WAVE SHAPE RECOGNITION OF SPIKES USING MATLAB APPLICATION IN POWER QUALITY ANALYSIS

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UNIVERSITI TEKNOLOGI MARA

OSAIZAM IZWAN BIN OTHMAN
Faculty of Electrical engineering
UNIVERSITI TEKNOLOGI MARA
40450 SHAH ALAM, SELANGOR

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ABSTRACT

Power quality has become an issue of increasing interest since the late 1980s. The interest in PQ involves all three parties concerned with the power business: utility companies, equipment manufacturers, and electric power customers. This paper describes a method for recognition of spike disturbance by using the Learning Vector Quantization (LVQ) and Probabilistic Neural Network (PNN) incorporated with wavelet processing. The spike that occurs in the power supplies that cause voltage current or frequency deviations causing the malfunction of the user appliance is one of the major issues that have been experienced by the utility and consumer parties. The capability of Wavelet to detect the spike is being exposed. The finally stage is to classify spike using the Learning Vector Quantization (LVQ) or Probabilisitc Neural Network (PNN) has being proposed. This paper would be guided for the using of the self-detecting and classification by using the MATLAB application in monitoring system.

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CHAPTER 1

INTRODUCTION

1.1 Introduction [1]

Both electric utilities and end users of electrical power are becoming increasingly concerned about the quality of electric power. The term *power quality* has become one of the most prolific buzzwords in the power industry since 1980s. It is an umbrella concept for a multitude of individual types of power system disturbances. The issues that fall under this umbrella are not necessarily new. What is new is that the engineers are now attempting to deal with these issues with a systems approach rather than as individual problems.

There are four major reasons for the growing concern:

1. Load equipment is more sensitive to power quality variations than equipment applied in the past. Many new load devices contain microprocessor-based controls and power electronic devices that are sensitive to many types of disturbances.
2. The increasing emphasis on overall power system efficiency has resulted in a continued growth in the application of devices such as high-efficiency, adjustable-speed motor drives and shunt capacitors for power factor correction to reduce losses. These are resulting in increasing harmonic levels on power systems and have many people concerned about the future impact on system capabilities.
3. Increased awareness of power quality issues by the end users. Utility customers are becoming better informed about such issues as interruptions, sags, and switching transients and are challenging the utilities to improve the quality of power delivered.