

# Provide dynamic SDN-ECCKN algorithm for energy management in wireless sensor networks

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**Abstract** Regarding to wireless communications advances, cheap mobile wireless sensors have taken many attentions recently. Sensor networks are designed in order to identify events in surrounding environment, gathering data and forward them to the users. By considering energy limitations in sensor nodes, problem of energy consumption has become a serious issue for the nodes. In this study, a sleep/wake scheduling algorithm with assuming  $k$  neighboring with uniform energy consumption on software-defined networks architecture is defined and a dynamic channel allocation is used to improve this proposed method, by which, a forwarding path is determined dynamically and so all forwards are performed by same way. In all simulation steps, proposed method with sleep/wake scheduling algorithm has been tested for different values of  $K$ . Experiments show that our proposed method can reach better results for the low values of  $k$ , compare to basic method. Our proposed method in terms of comparing measurements, such as amount of consuming energy for forwarding and amount of traveled distance for each forward per period, has achieved better result in simulations, such that, for amount of energy consumption by setting  $k=3$ , results show improvement of energy consumption in each period by 0.23 (J) and this amount even reaches 69 (J) in 300 period. Also, considering distance traveled, results show that amount of distance traveled in each period per forwarding, improved by 4800 meter in each period.

**Keywords :** Keywords: wireless sensor networks, energy consumption, sleep/wake scheduling algorithm, SDN-ECCKN algorithm.

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