

**DESIGNING AND PROTOTYPING VIDEO ENCODING  
JOB/TASK MANAGEMENT**

By

Agustinus Biotamalo Lumbantoruan

A Thesis submitted to the Faculty of

INFORMATION TECHNOLOGY

In Partial Fulfillment of the Requirements for

BACHELOR'S DEGREE

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Revised after the thesis defense on 25 Juli 2011

September 2011

**STATEMENT BY THE AUTHOR**

I hereby declare that this submission is my own work and to the best of my knowledge, 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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Date

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Chairman of the Examination Steering Committee

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Date

## ABSTRACT

### DESIGNING AND PROTOTYPING VIDEO ENCODING JOB/TASK MANAGEMENT

By

Agustinus Biotamalo Lumbantoruan

SWISS GERMAN UNIVERSITY

Bumi Serpong Damai

Charles Lim, Major Lecturer

Videos uploaded by the users need to be encoded before going to public. The encoded process reduce the video file bandwidth. To manage those new jobs created by the users need a scheduling algorithm. A First Come First Serve algorithm is the algorithm used in this thesis. Remote Procedure Call is used as a communication tool between the server. Several file transfer method is used such as client server socket file transfer and direct access file transfer. Direct access file transfer is where the client accesses the server's file directory without server being notified. Client Socket File Transfer is where the server listens for a request from the client for certain files. In addition this thesis tries to utilize the processing power of a processor by encoding a video into two outputs in parallel. If those free processing power are not utilize, it will affect the whole processing time. Grey box testing was conducted in the lab by Agustinus Biotamalo who is the writer of this thesis. The result reflects the performance of the prototype. First come first serve scheduling algorithm performs three times faster than a stand alone encoder system the distributed video encoding system when both systems are have the same processor specification. The disadvantage of this algorithm is send out jobs disregarding the processor's capability. If there is some slow computer exist in the network and receives a large batch then it would take a very long time to process that large batch.

**Keywords:** Distributed video encoder, stand alone encoder server, first come first, scheduler

## DEDICATION

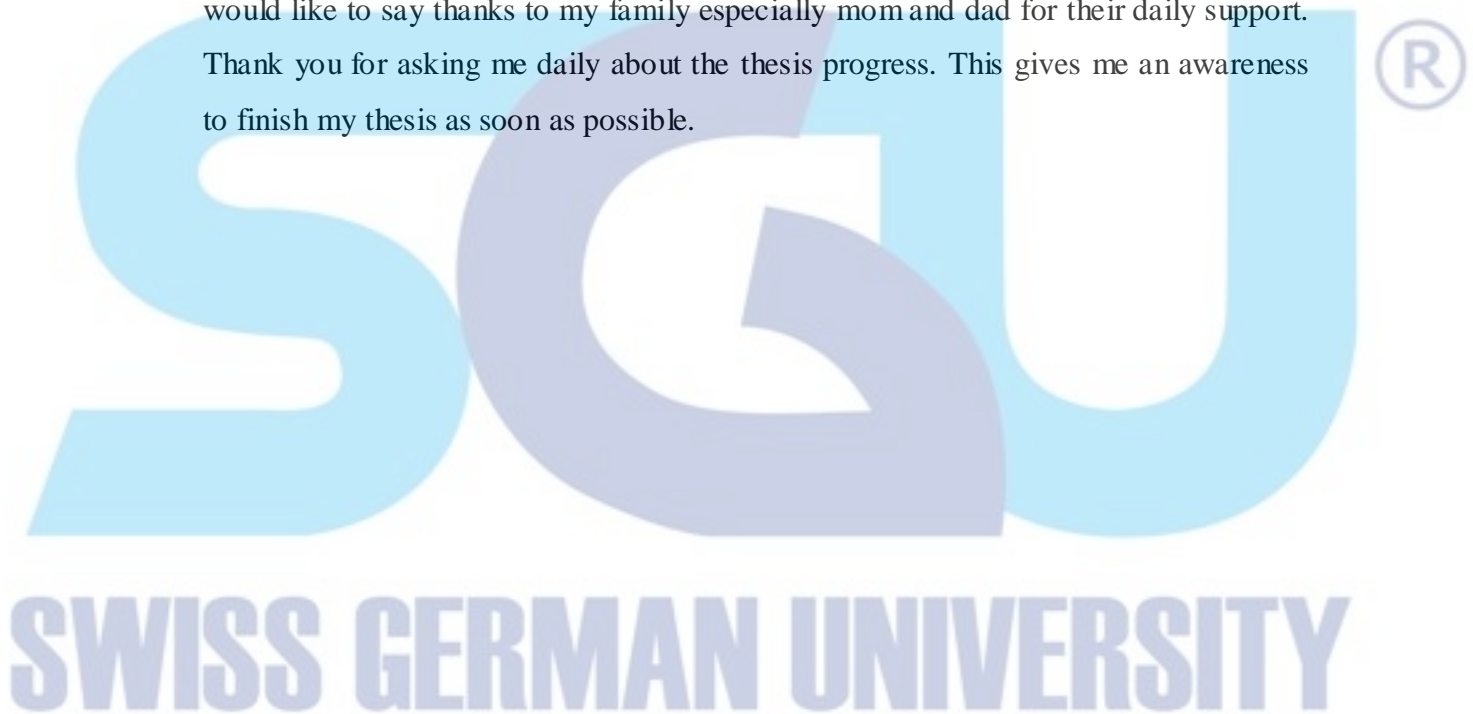
To Jalurutama.com users. Soon we will be able to upload our own video and enjoy watching it over the internet without consuming a lot of bandwidth from our server and no more streaming our video from Youtube.com or Vimeo.com or any other source.

No intention killing the video streaming service provider.



## ACKNOWLEDGMENTS

First and for most, I would like to thank Lord Jesus Christ and Im sorry if I did not go to the Sunday mass for couple of times. Thank you for your support and insight when I was designing and Prototyping the thesis. I also would like to say thanks to my thesis advisor Mr.Charles Lim for the clear instructions in writing the thesist and the insights in solving some problems. Thanks to Mr.Regio for his recommendation to use Remote Procedure Call for server to server communication. Last but not least, i would like to say thanks to my family especially mom and dad for their daily support. Thank you for asking me daily about the thesis progress. This gives me an awareness to finish my thesis as soon as possible.



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