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Programming Models for Sensor Networks:
A Survey

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Abstract

Sensor networks have been used in various types of applications and still have a huge potential. As an application logic becomes more complex, growing number of people realize that programming sensor networks is difficult. Part of the difficulty comes from their distributed nature, but the large fraction is from other harsh situations they face such as unreliable communication, faulty nodes, and extremely constrained resources. Researchers have proposed different programming models to alleviate the difficulty, sharing an ultimate goal of making programming easy while making full use of given resources. In this paper, we first explore the requirements for programming models for sensor networks. Then we present a taxonomy of the programming models, classified according to the level of abstractions they provide. We evaluate each work in terms of the requirements and discuss the strategies how the programming models strive to satisfy these requirements. Further, we discuss some possible future directions of research in this area.