PROPOSED AUTOMATION OF TEA WITHERING PROCESS USING FUZZY LOGIC CONTROLLER

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degree of Master of Science

by

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DECLARATION

The work submitted in this dissertation is the result of my own investigation, except where otherwise stated.

It has not already been accepted for any degree, and is also not being concurrently submitted for any other degree.

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endorse the declaration by the candidate.

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ABSTRACT

Tea processing is one of the major energy intensive food processing industries in Sri Lanka and the process "withering", which is the first stage of the complete process, accounts for about half of the total electrical energy consumption in the tea industry. This process consumes electrical energy mainly to run the withering fans. The traditional methods of controlling withering process have proven to be very inefficient in energy point of view.

This study proposes a fuzzy logic based withering control methodology which will optimize the electrical energy consumption of the process while maintaining the quality of the processed tea. Present process analysis was done with field experimental data and the performance of the proposed system was evaluated on Matlab® platform.

This proposed control structure can be implemented, modified and field tuned for optimization depending on the practical installation characteristics and expected to save a considerable amount of electrical energy in tea processing industry.

To my wife Thilini

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