

New Leak Detection Algorithm in Water Distribution Network Using Pressure Measurements

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As people gathered at high density in cities, water supply pipe network has become increasingly complex. The damage to the water supply pipe can occur in the form of leakage or burst and technique for the early detection of the occurrence time and for the exact determination of the location are required. In this paper, we propose a new algorithm that detects the leakage of the water supply network using the pressure data measured by the pressure sensor. After the data measured by the pressure gauge, noise is eliminated using a kalman filter. Then the mean of a steady state pressure is calculated and deviation with the mean is obtained. By calculating the cumulative sum of the pretreated data and setting appropriated period with threshold value, the leakage can be detected easily. This method is faster and robust than previous methods and easy to be applied when there only be the pressure measured without flow rate data.