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Energy Transfer Data Communication in Wireless Sensor Network Using Improved Firefly Algorithm

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Abstract:
The wireless transmission of energy via directed radio frequency waves has the potential to produce always working
sensor nodes by refilling the energy stored in the restricted on-board battery. The sensor nodes in WSNs collect
environmental data, which is subsequently progressively sent to the networks. The sensor gathers signals and
transmits them as data. The data are then relayed over a number of wireless nodes before being sent to the originating
node. The large data transfer and high energy consumption of WSNs was not be successfully balanced by the existing
routing techniques. In this paper the improved Firefly optimization approach is introduced to avoid this problem. The
potential of the newly developed, nature-inspired Firefly algorithm for optimization reduces and addresses a variety of
issues in WSN. The improved firefly technique is implemented in this study to find the correct path in sensor networks
to transmit the data. In this paper the comparison of numerous network performance measures including average
energy consumption (8.6J) end-to-end latency (2.2 ms), packet delivery ratio (1%), throughput (400 kbps), packet loss
ratio (0.1%), are used to assess or analyse this routing system. To demonstrate the protocol's superiority over current
protocols, it was compared to them.

☰ Contents

1. Introduction

For several application situations, including battlefield monitoring, rescue efforts, monitoring the environment, and healthcare checking, WSN have become known as a viable technology. However, because they are frequently used in hazardous or severe environments, WSNs are exposed to a variety of dangers. Attackers may very simply take control of sensor nodes in WSNs and use them to execute a variety of attacks, including selective transmission wormhole, sinkhole and Sybil [1]. By allowing deployed sensors to recharge while the network is in use, wireless energy transfer will increase their longevity and reduce application downtime. There are several uses for WSNs, including security, environmental monitoring, tracking and surveillance [2].

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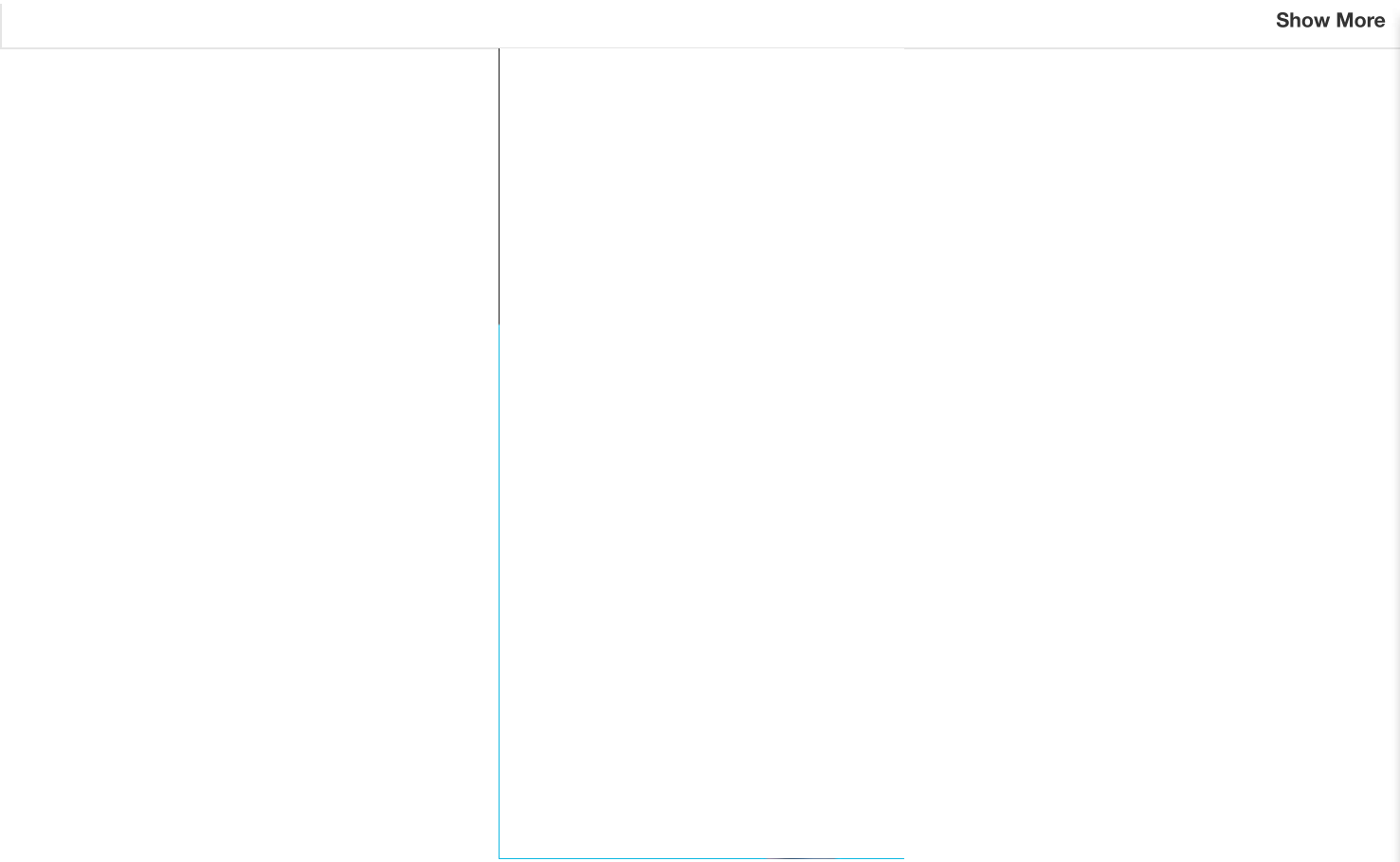
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