Fault Detection and Diagnosis of Pipeline in Water Distribution Network System

이신제, 김대식, 오세규, 이종민*
서울대학교
(jongmin@snu.ac.kr*)

Once water pipe networks are equipped, it is difficult to recognize the state of pipes when leak or burst happens. Post management is often delayed after fault occurs. Therefore, a systematic fault management system is required to prevent accidents and minimize the loss. In this work, we develop online fault diagnosis system of water pipe networks. Real data in specific area where artificial leaks are generated are gathered to verify the developed algorithm. At first, the data are preprocessed to remove sensor noises using scale space filtering. Then, fault detection algorithm is applied, which integrates discrete wavelet transform and cumulative sum. If faults are detected, the signals are transferred to fault diagnosis algorithm. In the fault diagnosis algorithm, the fault location and size are calculated using wave speed of pipe.