Delay sensitive aware distributed data fault recognition algorithm for distributed sensor networks

J. Kirubakaran[1] · G. K. D. Prasanna Venkatesan[2] · K. Sampath Kumar[3] · S. Dhanabal[4] · K. Baskar[5]

Abstract

In the recent past, DistributedSensor Network (DSN) placed a significant role in diverse application that benefits to transmit the information from one location to another location. During the data transmission procedure, the network exploits numerous characteristics such as energy harvesting, resilience, scalability, Delay, Life time, Throughput and Packet Delivery Ratio (PDR). The effective utilization characteristics benefits to improve the complete information transmission progression. Even though the network transmits the information effectually, the network faces numerous disputes such as network failure, node failure, lifetime issues, Throughput, delay, PDR and power consumption problem. These issues are affecting the entire data or information transmission efficiency. In addition to this, selection of path also generate problems that leads to create the security issues because the wrong path selection affects network lifetime as well chances to access the information by unauthorized access. To address these issues Delay Sensitive Aware Distributed Data fault Recognition algorithm (DSA-DDFRA) is proposed with the major objective is to manage the network lifetime, faults and choosing optimized path while making the information transaction. The algorithm is experimentally validated for optimized parameter such as Error Rate, network lifetime, delay, energy, throughput and PDR.

Keywords Distributed sensor network · Packet delivery ratio · Delay sensitive aware distributed data fault recognition algorithm · Error rate · Network lifetime

1 Introduction

The significance of distributed sensors or remote sensor networks, data fault, correspondence security threats are broke down effectively [1]. Different looks into assessments about data fault recognition process based on routing protocols, network lifetime maximization process and distributed sensors organize basic decision making process are researched viably [2]. Based on the research discussions, the information fault location and routing procedures are analyzed with the assistance of few fault identification calculation, routing conventions, for example, hybrid routing architectures, proactive and reactive protocols etc..,. These fault recognition calculation alongside with routing protocols look at the moderate information failure during transmission, interface failure with the networking devices, route and link failures and other transitional fault failures are inspected by sending the telecom message

✉ J. Kirubakaran
   jkirubakaran.rnd@gmail.com

1   Department of Electronics and Communication Engineering, Muthayammal Engineering College, Rasipuram, Namakkal (Dt), Tamil Nadu, India

2   Department of Electronics and Communication, Faculty of Engineering, Karpagam Academy of Higher Education, Coimbatore, Tamil Nadu, India

3   School of Computing Science and Engineering, Galgotias University, Greater Noida-UP, New Delhi, India

4   Department of Computer Science and Engineering, PGP College of Engineering and Technology, Namakkal, Tamilnadu, India

5   Department of Computer Science and Engineering, Kongunadu College of Engineering and Technology, Trichy, Tamilnadu, India