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IMPLEMENTASI N8N WORKFLOW AUTOMATION PADA PROSES FOLLOW UP CALON MAHASISWA BARU DI INSTITUT WIDYA PRATAMA PEKALONGAN
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ABSTRAK

Proses follow-up calon mahasiswa baru di Institut Widya Pratama Pekalongan masih dilakukan secara manual melalui WhatsApp Business dengan rata-rata waktu respons 2-4 jam dan tingkat penyelesaian registrasi hanya 87% dari 340 pendaftar tahun akademik 2024/2025. Penelitian ini mengimplementasikan sistem workflow automation menggunakan platform N8N yang terintegrasi dengan WhatsApp API (WAHA), Google Sheets, dan AI Agent berbasis Google Gemini. Metode pengembangan menggunakan model Prototype dengan tahapan komunikasi, perancangan cepat, pembuatan prototipe, evaluasi, dan penyempurnaan. Sistem terdiri dari tiga workflow: follow-up otomatis untuk mengirim pesan pengingat terjadwal, Chat AI untuk merespons pertanyaan 24/7 menggunakan Product Knowledge dan MongoDB Chat Memory, serta rekap chat marketing untuk analisis pola pertanyaan. Pengujian melalui Functional Testing, Integration Testing, dan User Acceptance Test (UAT) menunjukkan pesan follow-up terkirim tepat waktu dengan akurasi 100%, chatbot merespons dalam waktu kurang dari 30 detik, mekanisme eskalasi berjalan efektif, dan data tercatat lengkap di Google Sheets. Sistem berhasil meningkatkan efisiensi operasional, mengurangi beban kerja manual, dan meningkatkan responsivitas layanan informasi kepada calon mahasiswa.

Kata kunci: Workflow Automation, N8N, WhatsApp API, AI Chatbot, Google Gemini, Penerimaan Mahasiswa Baru

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ABSTRAK

The follow-up process for prospective new students at Institut Widya Pratama Pekalongan is still conducted manually through WhatsApp Business with an average response time of 2-4 hours and a registration completion rate of only 87% out of 340 applicants in the 2024/2025 academic year. This research implements a workflow automation system using the N8N platform integrated with WhatsApp API (WAHA), Google Sheets, and AI Agent based on Google Gemini. The development method uses the Prototype model with stages of communication, quick planning, prototype construction, evaluation, and refinement. The system consists of three workflows: automatic follow-up to send scheduled reminder messages, Chat AI to respond to questions 24/7 using Product Knowledge and MongoDB Chat Memory, and marketing chat recap for question pattern analysis. Testing through Functional Testing, Integration Testing, and User Acceptance Test (UAT) shows that follow-up messages are sent on time with 100% accuracy, chatbot responds in less than 30 seconds, escalation mechanism works effectively, and data is completely recorded in Google Sheets. The system successfully improves operational efficiency, reduces manual workload, and enhances the responsiveness of information services to prospective students.

Keywords*: Workflow Automation, N8N, AI Chatbot, WhatsApp API, New Student Admission*