor level of reliability and accuracy, and their performance is heavily reliant on the individuals who utilize them as well as the context in which they are administered [31]. When it comes to questions that can have speculative replies, there is a wide variety of possible responses. As a result of this fact, giving responses to hypothetical questions is not a very reliable method.

F. Complex Questions

Conducting research and compiling information on complicated subjects takes more time, the answers to those questions are often presented in the form of a bulleted list of "nuggets." To provide a satisfactory response to a difficult question such as "What are the causes of water pollution?" it is frequently required to make inferences and synthesize information obtained from a variety of sources. Finding answers to difficult questions demands using more involved strategies [32]. It is difficult to obtain a response to a complex question since the question demands data from a diverse variety of sources. To obtain an answer to a difficult question, it is required to look at many different sources.

V. QUESTION AND ANSWERING SYSTEM'S GENERAL ARCHITECTURE

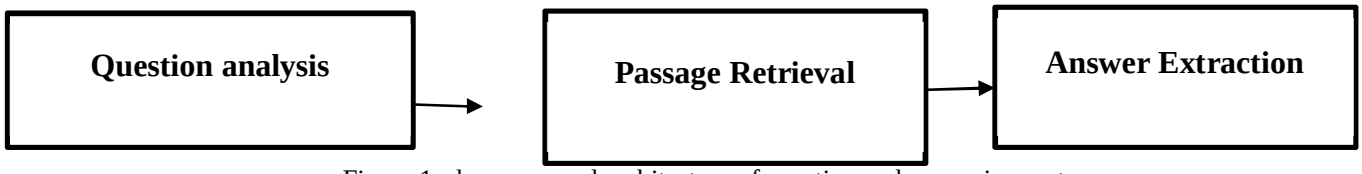


Figure 1: shows general architecture of question and answering system

A. Question Analysis

To provide an appropriate response to a user's inquiry, a QA platform needs to contain a question analysis module. Discovering the nature of the question posed by a user is the initial stage in the process of locating a response to that query [33].

In the QA process, there is no step more important than the stage in which questions are analyzed. Finding out what kind of question is being asked is the purpose of this module's investigation. The server-side tokenizer will convert an online user's question into words whenever that person submits it. The process of analyzing the question begins with this phase. The next thing that must happen is for the answer type detector to figure out the kind of response that was given. The categories of questions are broken down in Table 1, which demonstrates how they can be used to deduce what the answer should be.

Table 1 provides an example of the type of expected response for the classification question.

Question Classification	Expected Answer Type
When	DATE
Which	PERSON/DATE/LOCATION
Why	REASON
What	PERSON/DATE/LOCATION
Who	PERSON

B. Passage Retrieval

This part determines which articles in the database are related to the question at hand and extracts a few pertinent paragraphs from each. The solution can be found in the succeeding paragraphs. Best option is the one that has the highest scoring paragraph. Extracting the passage from the database that contains the candidate answer text is the job of the module for getting relevant passages from the database [34]. We can measure how far the inquiry is from the documents by calculating the term-frequency (TF) and inverse document frequency (IDF). The document with the highest relevance to the answer can be obtained based on its ranking. Most QA tools are based on adapted versions of Information Retrieval (IR) methods that analyze text in terms of individual passages rather than the whole document.

C. Answer Extraction

Using the Answer Extraction module, the solution can be derived from the statements that came out on top after being ranked. In the module that is responsible for extracting answers, the response that is the most pertinent is chosen as the correct one, while the other responses are regarded as potential alternatives [35]. This subsystem's major responsibility is to evaluate each of the potential responses to a query and choose the one that provides the most relevant information. We can determine the most appropriate response to a question by utilizing an answer similarity checker in conjunction with an answer ranker. We compare the number of times that the same keywords were used in the query and the results to establish the degree to which two different groups of results are comparable to one another. The answer ranker assigns each response a ranking based on how important it was to the whole discussion.

