

MSc Project Report

Aspect Based Opinion Mining from User Review Articles Using Text Embedding for Topic
Modelling

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ABSTRACT

Customer satisfaction is the key to any businesses. In older days consumer opinions had gone unheard. Now the technology has improved. Internet has made tremendous change on human interactions. Customers now could make their voice heard to the world in matter of seconds. Customer review system in e-commerce platform has become must feature. Potential customers are enthusiastically seeking for opinions from other users. However, reading through all the reviews in the review section is challenging tasks due to the factors like ambiguity. This research prototype finds an intelligent methodology using natural language processing techniques to solve the identified problem.

Prototype was built on using topic modelling technique and sentiment analysis libraries. The aspect mining is the primary implementation of this solution. Aspect collocation mining was implemented utilizing combination of *SentenceTransformer*, *UMAP*, *HDBSCAN* and *BigramCollocationFinder* python framework. Sentiment analysis was implemented applying *VADER*.

Results were evaluated manually employing qualitative evaluation technique. Random sample list of twenty-five reviews were collected manually labelled for its potential sentiment polarity. 88% of the reviews turned to predict the expected sentiment from the sample. This prototype is capable of extracting aspect collections such as “battery life” unlike some existing projects focus aspect keyword as “battery”. Therefore, this prototype mines more insight from the text which supports consumers decision making.