Abstract: Cyber Physical Systems (CPSs) are large scaled systems that explore the cyber capability to facilitate the operation of the physical world. CPSs promise to transform the way we interact with the physical world just as the Internet transformed how we interact with one another. Sensor networks that bridge the computational and physical components of CPS are a necessary and critical part of the entire system. The sensor networks are expected to be highly dynamic, heterogenous, large-scaled, robust and efficient, in order to support the system engineering of high confidence CPSs. This paper uses the intelligent transportation system as an example to survey the current sensor and sensor networking technology that may be adopted and analyzes the challenges in the design of qualified sensor networks for CPS. Possible solutions and research directions are also presented.

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