

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.)

By:
FITUN SABBATANY PEREIRA ANICETO
012202200045

FACULTY OF COMPUTER SCIENCE
INFORMATION SYSTEM STUDY PROGRAM
CIKARANG
AUGUST, 2025



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

Bachelor Of Science

By:
Fitun Sabbatany Pereira Aniceto
012202200045

FACULTY OF COMPUTER SCIENCE

Match Overview

4%

1	utpedia.utp.edu.my	Internet Source	2%	>
2	www.coursehero.com	Internet Source	1%	>
3	123dok.com	Internet Source	<1%	>
4	Submitted to President..	Student Paper	<1%	>
5	jurnal.unda.ac.id	Internet Source	<1%	>
6	repository.unj.ac.id	Internet Source	<1%	>
7	Phenikaa University	Publication	<1%	>
8	da Costa Gonçalves, C..	Publication	<1%	>
9	dspace.mak.ac.ug	Internet Source	<1%	>
10	in.jooble.org	Internet Source	<1%	>

New

Home

Documents

Add to Docs

AI-HEALTHCARE: IMPR

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

Bachelor Of Science

By:
Fitun Sabbatany Pereira Aniceto
012202200045

FACULTY OF COMPUTER SCIENCE
INFORMATION SYSTEM STUDY PROGRAM
CIKARANG
August, 2025

Copyright by
Fitun Sabbatany Pereira Aniceto

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

By
Fitun Sabbatany Pereira Aniceto
012202200045

Approved:

12 B I U G [list icons] A

Feedback Sign up Log in

Basic scan

Share Export

Scan XL documents in detail with a Professional Plan.
Join over 6 million users. Scan up to 50 pages, page by page
Get started with Professional

human

GPTZero AI Detection Model 3.8b

We are highly confident this text is entirely human

Probability breakdown
2% AI generated 1% Mixed 97% Human

View AI Sentences AI Words

Advanced Sentence Scanning

Understand how each sentence impacts AI probabilities and with interpretable reports (American Federation Teacher Certified)

Your most human sentences

Scan to update results
10,000 characters 1558 words

Scan

ABSTRACT

In Timor-Leste, some of the hospital services are still using manual systems and are still in the process of developing the manual systems to a digital system, and that's why the hospital faces a lot of challenges, like manual patient data on paper, and some paper will be missing or destroyed due to the condition, and most of the common challenges is the waiting line which make appointment offline so ineffective and efficient and waiting for the receptionist to provide the waiting number that will take a lot of time. To solve all these challenges, we created this AI-Healthcare project with an AI-powered web-based healthcare system to help the healthcare service be more effective and efficient in Timor-Leste.

The AI-Healthcare is developed using the Django framework and created to help the patient and hospital staff through online services that are more effective and efficient. The key features are that the system has all the medical records, like appointment scheduling, online registration for the patients, medical history, and diagnosis, which are input by the patients and doctors, and can be easily tracked by the admin and securely safe in the system. The system can also be accessed through other variety of other devices, like a laptop, monitor, and a mobile phone.

Also, one of the important key features is the chatbot AI-powered by Google's Gemini API that focuses on the health assistant in the system. This chatbot helps patient explain their symptoms in the languages that they choose and will give suggestions to the patients. This can help patients understand first about their symptoms first before consulting with the doctor.

This project is to provide support to the hospital administration and help with decision-making. The system has an advanced admin dashboard that can predict future consultation volumes using time series forecasting models (ARIMA) based on past data. Additional modules like a blog/news system to share about the hospital's updates, and a health tips feature with auto-icon suggestion and auto save function for easier content management that is handled by the administrators.

The purpose of AI-HealthCare is to improve the healthcare services in Timor-Leste and help manage patients' data more effectively, securely. and improve patient satisfaction with online services. By implementing artificial intelligence and digital transformation principles, the system aims to improve the response times and increase access to healthcare in Timor-Leste.

TABLE OF CONTENTS

CHAPTER I	14
INTRODUCTION	14
1.1. Project Background.....	14
1.2. Problem Statement	15
1.2.1. Problem Identification.....	15
1.2.2. Significance of the Project.....	17
1.3. Objectives	17
1.4. Scope of Study	18
1.5. Research Limitation	19
CHAPTER II	20
LITERATURE REVIEW	20
2.1 Implementation of ERP Concepts in Web-Based Healthcare Systems	20
2.2 Effective Data Management for Patients and Doctors	20
2.3 Digital Consultation Records: Storage and Utilization.....	21
2.4 Improving Patient Engagement through Blogs, Events, and Health Education Tips	21
CHAPTER III.....	23
METHODOLOGY	23
3.1 Research Methodology.....	23
3.2 Data Collection Methods.....	23
3.3 System Design	24
3.4 Tools and Technology.....	37
3.5 Planning and Timeline (Gantt Chart) Planning	37
CHAPTER IV	39
RESULT AND DISCUSSION	39
4.1. Online Registration & Medical Records	39
4.2. Consultation Forecasting with ARIMA	48
4.3. Patient Engagement Tools.....	52
CHAPTER V	59
CONCLUSION	59
REFERENCES.....	60

LIST OF PICTURES

Picture 1.1 Entity Relationship Diagram	24
Picture 1.2 Data Flow Diagram.....	25
Picture 1.3 Block Diagram of Online Registration System	27
Picture 1.4 Block Diagram of Digital Data Management.....	28
Picture 1.5 Block Diagram of Remote Consultation System	30
Picture 1.6 Data Flow Diagram of Registry Consultation	31
Picture 1.7 Data Flow Diagram of Consultation	33
Picture 1.8 Data Flow Diagram of Reminder.....	35
Picture 1.9 Data Flow Diagram of Blog	36
Picture 2.1 Online Consultation	39
Picture 2.2 Online Consultation	40
Picture 2.3 Online Consultation	41
Picture 2.4 Consultation History	42
Picture 2.4 Consultation Code.....	43
Picture 2.5 Consultation Code.....	44
Picture 2.6 Consultation Code.....	45
Picture 2.7 Consultation Code.....	45
Picture 2.8 Consultation History Code	47
Picture 2.9 Table Consultation.....	48
Picture 3.1 Dashboard Admin	49
Picture 3.2 Dashboard Code	50
Picture 3.2 Dashboard Code	51
Picture 3.3 Dashboard Code	51
Picture 3.4 Health Tips	53
Picture 3.5 Table Health Tips	53
Picture 3.6 Blog.....	54
Picture 3.7 Table Blog.....	54
Picture 3.8 Events.....	55
Picture 3.9 Table Events	55
Picture 4.1 Reminder	57
Picture 4.2 Table Reminder	58