

**DESIGN AND IMPLEMENTATION OF SECURE DIGITAL IMAGING AND  
COMMUNICATION IN MEDICINE (DICOM) PICTURE ARCHIEVING AND  
COMMUNICATION SERVER (PACS) ON AN APPLICATION SERVER**

By

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### STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.

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## ABSTRACT

### DESIGN AND IMPLEMENTATION OF SECURE DIGITAL IMAGING AND COMMUNICATION IN MEDICINE (DICOM) PICTURE ARCHIEVING AND COMMUNICATION SERVER (PACS) ON AN APPLICATION SERVER

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Medical science has come a long way in achieving many wondrous feats. One of its implementation is the *DICOM protocol, Digital Imaging and Communications in Medicine*. First developed by NEMA in 1993, it has revolutionized practice in medical imaging and radiology until today. However in its deployment, DICOM require a *PACS, Picture Archiving and Communication Server* in its deployment. Due its nature as server, PACS will require many measure of security in its deployment.

One of the measures is the connection security, many implementations of PACS neglect connection security due to it uses mainly on internal company network. Nevertheless, it wasn't ready for today requirement of connection technology.

This research contain about implementation of security measures on PACS in implementing a secure DICOM transfer on an application server. With Prototyping process of a PACS server that capable of performing secure transfer via TLS protocol and AES encryption to mobile device without, extra programs or application put in mobile device and measure its effectiveness in term of transfer speed and quality.

*Keywords: DICOM, PACS, connection, security, mobile, server base application*



## **DEDICATION**

I dedicate this works for development of medical technology in Indonesia.



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I found my coursework and internship on Siloam Hospital to be stimulating and thoughtful, providing me with tools, application and implementation that thoughtfully chosen for modern hospital information technology development, to which explore and helps to find this research idea and resources.

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