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Contiki OS

There are several different types of operating systems that are beneficial to Wireless Sensor Networks, all of which have their advantages. Contiki OS is an operating system that was released in 2001 specifically targeted for WSNs. It was developed by a team of developers from the Swedish Institute of Computer Science, which was led by Adam Dunkles. Contiki is an open source and highly portable system. Contiki is used in ships, satellites, oil drilling equipment, and much more. This operating system is designed for microcontrollers with limited memory, and typically is configured with 2 kilobytes of RAM and 40 kilobytes of ROM. C is the programming language this operating system is written in, and it consists in an event driven kernel. Contiki processes use lightweight protothreads, and supports per-process optional multithreading. Contiki provides three different types of memory management, which include malloc(), memory block allocation, and a managed memory allocator. Contiki provides IP communication for IPv4 and IPv6. Contiki uses the Rime low-power radio networking stack for communication within WSNs. The method used for interacting with the network of sensors is via web browser. Contiki addresses the issue of power-efficiency with a software-based power profiling mechanism, which keeps track of energy usage within each node. Data storage within the WSN is provided by Coffee, a flash-based file system.

Source: http://www.sics.se/contiki/