

# **Building a simulation program for the monitoring and control system of the nutrient supply stage for a recirculating hydroponic vegetable model.**

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**Abstract:** In this study, we focus on addressing the efficient management of water and nutrients in the recirculating hydroponic vegetable cultivation process. The goal is to build an automatic monitoring and control system to optimize the nutrient supply for plants. By applying a combination of theoretical research and experimental methods, the project hopes to make a significant contribution to the development of advanced technology in sustainable agriculture. Expected results include a significant improvement in the performance and productivity of the recirculating hydroponic vegetable garden.

**Keywords:** automatic irrigation, recirculating hydroponics, control system, water resource management, modeling