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A Smart Farm Monitoring and Control System using Wireless Sensor Network

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Abstract: *Agriculture is one of the most important sector that accounts for economic growth in the developing countries of the world. Many developing countries are now focusing on agricultural development, yet the sector is not without challenges including climate changes, drought, flooding to mention but a few. These result in poor yield of agricultural products. In this work, we l developed a robust smart system to enhance both irrigation and flooding monitoring and control, leveraging on Wireless Sensor Networks (WSNs) to boost agricultural production. In the system's implementation, Arduino based instrumentation, integrated with temperature, soil moisture and water level sensor shall be adopted to monitor the agricultural environment, while reporting the status wirelessly through the Radio Frequency (RF) modules to the base station. The base station will evaluate the received data and either activates or deactivates the irrigation or drainage pump using specified threshold values. The remote reporting the state of farm shall be done by deploying a 900Mhz transmitter interfaced with the system's controller. This work shall be validated using an experimental test bed, which shall be used for field experiments, data collection and evaluation. The result of the work shall highlight the potentials of WSN technology in monitoring and control technology of both irrigation and flooding within the farm and in turn boost productivity.*

Keywords: wireless sensor network, irrigation and control, variable parameters