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# Delay and Energy Optimization in Event Based Sensor Networks: Challenges of Control

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*Abstract*—While event-based sensor networks have been employed in various applications, they, however, have become very popular in application areas related to disaster management such as tsunami and volcano monitoring. Such applications require that the network operate for longer period of time and report the events as soon as they occur. Hence, energy consumption and delay are the two most important design constraints in such a network. Decreasing the delay would require communicating the data sensed by the sensor nodes to the base station as soon as they occur in the network, whereas, energy consumption can only be reduced if the information is processed first by filtering unnecessary events. Thus, there is always a trade-off between delay and energy consumption. This represents a big challenge in the research and design of networks of such topology. The existing work done on various applications using sensor networks. Also, presented analysis of how the issues of network delay and energy consumption are addressed in those works. The analysis will support implementers to make an informed decision on how to deal with these issues while designing disaster management applications based on this network topology.

*Keywords*—Sensor Networks, Energy, Delay, Disaster Management