



**AI-HEALTHCARE: IMPROVEMENT OF
HEALTHCARE IN TIMOR-LESTE WITH SMART
DIGITAL SOLUTIONS**

UNDERGRADUATE THESIS

**Submitted as one of the requirements to
obtain Sarjana Komputer (S.Kom)**

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ABSTRACT

The healthcare system in Timor-Leste is beset by serious issues, such as lengthy wait times for patient, ineffective manual record-keeping, and restricted access to treatment in rural areas. This thesis introduces AI-Healthcare, a comprehensive digital solution designed to address these problems through four core components: (1) a symptom checker driven by AI, (2) an online appointment scheduling system, and (3) remote consultations over WhatsApp, and (4) a secure email verification framework to prevent unauthorized access.

Using a SQLite database and the Django framework, the system was created with role-based access control for administrator, doctors, and patients. Testing showed that the AI chatbot could analyze symptoms with 94 % accuracy and cut down on patient wait times by 50 %. Rural people especially benefit from the solution since it makes remote consultation possible in situation when doctor access to medical facilities is difficult.

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The healthcare system in Timor-Leste is beset by serious issues, such as lengthy wait times for patient, ineffective manual record-keeping, and restricted access to treatment in rural areas. This thesis introduces AI-Healthcare, a comprehensive digital solution designed to address these problems through four core components: (1) a symptom checker driven by AI, (2) an online appointment scheduling system, and (3) remote consultations over WhatsApp, and (4) a secure email verification framework to prevent unauthorized access.

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While the system's results are promising, its limitations include user' varying levels of digital literacy and its need on steady internet access. Future developments should focus on mobile app distribution and offline capabilities to improve accessibility. In keeping with WHO's objective of using technology to achieve universal health coverage, this initiative contributes to the transformation of healthcare in low-resource settings.

Keywords: Timor-Leste, telemedicine, AI chatbots, digital healthcare, electronic management records, and safe onboarding.

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