VI. APPROACHES OF AUTOMATIC QUESTION ANSWERING SYSTEM

A. Linguistic Approach

Building a question answering system requires knowledge of natural language text, linguistics, and general knowledge. Therefore, many of the early researchers counted on AI-backed methodologies, which combine natural language processing (NLP) strategies and knowledge bases or corpora to build QA logics. A wide variety of knowledge representations, including production rules, logics, frames, templates (expressed with triple relations), ontologies, and semantic networks, are drawn upon during the analysis of question-answer pairings. All these specifications are neatly catalogued in the form of production regulations. The user's question was processed using linguistic methods including tokenization, POS tagging, and parsing to provide a precise query that selectively retrieves the relevant response from the organized database [36]. To improve the user experience, these methods were added in response to a user's request. However, this lack of flexibility is exacerbated by the fact that different application domains require unique grammar and mapping rules, which can only be accommodated by deploying a knowledge base specific to that domain. Due to the lengthy nature of creating a relevant knowledge base, these kinds of systems are often used to address issues with ongoing information requirements in a certain domain.

B. Statistical Approach

Statistical methods have become so important as of now with the current state of research, resulting in the fast growth in the number of online text repositories and web data sources. The methods propose such procedures that could handle not only the enormous amount of data but also the data heterogeneity. Besides, statistical methods are not tied to structured query languages and can frame questions in natural language rather than a predefined syntax. However, the approaches, when taught appropriately, yield superior results compared to other competing approaches though they need enough data for sharp statistical learning. Moreover, because it is not tied to any form of language, the application or approach that was learned statistically can easily be adapted into the new field. However, one of the major drawbacks of statistical approaches is that they process each term in isolation and do not discover the linguistic features for word or phrase combinations. This is one of the main reasons that statistical methods are not well utilized[36]. Statistical methods have generally been implemented successfully at various stages of quality assurance systems so far. Some techniques that have been utilized in the past in classifying questions are maximum entropy models, support vector machine classifiers, and Bayesian classifiers. These statistical measurements examine the questions to predict the types of responses that users are likely to provide. The models are trained on a corpus of questions or papers which are labeled with the categories of the specific system.

C. Pattern Matching Approach

The expressive power of text patterns replaces the heavy processing required by other methods , and all these factors point towards the simplicity of the method. For instance, the question "Where was the Cricket World Cup 2012 held?" follows the pattern "Where was the< Event Name> held?" and the response pattern will also be the same: "<the Event Name> was held at the <Location>." Most of today's QA systems can automatically learn such text patterns from text passages instead of applying complex linguistic knowledge or tools to text in order to retrieve answers. Such tools and knowledge include a parser, named-entity recognizer, ontology, WordNet, and so on. In fact, this is the case for most of these systems[37]. Due to their simplicity, these systems are suitable for small and medium-scale websites that cannot afford more complex solutions requiring much time and human expertise to set up and maintain. In addition, these websites do not have resources to support the complex solution. Most of the pattern-matching quality assurance systems rely on surface text patterns, although some use templates to generate responses.

1) Surface Pattern Based: This approach relies on a large collection of patterns that extract responses from the surface structure of recovered documents. The extent to which two or more reflecting patterns may share a particular semantic quality may be used to determine the answer to a question [38]. The patterns are tantamount to regular expression expressions. Although such a set of patterns requires a high amount of human expertise and time to develop, the approach has shown that it can achieve very high levels of precision.

2) Template-based: A "template-based" strategy uses question formats that are already preformatted. The focus is on illustrative examples rather than the interpretation of questions and their answers using this approach. The set of templates is constructed such that it has the optimal number of templates, so as to reasonably cover the problem space. Each member of the set is intended to represent a diverse group of questions based on the type to which they belong. Entity slots are template spaces that have to be filled with data in order to generate the query template to be used in fetching the appropriate response from the database. These slots are associated with the concept of the question and have to be filled out prior to using the template. The answer returned by the query would be raw data and would be furnished to the user. The answer is delivered in a formalized form, using the answer templates integrated into the Sneider ssystem [39]. The basic idea of a template-based question answering system is very close to that of an automated FAQ answering system, which delivers pre-recorded answers to user-posted questions. In contrast to static FAQs, however, template-based question answering systems can add parameters dynamically to question templates.

VII. CONCLUSION

In this survey, an overview of the structure of a question answering system is discussed. This article describes several different kinds of Question Answering systems. A closed-domain Q&A system restricts questions to those within a specific topic area and ensures the quality of the answers provided. Whereas, in the public domain, question and answer systems are available, which end up providing subpar results as they are not trained for any particular area. Here, we investigate how a Question Answering system deals with inquiries. To enhance the natural language processing, it is expected to work upon a few points. Initially, the synonyms checking logic, grammatical structure of the sentence, and importance decision of each sentence part should be improved. The system must be tested using various test procedures and datasets for getting the correct output.

