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Study on Combination of ICT to Agriculture and Safety power supply

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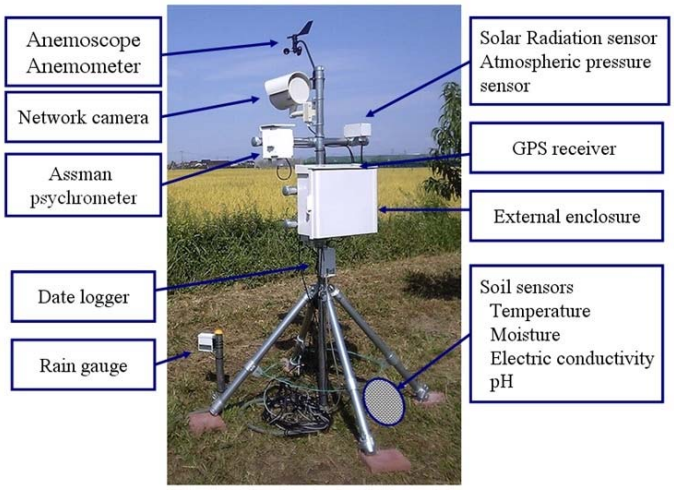
Keywords	Food Sensors, ICT in Agriculture, Dispersed power source
Technical Support Skills	・Sensors Engineering ・Food Engineering ・System and method of environment monitoring for ICT in agriculture using Agri-Server

Research Contents

○ ***For ICT in agriculture,*** Recently, the consumer is of immediate interest to "safety and security of food", and they would like to monitor the growing process of agricultural products. Therefore it is important to be able to monitor the growing condition and the growth of agricultural products. Another important thing is a long-term stable measurement covering wide area. "Agri-Server" is one of the approaches to solve this matter. "Agri-Server" equipped with sensors is a static robot to measure the growing condition such as meteorological and soil sensing data. "Agri-Server" also has a server function to save data, a wireless communication functions and network camera for image acquisition. We have constructed a field monitoring system consisting of eight Agri-Servers in Tsuruoka City at the Shonai region in Japan.Operations have been performed for 3 years.



○ ***Construct of A security system by independent dispersed power source for the risk.*** Independent power sources dispersed to limit risk is a concept incorporating small power generation systems using green energy—wind and solar power generation—with an electricity storage system using lead and lithium ion storage cells, and an electric power measurement and control system.

Even when infrastructure such as electrical grids and networks are disabled by an earthquake or other disaster and transmission and sharing of information become impossible, the system establishes a network using a satellite communication network and constructs a base station for wireless local area networks (LAN). Regarding internet access, a freespot is provided such that wireless LAN equipment is distributed, and notebook computers, portable terminals, smartphones, WiFi equipment, etc. are connected wirelessly via satellite communications and data communication terminals. During a power failure, this system functions as the power source for LAN driving to keep a LAN circuit available without interruption.During normal operation, this system provides security measures because of its monitoring effects using camera and LED illumination. The power generation status of small power generation systems, acquisition of sensor data of environment monitoring systems and the display of those data might be useful as materials for science education, thereby contributing to science and engineering education.