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Research on Electricity Consumption Pattern of Households

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Declaration

I declare that this thesis is my own work and has not been submitted in any form for another degree or diploma at any university or other institution of tertiary education. Information derived from the published or unpublished work of others has been acknowledged in the text and a list of references is given.

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Dedication

This Dissertation is dedicated to my loving parents for being part of me and encouraging me always being by my side.

Acknowledgement

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Abstract

There is a growing tendency in the usage of electricity consumption over last two decades in Sri Lanka. The electricity sector is growing rapidly and the demand is also increasing day by day. The technology of Sri Lanka is also evolving rapidly with compares to the 60 70 decades, the demand of electricity consumption is increased. When the demand is increased the electricity network should have the facility to distribute the correct level of electricity load to the correct transformer where the houses are basically connected. So it is necessary to look at the electricity consumption pattern of households for a specific recent time period and based on that there should be a way to find the key factors of the behaviors of people which are mainly affected for the energy requirements.

Electricity consumption is on a constant rise with domestic use contributing substantially to the overall consumption. As the population of Sri Lanka growth along with the using of daily electric appliances to make the life easy, also drive to the electricity demand to higher levels. Targeting domestic electricity consumption pattern become most influential factor to make the global consumption to be lowered. This involves understanding and changing the consumer's behavior, awareness and increasing their knowledge on the subject of electricity conservation methods. In this research various factors affecting for the household electricity consumption are analyzed. And also the energy awareness, related interests and also the knowledge level is considered when trying to explain differences in household consumption patterns.

Ceylon Electricity Board is the only major utility in Sri Lanka where the electricity is generated for the whole nation. For this research, consumers from Jaffna area in Northern Province are selected for the sample data gathering. Consumers are categorized in to different consumption groups (average consumption groups) and well defined questionnaire is distributed among consumers. The consumer's consumption and billing related information is extracted from the Ceylon Electricity Board's databases. The collected data will be processed and analyze the consumption pattern and indentify the ways to increase the energy conservation habits. The classification and decision trees in data mining are used for the analysis step.

For the further work it is necessary to educate the consumers towards the use of electricity efficiently and save the energy for the future demands. For that it should start from the individual household and expand that to the whole country.

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Definitions, Acronyms and Abbreviations

DDR1	Distribution Division Region 01
DDR2	Distribution Division Region 02
DDR3	Distribution Division Region 03
DDR4	Distribution Division Region 04
CEB	Ceylon Electricity Board
GUI	Graphical User Interface