6. Conclusions

In this paper, a framework is proposed for the provision of the centralized routing functionality over multi-hop Time-Slotted Channel-Hopping networks. We leverage the existing distributed routing mechanism for network status discovery. A network status collection mechanism is developed for providing the collected information to administrators to make centralized routing rules. A command distribution mechanism is also designed to notify sensors about new routing rules. We further propose a hybrid routing algorithm for sensors to switch between the proposed centralized routing and the existing distributed routing based on the network conditions. Experiments on OpenMote development kit prove that the proposed framework is feasible.

Future studies will address the problem of generating optimal centralized routing rules without the involvement of humans. In addition, large-scale simulations will be conducted for performance analysis.

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