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Applications of Wireless Sensor Networks and Object Detection in Precision Agriculture: A Review

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Abstract

Sri Lanka is a nation with a strong history of crop farming. For the vast majority of people back then, agriculture was the only profession accessible. The cultivation is declining because of economic problems. By automating the agricultural process, a country's Gross Domestic Product and its residents' lifestyles will grow. The goal of this research is to learn more about the Wireless Sensor Network (WSN) based systems that have already been created and to pinpoint the best technology and sensors for a WSN that will be created to support big farms in Sri Lanka. Wireless sensor networks in agriculture and other technologies utilized in agriculture as well as for object recognition were the two primary areas of focus of this study. This study comprises a systematic literature review which is conducted by reviewing the most important set of research papers after identifying 100 research activities related to the discussed field. Further, in this study, the proposed design for the system is also discussed. The ZigBee protocol, which is the most modern and most readily scalable protocol among the ones that are now available, was used in the development of the majority of WSNs. Sensors were employed to measure humidity, temperature, and light. Additionally, some systems had an inbuilt expert system to give farmers professional advice on crop cultivation. To take pictures of the field, cameras were placed in the sensor nodes. The Atmega128L, coupled with the ZigBee protocol and various sensors, is the controller of the node that this article finds to be the most appropriate. The most effective algorithm for object identification and categorization is DTE.

Keywords: *Wireless Sensor Network, Precision Agriculture, Image Processing*