School of Engineering and Energy

Teras Barge Pumping System

ENG450: Engineering Internship – Final Report

A report submitted to the School of Engineering and Energy, Murdoch University, in partial fulfilment of the requirements for the double degree of Bachelor of Engineering and Commerce.

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Industry Supervisor: Paul Jones, Engineering Manager

Company: Motherwell Automation

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ABSTRACT

The engineering internship is designed to expose the final year student to the real world of engineering. This is done over a period of workplace employment in an area of relevant focus. The internship placement was undertaken at Motherwell Automation; a firm based in Perth, Western Australia. Motherwell specialise in the design and supply of industrial control systems. The affect and direction of staff within the company was absolutely pivotal to the success of the experience. Guidance was given on many aspects and focussed around a main project which was the Teras Barge Pumping System.

The Teras barge is permanently moored at Barrow Island primarily to supply a construction site with fresh water. Currently the water is pumped from the barge to standpipes on land, and this task is handled by construction personnel who operate the existing pumps and pipe work manually. The internship project was to fully automate this operation. The solution is a solar powered PLC installation, designed to sit on the barge in a suitable enclosure. This controller will operate the pumps relative to a pressure reading from the pipes supplying the standpipes. This solution was derived for our client Theiss, to assist with their construction efforts on the Gorgon project for Chevron.

The full design and construction phases were completed successfully. At the time of publication, the built system is located in the Motherwell workshop awaiting Factory Acceptance Testing (FAT) with the client representative. Once approved, the system will be transported to site where it will be installed and commissioned by Motherwell staff.

Although the project is not fully complete, it has still allowed for suitable experience in engineering style problem solving in a real-world work environment. The theory for the whole internship has been fulfilled with the realisation of personal and work related goals.

DECLARATION

I declare the following to be my own work, unless otherwise referenced, as defined by the University's policy on plagiarism. Any results, conclusions and recommendations made in this report are those of the author, and not necessarily a reflection of the opinions or policies of the University or sponsoring organisation.

Signed:

Michael John Terwindt

ENDORSEMENT

We are satisfied with the progress of this internship project and that the attached report is an accurate reflection of the work undertaken. This report does not disclose any specific confidential information.

Signed:

Mr Paul Jones

Industry Supervisor

Signed:

Associate Professor Graeme Cole

Academic Supervisor

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Motherwell Automation

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- Andrew Brown – Former Plant Intelligence Manager: Offering initial insights to help build a strategy to undertake project in a most meaningful way: To explore what else could be done beyond the scope of the main project to optimise the internship experience.

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