

ABSTRAK

RANCANG BANGUN APLIKASI *MOBILE* BERBASIS FLUTTER DENGAN INTEGRASI AI *FACE RECOGNITION* UNTUK MENDUKUNG DIGITALISASI AKTIVITAS LABORATORIUM TEKNIK KOMPUTER

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Laboratorium Teknik Komputer Universitas Lampung menghadapi berbagai kendala dalam pengelolaan aktivitas yang masih dilakukan secara konvensional, seperti pencatatan kunjungan tamu, peminjaman ruangan, dan presensi praktikum. Penelitian ini bertujuan untuk merancang dan membangun aplikasi *mobile* berbasis *Flutter* yang terintegrasi dengan teknologi AI *Face Recognition* untuk mendukung digitalisasi aktivitas laboratorium. Fitur utama yang dikembangkan meliputi piket asisten, presensi praktikan, dan pencatatan kunjungan tamu berbasis *Face Recognition* dengan integrasi *WebSocket* untuk verifikasi identitas secara *real-time*. Fitur pendukung lainnya mencakup manajemen jadwal, pengelolaan praktikum, peminjaman ruangan, serta sistem notifikasi berbasis *Firebase Cloud Messaging* (FCM). Metode pengembangan sistem menggunakan pendekatan Kanban, yang menekankan pada fleksibilitas dan pengelolaan alur kerja secara berkelanjutan melalui tahapan *backlog*, *to do*, *in progress*, *testing*, dan *done*. Pengujian dilakukan melalui *black-box testing* dan *User Acceptance Testing* (UAT) yang melibatkan Asisten Laboratorium, mahasiswa, serta Kepala dan Teknisi laboratorium. Hasil pengujian menunjukkan tingkat penerimaan yang sangat tinggi, yakni 94% dari Asisten Laboratorium, 96% dari Mahasiswa, serta 92% dari Kepala Laboratorium dan Teknisi. Dengan demikian, aplikasi yang dikembangkan dinilai sangat diterima dan efektif dalam mendukung digitalisasi aktivitas di Laboratorium Teknik Komputer Universitas Lampung.

Kata kunci: *Flutter*, *Face Recognition*, Notifikasi, *User Acceptance Testing*.

ABSTRACT

DESIGN AND DEVELOPMENT OF A FLUTTER-BASED MOBILE APPLICATION WITH AI FACE RECOGNITION INTEGRATION TO SUPPORT THE DIGITALIZATION OF COMPUTER ENGINEERING LABORATORY ACTIVITIES

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The Computer Engineering Laboratory at the University of Lampung faces several challenges in managing activities that are still conducted conventionally, such as logging guest visits, room booking, and practicum attendance. This research aims to design and build a Flutter-based mobile application integrated with AI Face Recognition technology to support the digitalization of laboratory activities. The main features developed include assistant duty, practicum attendance, and guest visit logging based on Face Recognition with WebSocket integration for real-time identity verification. Other supporting features include schedule management, practicum management, room booking, and a notification system based on Firebase Cloud Messaging (FCM). The system development method uses the Kanban approach, which emphasizes flexibility and continuous workflow management through the backlog, to do, in progress, testing, and done stages. Testing was conducted through black-box testing and User Acceptance Testing (UAT) involving Laboratory Assistants, students, as well as the Laboratory Head and Technicians. The test results show a very high acceptance rate, with scores of 94% from Laboratory Assistants, 96% from Students, and 92% from the Laboratory Head and Technicians. Thus, the developed application is considered highly accepted and effective in supporting the digitalization of activities at the Computer Engineering Laboratory, University of Lampung.

Keywords: Flutter, Face Recognition, Notification, User Acceptance Testing.