

ABSTRAK

Fikri Fahreza : Pengembangan Website Sistem Informasi Manajemen Kegiatan Sekolah dengan Integrasi *Conversational Artificial Intelligence* Berbasis *Retrieval-Augmented Generation* (RAG) di SMK Telkom 1 Medan. Skripsi. Fakultas Teknik. Universitas Negeri Medan. 2026

Penelitian ini dilatarbelakangi oleh permasalahan pengelolaan kegiatan akademik dan non-akademik di SMK Telkom 1 Medan yang masih manual menggunakan *spreadsheet* Excel dan pengumuman lisan, sehingga menimbulkan risiko kesalahan input data, duplikasi, informasi tidak real-time, serta keterlambatan penyampaian informasi. Penelitian ini bertujuan untuk menghasilkan sistem informasi manajemen kegiatan sekolah berbasis web terintegrasi *Conversational AI* (Telbot) berbasis *Retrieval-Augmented Generation* (RAG) yang layak digunakan, mengetahui kualitas sistem berdasarkan ISO/IEC 25010, serta mengetahui tingkat akseptabilitas pengguna. Penelitian ini menggunakan metode *Research and Development* (R&D) dengan model pengembangan Iterative. Subjek penelitian terdiri atas 46 responden yang meliputi 41 siswa kelas X TKJ, 3 guru, 1 Waka Kesiswaan, dan 1 Admin. Data dikumpulkan melalui pengujian fungsionalitas *Black-box Testing* berbasis *Feature Completeness* (Acharya & Sinha), angket penilaian ahli sistem berbasis ISO/IEC 25010, serta angket penerimaan pengguna *USE Questionnaire*. Data dianalisis untuk menentukan tingkat kelayakan fungsional, kualitas sistem, dan akseptabilitas pengguna. Hasil penelitian menunjukkan bahwa pengujian *Functional Suitability* memperoleh kelengkapan fitur $X=1,00$ dengan kategori "Sangat Layak" (100%). Pengujian kualitas oleh ahli sistem berbasis ISO/IEC 25010 memperoleh skor rata-rata 92,0% dengan kategori "Sangat Layak". Uji akseptabilitas pengguna (*USE Questionnaire*) memperoleh skor rata-rata 95,4% dengan kategori "Sangat Layak", didorong oleh dimensi *Usefulness* sebesar 97,2%. Dengan demikian, Sistem Informasi Manajemen Kegiatan Sekolah berbasis RAG yang dikembangkan dinyatakan layak, dapat diterima dengan sangat baik oleh pengguna, serta efektif dalam mengoptimalkan pengelolaan kegiatan sekolah secara digital dan transparan.

Kata kunci: Sistem Informasi Manajemen, Kegiatan Sekolah, *Conversational AI*, *Retrieval-Augmented Generation* (RAG), ISO/IEC 25010, *USE Questionnaire*.

ABSTRACT

Fikri Fahreza : *Development of a School Activity Management Information System Website with Retrieval-Augmented Generation (RAG)-Based Conversational Artificial Intelligence Integration at SMK Telkom 1 Medan. Undergraduate Thesis. Faculty of Engineering. Universitas Negeri Medan. 2026*

This research is driven by the challenges of managing academic and non-academic activities at SMK Telkom 1 Medan, which were previously conducted manually using Excel spreadsheets and verbal announcements, resulting in risks of data entry errors, data duplication, non-real-time information, and delayed communication. This study aims to develop a web-based school activity management information system integrated with a Conversational AI assistant (Telbot) based on Retrieval-Augmented Generation (RAG) that is feasible for use, evaluate software quality based on ISO/IEC 25010, and determine user acceptance. This research employs the Research and Development (R&D) method utilizing an Iterative development model. The research subjects comprised 46 respondents consisting of 41 tenth-grade students, 3 teachers, 1 Vice Principal of Student Affairs, and 1 Administrator. Data were collected through Black-box Testing via Feature Completeness (Acharya & Sinha), a system expert evaluation questionnaire based on ISO/IEC 25010, and the USE Questionnaire for user acceptance. Data were analyzed to determine functional feasibility, software quality, and user acceptance. The results showed that Functional Suitability testing achieved a feature completeness metric of $X = 1.00$ categorized as "Very Feasible" (100%). Quality evaluation by system experts based on ISO/IEC 25010 obtained an average score of 92.0% categorized as "Very Feasible". User acceptance testing (USE Questionnaire) yielded an average score of 95.4% categorized as "Very Feasible", driven by a Usefulness dimension score of 97.2%. Thus, the RAG-based School Activity Management Information System is declared feasible, highly accepted by users, and effective in optimizing school activity management digitally and transparently.

Keywords: *Management Information System, School Activities, Conversational AI, Retrieval-Augmented Generation (RAG), ISO/IEC 25010, USE Questionnaire.*