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Maize Plant Monitoring System Based on IoT Application

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Abstract:

Agriculture sectors, especially maize plant farming have been widely used in our country for decades due to revolution of agriculture technologies which evolved aggressively. Thus, the production of maize plants is continuously increased in recent years. In line with the current state of technology, the internet of things (IoT) is one of the pillars outlined in the industrial revolution (IR 4.0) which potentially could be used to enhance the quality and volume of corn's production. This technology can offer various improvements and minimize the labor's work and to make it easier for farmers to monitor their crops online besides it could increase the corn production in each season. Thus, the purpose of this study is to develop an automated system that can monitor and control the maize plant's essential needs using the IoT application. Parameters such as soil moisture, temperature, humidity, and the environmental issues are rigorously investigated to monitor the condition of the plant. For the prototype, hardware such as Arduino has been used as the main controller to monitor the condition of the plants and interfaced with sensors. The system is designed based on a real-time monitoring where the data sensed by the sensors will produce a feedback to the controller which is known as feedback control. The controller displays the data received from the sensors using a software known as the Blynk application that is available in smartphones. Besides, the system also enables automated features such as irrigation and roofing to protect the plants from an excessive humidity and water drop. From the hardware and software testing, it is found that the prototype operated smoothly for irrigation and roofing systems.