Another important task is dealing with questions that have no answers within the system. Adding features that allow the system to understand and respond in multiple languages would also be helpful. We should also look into making the system work with speech recognition, which would make it more accessible to people with disabilities.

The limitation of the system should also be kept in mind, like the manual preparation of writing templates is laborious and the performance depends on the goodness of the search engine. Also, we should look towards making the system handle more types of questions and compare the performance with other tools like BERT.

Thus, by working in this area, natural language processing systems can be made to work better and be more useful to people.

We further came to know that researchers more frequently use a closed-domain question-answering system as compared to an open-domain question-answering system.

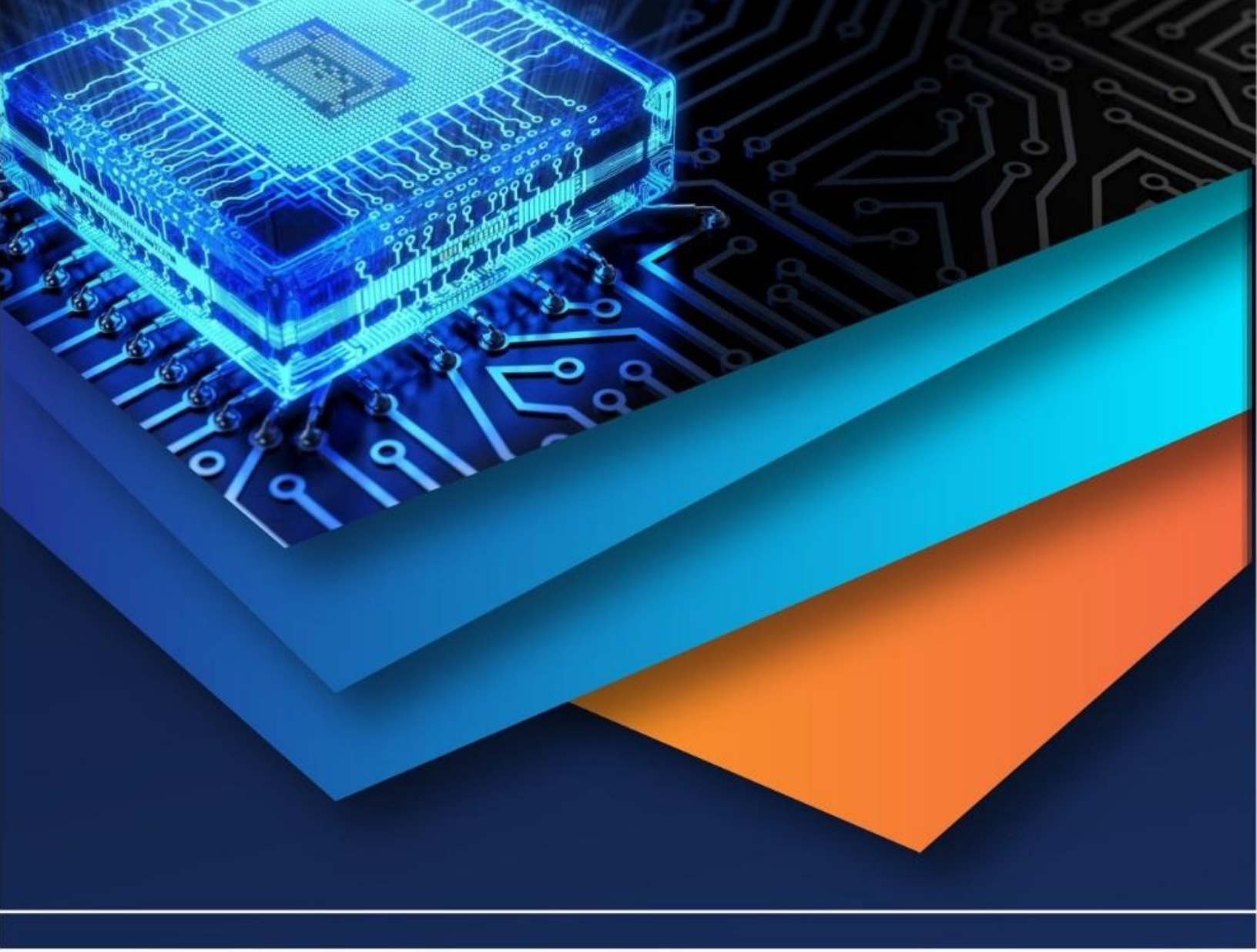
REFERENCES

[1] Ali Mohamed Nabil Allam, Mohamed Hassan Haggag, “The Question Answering Systems: A Survey.”, International Journal of Research and Reviews in Information Sciences (IJRRIS) Vol. 2, No. 3, September 2012.

