

## **A STUDY OF COMMUNICATION PROTOCOLS IN SENSOR NETWORKS**

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### **Abstract**

In computing and telecommunications, a protocol or communications protocol is a formal description of message formats and the rules for exchanging those messages. Protocols may include signaling, authentication and error detection and correction capabilities. In its simplest form, a protocol can be defined as the rules governing the syntax, semantics, and synchronization of communication. Protocols may be implemented by hardware, software, or a combination of the two. At the lowest level, a protocol defines the behaviour of a hardware connection. The protocols in human communication are separate rules about appearance, speaking, listening and understanding. All these rules, also called *protocols of conversation*, represent different layers of communication. They work together to help people successfully communicate. The need for protocols also applies to network devices. Computers have no way of learning protocols, so network engineers have written rules for communication that must be strictly followed for successful host-to-host communication. These rules apply to different layers of sophistication such as which physical connections to use, how hosts listen, how to interrupt, how to say good-bye, and in short how to communicate, what language to use and many others. These rules, or protocols, that work together to ensure successful communication are grouped into what is known as a protocol suite. The widespread use and expansion of communications protocols is both a prerequisite for the Internet, and a major contributor to its power and success. The pair of Internet Protocol (or IP) and Transmission Control Protocol (or TCP) are the most important of these, and the term TCP/IP refers to a collection (a "protocol suite") of its most used protocols. Most of the Internet's communication protocols are described in the RFC documents of the Internet Engineering Task Force (or IETF).