**A Novel Load Image Profile-Based Electricity Load Clustering Methodology**

**Abstract:**

An in-depth understanding of consumer energy consumption patterns is essential for accurate forecasting and efficient management. In this paper, a novel load profile analysis methodology is proposed using an image processing technology that simplifies the understanding and improvement of electricity consumption patterns. The electricity consumption patterns over time are represented as load image profiles in two dimensions. These profiles are modified by image processing using filtering and thresholding techniques to suppress excessive sensitivity. Subsequently, the clustering algorithms are performed to classify the load image profiles, and representative class load image profiles are obtained. The resulting clusters are compared to the results of conventional load profile analysis. The proposed methodology shows enhanced performance over the conventional approach from the viewpoint of evaluation among the different load image profile classes.

**SYSTEM REQUIREMENTS:**

**HARDWARE REQUIREMENTS:**

* System : Pentium Dual Core.
* Hard Disk : 120 GB.
* Monitor : 15’’ LED
* Input Devices : Keyboard, Mouse
* Ram : 1 GB

**SOFTWARE REQUIREMENTS:**

* Operating system : Windows XP/UBUNTU.
* Implementation : NS2
* NS2 Version : 2.28
* Front End : OTCL (Object Oriented Tool Command  Language)
* Tool : Cygwin (To simulate in Windows OS)