

Literature Review

We have studied following papers/articles for our project purpose and giving the outcomes for the same below.

1.Li, Y., Zhang, W., Wang, W., Li, Y., & Zhou, G. (2021). An Ontology-Based Question Answering System for Product Information Retrieval. IEEE Access, 9, 52450-52459

- The paper proposes an ontology-based question answering system for product information retrieval, which can answer natural language questions about product information.
- The system consists of three main components: a natural language processing module, an ontology-based knowledge base, and a question answering module.
- The natural language processing module is responsible for preprocessing user queries and extracting relevant information, while the ontology-based knowledge base stores the structured product information.
- The question answering module utilizes natural language processing techniques and the ontology-based knowledge base to generate the most appropriate answer to the user's query.
- The system was evaluated on a dataset of 400 product-related questions, and achieved an accuracy of 84.25% in answering questions.
- The ontology-based approach allows the system to understand complex product relationships and improve the accuracy of the answers.
- The system can be used in various applications, such as e-commerce websites and online customer service platforms, to enhance user experience and reduce workload.
- The system can also be extended to support multi-lingual queries by adding language-specific ontologies.
- The proposed system provides a more efficient and accurate approach to product information retrieval compared to traditional keyword-based search engines.

2.Devlin, J., Chang, M. W., Lee, K., & Toutanova, K. (2018). Bert: Pre-training of deep bidirectional transformers for language understanding. arXiv preprint arXiv:1810.04805

- BERT is a language model that uses deep bidirectional transformers to pre-train on vast amounts of text, improving natural language understanding.
- BERT is trained on two pre-training tasks: masked language modelling (MLM) and next sentence prediction (NSP), which help the model understand the relationship between words and sentences in text.
- MLM randomly masks certain words in a sentence and trains the model to predict the masked words based on the context provided by the surrounding words.
- NSP trains the model to predict whether two sentences are consecutive or not, which helps the model understand the relationships between sentences in a document.
- BERT achieved state-of-the-art results on multiple natural language processing tasks, including question answering, text classification, and sentence-level tasks.
- BERT's bidirectional nature allows it to capture both the context before and after a given word, improving its ability to understand natural language.
- BERT's pre-trained model can be fine-tuned on specific downstream tasks with relatively small amounts of task-specific data, reducing the need for large amounts of task-specific training data.
- BERT's pre-trained model has been released as an open-source tool, allowing researchers and developers to use and modify the model for a wide range of natural language processing tasks.

3. Bhardwaj, A., Chakraborty, A., & Sharma, N. (2020). Automatic product information extraction from e-commerce websites. In 2020 3rd International Conference on Intelligent Computing, Instrumentation and Control Technologies (ICICT) (pp. 994-997). IEEE.

- The paper proposes a system for automatically extracting product information from e-commerce websites.
- The system uses web scraping techniques to extract raw data from e-commerce websites and then applies natural language processing and machine learning techniques to extract structured product information.
- The system utilizes a combination of rule-based and machine learning-based approaches to extract product attributes such as product name, description, price, and brand.
- The system was tested on a dataset of 500 product pages from popular e-commerce websites and achieved an average accuracy of 86% in extracting product attributes.
- The system can help automate the process of extracting product information from e-commerce websites, reducing the time and effort required for manual extraction.
- The proposed system can also be extended to support other types of websites and applications where automatic information extraction is required.

4. Khan, R., & Chakraborty, A. (2021). An NLP based approach to analyze product reviews for sentiment and feature extraction. Journal of Intelligent & Fuzzy Systems, 40(3), 4719-4732. "

- The authors propose an approach that can automatically identify the sentiment expressed in product reviews and extract the features that are being evaluated.
- The approach is based on a combination of rule-based and machine learning techniques, including part-of-speech tagging, dependency parsing, and sentiment analysis.

- The authors use a dataset of customer reviews from Amazon and manually label them with the sentiment and the features being evaluated.
- The authors then use the labelled data to train a machine learning model to automatically identify the sentiment and features in new reviews.
- The authors evaluate the performance of the approach using several metrics, including precision, recall, and F1-score.
- The results show that the approach achieves high accuracy in identifying the sentiment and features in product reviews.
- The authors also compare the performance of their approach with other state-of-the-art methods for sentiment analysis and feature extraction.
- The authors conclude that their approach can provide valuable insights into customer preferences and can be used by businesses to improve their products and services.
- The authors also discuss the limitations of their approach, such as the need for manual labeling of data and the potential bias introduced by the selection of the features being evaluated.
- The paper provides a detailed description of the approach and the experiments conducted to evaluate its performance.
- The authors also discuss the potential applications of their approach, such as in e-commerce, marketing, and customer service.
- Overall, the paper presents a novel approach to analyze product reviews using NLP techniques and provides insights into customer preferences that can help businesses improve their products and services.