

Abstract

In recent years, there has been a lot of research in the field of detecting fraudulent consumer electronics, each of which has somehow tried to provide solutions to detect fraud. In this thesis, in order to overcome the existing limitations, in the process of identifying right and suspicious subscribers with different consumption patterns and in order to reduce cost and time, a method of diagnosis based on the power consumption of each subscriber is proposed in kilowatts per period. In the proposed method, each subscriber's power consumption will be converted from kilowatts to vote in each period, and subscribers who are suspected of stealing fraud and electricity will be determined. The proposed method consists of two parts: in the first part, the pattern of consumption of subscribers will be determined according to the maximum and minimum power consumption available for each period. In this section, three general patterns are defined: 1. normal pattern 2. abnormal pattern 3. massive pattern. Similarly, subscribers with an abnormal pattern during a period and one year will be specified as the priority of the inspection based on their vote. In the second section, the electricity consumption of each subscriber was compared with that of the previous year and is classified according to the percentage of its reduction into four categories of right and suspect type I, type II and type III. Also, their biannual behavior along with the priority of the customer inspection based on their votes will be determined. So, both the pattern of consumption and the comparison of common electricity consumption in each period, similar to the previous year, could identify and prioritize subscribers. To test the proposed method, 300 subscriber power consumption data were used in three different regions of Zabol. The division of these three areas is based on the economic and subsistence level of the subscribers. The first area refers to the most favored subscribers of the economy, the second one is for medium-sized subscribers, and the third is for poor subscribers from the field of economics.

Key words: electricity theft, power distribution network, fraud detection, classification of suspicious subscribers, power consumption pattern



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