[2] Bidyut Das, Mukta Majumder, SantanuPhadikar, Arif Ahmed Sekh,“Automatic question generation and answer assessment: a survey”, Research and Practice in Technology Enhanced Learning (2021)

[3] Maria Vijoy and Sangeetha Jamal., "Question Answering System with Repeated Question Identification", International Journal of Advanced Research (2016), Volume 4, Issue 7, 1835-1839
[4] Junichi Fukumoto ," Question Answering System For Non-Factoid Type Questions And Automatic Evaluation Based On BE Method", Proceedings Of NTCIR-6 Workshop Meeting, May 15-18, 2007, Tokyo, Japan.
[5] Tilani Gunawardena, Nishara Pathirana, MedhaviLokuhetti, Roshan Ragel, and Sampath Deegalla, "Performance Evaluation Techniques for an Automatic Question Answering System", International Journal of Machine Learning and Computing, Vol. 5, No. 4, August 2015
[6] Shervin Minaee, Zhu Liu, "Automatic Question-Answering Using A Deep Similarity Neural Network", Computation and Language,5 Aug 2017.
[7] ChaninPithyaachariyakul, Anagha Kulkarni , "AutomatedQuestionAnsweringSystem forCommunity-BasedQuestions",The Thirty-Second AAAI Conference on Artificial Intelligence (AAAI-18),2018.
[8] Wenxiu Xie , Ruoyao Ding , Jun Yan ,Yingying Qu, "A Mobile-Based Question-Answering and Early Warning System for Assisting Diabetes Management",Hindawi Wireless Communications and Mobile Computing Volume 2018.
[9] VishwajeetKumar,SivaanandhMuneeswaran, Ganesh Ramakrishnan, andYuan-FangLi , "ParaQG: A System for Generating Questions and Answers from Paragraphs",Proceedings of the 2019 EMNLP and the 9th IJCNLP (System Demonstrations), pages 175–180 Hong Kong, China, November 3 – 7, 2019.
[10] David Dominguez-Sal, Mihai Surdeanu,"A Machine Learning Approach for Factoid Question Answering",Procesamiento del Lenguaje Natural, núm. 37, 2006.
[11] Shivani G. Aithal, Abishek B. Rao, Sanjay Singh, "Automatic question-answer pairs generation and question similarity mechanism in question answering system",Applied Intelligence (2021) 51:8484–8497
[12] Jafar A. Alzubi, Rachna Jain, Anubhav Singh, PriteeParwekar, Meenu Gupta , "COBERT:COVID-19Question Answering System Using BERT",Arabian Journal for Science and Engineering,23 June 2021.
[13] Tilani Gunawardena, MedhaviLokuhetti, Nishara Pathirana, Roshan Ragel and Sampath Deegalla, "An Automatic Answering System with Template Matching for Natural Language Questions",International Conference on Information and Automation for Sustainability (ICIAfS),2010.
[14] J. Gregory Caporaso, William A. Baumgartner, J, Hyunmin Kim, "Concept Recognition, Information Retrieval, and Machine Learning in Genomics Question-Answering", Proceedings of the Fifteenth Text REtrieval Conference, TREC 2006, Gaithersburg, Maryland, November 14-17, 2006.
[15] Shilpa Sharma, Prof. Manmohan Singh, "Implementation on Framework for Restricted Domain Question Answering System using Advance NLP Tools & Software in",International Journal for Research in Applied Science & Engineering Technology (IJRASET) ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 6.887 Volume 6 Issue V, May 2018.
[16] ShiyanOu, Constantin Orasan, Dalila Mekhaldi, Laura Hasler , "Automatic Question Pattern Generation for Ontology-based Question Answering",Proceedings of the Twenty-First International FLAIRS Conference (2008)
[17] Min-kyoung Kim, Han-joon Kim, "Design of Question Answering System with Automated Question Generation",Fourth International Conference on Networked Computing and Advanced Information Management,978-0-7695-3322-3/08,2008
[18] Yikang Shao, Guangde Xu1, Mingxue Xu, Lanfang Dong, "An Automatic Question Answering Method for Small-Scale Corpus", Journal of Physics: Conference Series 1621 (2020) 012113
[19] Pawan Kumar, Raj Kumar Goel , Prem Sagar Sharma, "A New Architecture of Automatic Question Answering System using Ontology",International Journal of Computer Applications (0975 – 8887) Volume 97 – No.20, July 2014
