RCHSSE: Remotely Controlled Hydroponic System by Solar Energy

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Hydroponic is a new type of agriculture in which plants are grown without the need for soil by using a fertilizer solution containing the nutrients that plants need. It uses an automated system to supply plants with their required nutrients and minerals. Although of hydroponic advantages such as reducing the amount of used water by up to 90% and provide a good environment for plants to grow, yet it needs very close monitoring process to protect plants from damage which may causes financial losses. Several types of hydroponic systems have been developed. However, most of them are for large- scale and serve large hydroponic projects. To my knowledge no small-scale hydroponic systems that are fully automated and controlled with an application to make monitoring process easier has been made yet. The proposed system, (RCHSSE), depends on the data from sensors that gives the system the necessary information about plants nutrients needs. A dissolved oxygen sensor (DO) was added to the system in order to help in diseases detection during the incubation period as well as it helps in monitoring the percentage of dissolved oxygen for better plant's growth. Also, a solar distillation system was added to the project to recycle the spent nutrition solution which uses concentered solar energy to evaporate spent nutrient solution and hence sperate solids from water which can be reused to make fresh nutrient solution.

Awards Won: