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Towards achieving a reliable leakage detection and localization algorithm for application in water piping networks: an overview

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ABSTRACT:

Leakage detection and localization in pipelines has become an important aspect of water management systems. Since monitoring leakage in large-scale water distribution networks (WDNs) is a challenging task, the need to develop a reliable and robust leak detection and localization technique is essential for loss reduction in potable WDNs. In this paper, some of the existing techniques for water leakage detection are discussed and open research areas and challenges are highlighted. It is concluded that despite the numerous research efforts and advancement in leakage detection technologies, a large scope is still open for further research in this domain. One such area is the effective detection of background type leakages that have not been covered fully in the literature. The utilization of wireless sensor networks for leakage detection purposes, its technical challenges as well as some future research areas are also presented. In a general remark, practical application of these techniques for large-scale water distribution networks is still a major concern. In this paper, an overview of this important problem is addressed.