[20] Meera Udani, AvinashShrivas, Vaibhav Shukla, Archana Rao, "Question Answering System Based on Artificial Intelligence for Restricted Domain",International Journal of Engineering Research & Technology (IJERT),ISSN: 2278-0181,Vol. 2 Issue 12, December – 2013.
[21] Shen Song, Yu-N Cheah, Enya Kong Tang, Bali Ranaivo-Malançon , "Rule Extraction for Automatic Question Answering Based on Structural Clustering",International Journal of Computer Science and Network Security, VOL.8 No.3, March 2008.
[22] Widodo Budiharto, Vincent Andreas, Alexander Agung Santoso Gunawan , "Deep learning-based question answering system for intelligent humanoid robot",Journal of Big Data (2020) 7:77.
[23] Francesca Alloatti,Luigi DiCaro ,GianpieroSportelli, "RealLife Application of a Question Answering System Using BERT Language Model",Proceedings of the SIGDial 2019 Conference, pages 250–253 Stockholm, Sweden, 11-13 September 2019.
[24] Yikang Shao, Guangde Xu, Mingxue Xu and Lanfang Dong, "An Automatic Question Answering Method for Small-Scale Corpus",Journal of Physics: Conference Series 1621 (2020) 012113.
[25] Kaur, and Gupta, V., "Effective Question Answering Techniques and their Evaluation Metrics", International Journal of Computer Applications, 65(12):30–7,2013.
[26] Pundge, A.M., Khillare, S.A., and Mahender, C.N., "Question Answering System, Approaches and Techniques: A Review", International Journal of Computer Applications, 141(3):0975–8887, 2016.
[27] Mishra,A., and Jain, S. K., "A survey on question answering systems with classification", Journal of King Saud University. Computer and Information Sciences, 28(3), 345–61,2015.
[28] Youzheng, Hori, Hisashi, "Leveraging social Q&A collections for improving complex question answering", Computer Speech and Language, 29, 1–19,2015.
[29] Chen, W., Zeng, Q., Wenyin, L., and Hao, T. , "A user reputation model for a user-interactive question answering system", Concurrency Computat.: Pract. Exper., pp. 2091–103,2015
[30] Moldovan, D., Pasca, M., and Harabagiu, S.,"Performance issues and error analysis in an open-domain question answering system", ACM Trans. Information System, 2007.
[31] Kolomiyets, O., "A survey on question answering technology from an information retrieval perspective", Inf. Sci. 181(24):5412–34., 2011.
[32] Setio Basuki, Ayu Purwarianti, Statistical-based Approach for Indonesian Complex Factoid Question Decomposition, International Journal on Electrical Engineering and Informatics ,8, 2, June 2016,356-373
[33] Iftene, A, "Textual Entailment. Ph.D Thesis", Al. I. Cuza University, Faculty of Computer Science, Iasi, Romania, 2009.
[34] Hoffner, K., Walter, S., Marx, E., Usbeck, R., Lehmann, J., and Ngomo, A. N, "Survey on Challenges of Question Answering in the Semantic Web", Proceedings Semantic Web, pp. 1–26. 2016.
[35] Ravichandran, D., and Hovy, E.H., "Learning surface text patterns for a question answering system", In Proceedings of ACL, 2002.

[36] Unmeshsasikumar, Sindhu L, "A survey of Natural Language question answering system", international journal of computer applications (0975-8887), volume 108 -No 15. December 2014
[37] Sanjay K. Dwivedi and vaishalisingh, "Research and reviews in question answering system", International Conference on Computational Intelligence: Modeling Techniques and Applications CIMTA) 2013 Procedia Technology 10,2013.
[38] Zhang, D., and Lee, W. S., "Web based pattern mining and matching approach to question answering", In Proceedings of the 11th Text Retrieval Conference, 2002.
[39] Sneiders E, "Automated question answering using question templates that cover the conceptual model of the database", In Natural Language Processing and Information Systems, Springer Berlin Heidelberg, 2002.



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY