NETWORK IMPLEMENTATION PETRI NET MODEL FOR LAXAPANA POWER PLANT COMPLEX

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Degree of Master of Science

by

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DECLARATION

I declare that this is my own work and this thesis does not incorporate without acknowledgement any material previously submitted for a Degree or Diploma in any other University or institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text.

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The above candidate has carried out research for the Masters Dissertation under my supervision.

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Abstract

Laxapana Hydro Power complex consists of five Reservoirs & five Power stations. These power stations are located along the Kehelgamuwa Oya & the Muskeli Oya.

The total capacity of the Laxapana Complex is 354.8Mw and 13 Generators contribute their service to fulfill the service. It does not have a precise method to schedule these Generators. The Rule of thumb methods derived from past experiences is the only methodology which is used to schedule the generators. There is a cascaded system operating from water levels & flow rates of the reservoirs. it is essentially required a special Modeling Technique to optimize as the water level & the flow rates of the reservoirs are unpredictably change time to time.

It had been used a generator optimization method via Petri net Software by Engineer Lankanath. The purpose of this research is implementing the system after studying these data.

Most of the researches have been based on analyzing the previous data but in this (my) research real time data is used for the requirement. In this case, water flow rates, water levels data is rapidly acquired by the control system. Moreover all the data of generators are gained by the system.

It is decided the procedures & quantities which the generators should operate after analyzing all this data and it is monitored whether they work properly.

Eventually, Procedures & Preventive Maintenance dates etc. are decided & displayed by the AI after analyzing the data acquired. Because of this it is possible to optimize power with less failure.

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List of Abbreviations

IoT	Internet of Things
DSM	Global System for Mobile Communication
ASIC	Application Specific Integrated Circuit
ANN	Artificial Neural Network
M2M	Machine to Machine
GUI	Graphical User Interphase
LCD	Liquid Crystal Display
MQTT	Message Queuing Telemetry Transport