CR-LPWAN: Issues, solutions and research directions

Ntshabele, K; Isong, B; Abu-Mahfouz, Adnan MI

Abstract:
Low Power Wide Area Network (LPWAN) is a network technology that emanated from the swift advancement of the Internet of Things (IoT) market. It is characterized by low cost, long-range communications, low power consumptions, and better area coverage. However, LPWAN is faced with several challenges such as scalability, security, coexistence, management, and adoption. Recently, Cognitive Radio-LPWAN (CR-LPWAN) has been introduced to address some of these challenges to preserve the benefits of LPWAN. Therefore, this paper surveys and analyses recent works on CR-LPWAN to identify the existing challenges, possible solutions and open issues as research directions. This paper specifically focused on relevant works that addressed issues in standardization, design, development, and architecture and identified research directions for improving CR-LPWAN. About twenty (20) relevant articles were explored, and the findings revealed the existence of several issues and proposed solutions in the CR-LPWAN realm. The findings also revealed CR-LPWAN as a promising wireless communication technology and with more research attention, CR-LPWAN can be improved significantly.