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IOT Based Automated Hydroponics System for Precision Agriculture

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Abstract: *Growing plants hydroponically can be a great option for plants that are traditionally hard togrow in soil due to specific requirements. The aim of this work is to design and construct an indoor automatic vertical hydroponic system that does not depend on the outside climate. The designed system is capable to grow common type of crops that can be used as a food source inside homes without the need of large space. The design of the system was made after studying different types of vertical hydroponic systems in terms of price, power consumption and suitability to be built as an indoor automated system. A microcontroller was working as a brain of the system, which communicates withdifferent types of sensors to control all the system parameters and to minimize the human intervention. An open internet of things (IoT) platform was used to store and display the system parameters and graphical interface for remote access. The designed system is capable of maintaining healthy growingparameters for the plants with minimal input from the user. The functionality of the overall system was confirmed by evaluating the response from individual system components and monitoring them in the IoT platform.*

Keywords: vertical hydroponics; indoor farming; automated system; internet of things (IoT)

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