

Automated Hydroponic System Integrated with an Android Smartphone Application

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Abstract: Hydroponics farming is fast gaining acceptance globally as an alternative and viable method of farming, instigated by the contemporary challenges posed by climate change, exploding population growth, and global food insecurity. Hydroponics farming can be greatly improved by leveraging on innovative technological advances that will allow for the effective and efficient utilization of limited natural resources such as water, energy (sunlight), and dwindling agricultural farmlands, consequently resulting in higher yields. This paper presents the design and implementation of an automated flood and drain hydroponic system with internet of things and Android application functionalities. The design is an integrated and automatic plant-watering, water level, and pH measurement and control system using Android application with wi-fi communication technology. Tests carried out proved the workability of the system in line with expected design considerations.

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