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A CASE STUDY

Agriculture operation monitoring system with Wireless Sensor Network (WSN) including RFID, GPS and CCTV

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ABSTRACT

This manuscript proposes an agricultural environment monitoring server system for monitoring information concerning an outdoors agricultural production environment utilizing Wireless Sensor Network (WSN) technology. The proposed agricultural server collects environmental, agricultural land, seeds and soil information on the outdoors through WSN-based environmental and soil sensors, collects snaps information through CCTVs, area information through RFID and collects location information using GPS modules. This collected information is converted into data and saved into a database through the agricultural server consisting of a sensor manager, which manages information gathered from the WSN sensors, an image information manager, which manages image information collected from CCTVs, RFID and a GPS manager, which processes location information of the agricultural server system, and provides it to producers. In addition, a solar cell-based power supply is implemented for the server system so that it could be used in agricultural environments with insufficient power infrastructure. This agricultural server could even monitor the environmental information on the outdoors, and it could be look forward that the use of such a system could participate to increasing crop yields and improving quality in the agricultural field by supporting the decision making of crop producers through analysis of the collected information.

KEY WORDS : Agriculture operations, Monitoring system, Wireless sensor devices, RFID, GPS, CCTV, Agricultural environment monitoring server system, Wireless sensor network (WSN), Monitoring servers, Agriculture crops

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