RESOURCES AWARE DATA STREAM CLUSTERING DAN FREQUENT ITEM DENGAN DISTANCE VECTOR ROUTING PADA WIRELESS SENSOR NETWORKS

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ABSTRACT

Data communications on wireless sensor network devices is now done for streaming at high speed data rate. This trend opens to conduct opportunities for this particular area. One of developing area in Wireless Sensor Networks (WSNs) is to preserve WSNs device to make it run as long as possible. An approach for doing this is called Resource-Aware (RA) that manage Algorithm Granularity Setting (AGS) of WSNs. RA observes battery, memory and CPU of WSNs and perform adjustment on sampling interval, radius threshold, and randomization factor. The algorithm is very effective for improving energy efficiency and is adaptive. The mining data streaming process uses Light-Weight Clustering (LWC) and Light Weight Frequent Item (LWF), whilst the process of sending data from sensor nodes to base station uses Distance Vector Routing Protocol. The algorithms are used to increase energy efficiency in WSNs network in terms of resource efficiency and the effectiveness of data collection from WSNs. This study combines data clustering using RA-Cluster algorithms and RA-Frequent Items, both combined with Distance Vector Routing. This technique is called RA-CluFIDV (Resource-Aware Clustering and Frequent Item with Distance Vector). Results obtained that involves adaptation of Resource-Aware in terms of lifetime of wireless sensor networks shows improvement of up to ± 17% for single node and ± 16% for multinode.

Keywords: AGS, LWC, LWF, Resource-Aware, Distance Vector, RA-CluFIDV.