Abstract

Data collection is the most basic task in wireless sensor networks. A wireless sensor network consists of large numbers of nodes which collects data and then forwards collected data to sink. An important area of research in WSN is energy conservation. Medium Access Control (MAC) protocols plays vital role in energy conservation. MAC protocols are either CSMA based or TDMA based. CSMA based protocols suffers from collision while synchronization among nodes is drawback of TDMA based protocols. In TDMA, the node becomes active only during the particular time slot which is allocated to it. In this paper, we first outline the basics of wireless sensor network, after that we present study of various CSMA based protocols like S-MAC, DSMAC, T-MAC, Wise-MAC; TDMA based protocols like D-MAC, LL-MAC, TRAMA, W-MAC and hybrid (CSMA+TDMA) protocols like Funneling MAC and Z-MAC for wireless sensor networks. At the end of discussion this paper also presents main advantages and disadvantages of these MAC protocols. This paper also presents some open issues related to these protocols and at the end we present conclusion.

References
- Singh H. , Biswas B. , &quot;Comparison of CSMA based MAC protocols of wireless sensor networks.&quot; 
- Shilo Kumar Singh et. al, &quot;A Survey on network security and attack defense mechanism for wireless sensor network.&quot; International Journal of Computer Trends and Technology (IJCTT), May to June Issue 2011.
- Rajendran, V. et. al, &quot;Energy-efficient, collision-free medium access control for wireless sensor networks;&quot; In Proceedings of the 1st ACM Conference on Embedded Networked Sensor Systems, SENSYS&apos;03, Los Angeles, CA, USA, 5–7 November 2003;
A Survey on MAC Protocols for Data Collection in Wireless Sensor Networks

pp. 181-192.

Index Terms

Computer Science

Wireless

Keywords

Wireless Sensor Networks (WSN)  Medium Access Control (MAC)  CSMA  TDMA