

IEEE 1451 STANDARD

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Objective: to present some aspects of the IEEE 1451- Standard for a Smart Transducer Interface for Sensors and Actuators, by using the description of its implementation for a specific measurement situation.

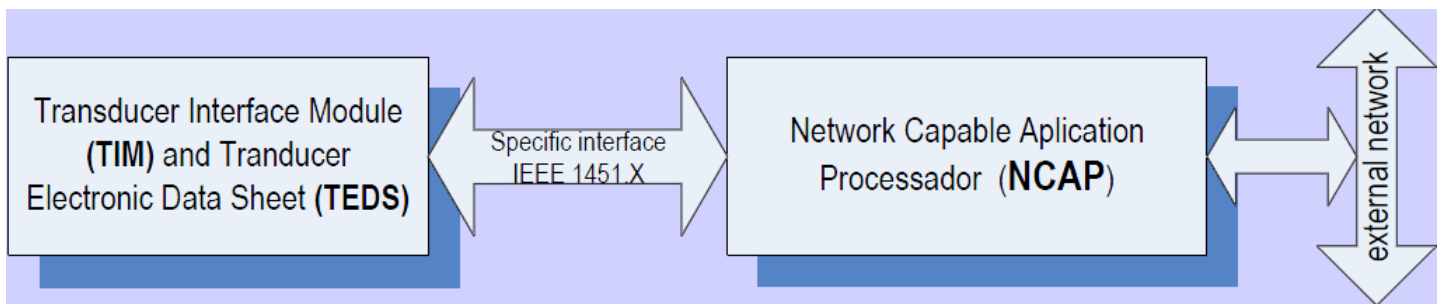


Figure 1 IEEE 1451 ARCHITECTURE

WIRELESS SENSOR NETWORKS (WSN)

Pedro Silva Girão

Wireless Sensor Networks (WSN) are a special type of distributed measurement systems (DMS) whose use has been increasing in the last years particularly for monitoring, tracking and control. Among many of the potential and actual fields of applications is environmental monitoring. Due to the importance of water in human life and activity, water quality monitoring is one of the most important tasks of environmental monitoring and wireless sensor networks are particularly adequate to continuous on-situ monitoring of large surfaces of water like lakes, rivers and oceans. In this type of applications, the network is composed of nodes, preferably installed on special buoys, equipped with the sensing and electronics required to measure pre-defined water parameters and to wirelessly transmit the results to a land-based unit where they are further processed. The access to the location of each node is particularly important and thus a global positioning system (GPS) receiver is included in the node's hardware. In marine applications, underwater transmission of data is often desirable. In particular, the possibility of underwater location based on GPS has been a goal pursuit by many people. The large attenuation of radio waves in water forces to find alternatives to telecommunications based on electromagnetic waves.

