ABSTRACT

In the digital era, visually impaired individuals in Indonesia face various challenges in accessing information, including difficulties in reading long and complex texts due to physical limitations, lack of accessibility, and inadequate technical assistance. This study aims to develop an automatic text summarization model that converts text into audio format to help visually impaired individuals understand Indonesian news content. The model used is Bidirectional and Auto-Regressive Transformers due to its capability to generate high-quality text summaries. The process involves two main stages: pre-training, where the model uses a denoising autoencoder approach, and fine-tuning, where the model is adapted to the task of summarizing Indonesian news texts. The study results show that the fine-tuned BART model demonstrates a significant performance improvement compared to the pre-training model, with ROUGE-1 scores of 63.42%, ROUGE-2 scores of 56.47%, and ROUGE-L scores of 60.65%. The implementation of this model through FastAPI shows that scraping and text summarization times vary depending on the complexity of the article, with average scraping times ranging from 20-54 seconds and summarization times ranging from 20-23 seconds. This study also conducted testing with three visually impaired individuals to assess the ease of use, information comprehension, and user satisfaction. The results indicate that this application is effective in helping visually impaired individuals access news quickly and easily, although there are slight delays and issues with incomplete news content that need to be addressed. For further improvement, it is recommended to explore more in-depth fine-tuning techniques, use more diverse datasets, and compare the model with others such as T5 or PEGASUS.

Keywords: Visually Impaired, Automatic *Text summarization*, *BART*, Information Accessibility, Indonesian News Text