

Perception-Oriented Model Driven Development for Designing Data Acquisition Process in Wireless Sensor Networks

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Abstract : Wireless Sensor Networks (WSNs) have always been characterized for application-specific sensing, relaying and collection of information for further analysis. However, software development was not considered as a separate entity in this process of data collection which has posed severe limitations on the software development for WSN. Software development for WSN is a complex process since the components involved are data-driven, network-driven and application-driven in nature. This implies that there is a tremendous need for the separation of concern from the software development perspective. A layered approach for developing data acquisition design based on Model Driven Development (MDD) has been proposed as the sensed data collection process itself varies depending upon the application taken into consideration. This work focuses on the layered view of the data acquisition process so as to ease the software point of development. A metamodel has been proposed that enables reusability and realization of the software development as an adaptable component for WSN systems. Further, observing users perception indicates that proposed model helps in improving the programmer's productivity by realizing the collaborative system involved.

Keywords : data acquisition, model-driven development, separation of concern, wireless sensor networks

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