

MODELLING THE LIQUID CONTROLLED SYSTEM MODULE

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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**MODELLING THE LIQUID CONTROLLED SYSTEM MODULE**

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This thesis covers the liquid controlled system module made by Leybold GmbH. The liquid controlled system module is a Leybold lab equipment for practical learning of control technique based on the flow rate and the level of water inside a tank. The purpose of this thesis is to uncover the liquid controlled system's flow rate and water level transfer function. The unknown nature of the module allowed the module to be examined using a black box methodology, where the module is given an input and the output of the module is then examined and evaluated to find out the transfer function. The data taking experiment process is divided into two parts based on the end result being the flow rate and the water level transfer function. For finding the flow rate transfer function, the experiment takes the voltage of the flow rate sensor that is already built in the module. For finding the water level transfer function, the experiment takes the voltage of a separate water level sensor that was installed into the tank of the liquid controlled system module. The voltage is captured using CASSY Lab software to make a graph of the voltage and the graph is then evaluated using general control technique formulas to get the transfer function. The transfer functions then are tested in simulation software to check their credibility.

Keywords: Black Box Methodology, Control Technique, Transfer Function, CASSY, Leybold, PID Controller



DEDICATION

I dedicate this works for my Parents and my Family that I loved

And

For Mechatronics 2016's and my beloved friend Ari Hidayat,

May his soul rest in peace in Heaven



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I have found my coursework throughout the Curriculum and Instruction program to be stimulating and thoughtful, providing me with the tools with which to explore both past and present ideas and issues.

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