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Review

# Wireless sensors in agriculture and food industryâ€”Recent development and future perspective

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## Abstract

This paper presents an overview on recent development of wireless sensor technologies and standards for wireless communications as applied to wireless sensors. Examples of wireless sensors and sensor networks applied in agriculture and food production for environmental monitoring, precision agriculture, M2M-based machine and process control, building and facility automation and RFID-based traceability systems are given. The paper also discusses advantages of wireless sensors and obstacles that prevent their fast adoption. Finally, based on an analysis of market growth, the paper discusses future trend of wireless sensor technology development in agriculture and food industry.

Previous article Next article

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## Abbreviations

CAN, controller area network; CDMA, code division multiple access; GSM, global system for mobile communications; GPRS, general packet radio service; HVAC, heating, ventilation and air conditioning; IEEE, Institute of Electrical and Electronics Engineers; IrDA, a suite of protocols for infrared data exchange, defined by Infrared Data Association; IT, information technology; LAN, local area network; M2M, machine-to-machine, machine-to-mobile or mobile-to-machine; MEMS, micro-electro-mechanical systems; NCAP, network capable application processor; NIST, National Institute of Standards and Technology; PDA, personal development assistant; RAS, remote application server; RFID, radio frequency identification technology; SPWAS, solar-powered data acquisition stations; STIM, smart transducer interface module; TEDS, transducer electronic data sheet; TII, transducer-independent interface; USDA, US Department of Agriculture; WiFi, wireless fidelity, usually refer to any type of IEEE 802.11 network; WINA, wireless industrial networking alliance; WLAN, wireless local area network; WPAN, wireless personal area network; WPS, wireless probe system; WPSRD, wireless personal safety radio device

## Keywords

M2M; ZigBee; Bluetooth; RFID

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