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AUTOMATION OF A DROPWISE CONDENSATION COLLECTION WATER SYSTEM WITH ARDUINO.

An automation system was designed and implemented, using ARDUINO, that allows us to continuously measure the environmental conditions and know the corresponding dew point at which we will obtain condensed water in the collection system. Specifically, this system uses a copper plate in good thermal contact with a Peltier cell. From the temperature and humidity obtained with a DHT11 sensor, and using a calibration curve that related the voltage and temperature of the surface of the Cu plate, the ARDUINO program determined the voltage needed to adjust the temperature to the dew point. The system is intended to regularly send to the power supply, or temperature controller, a signal to adjust the voltage on the cell and thus, managing to maintain the optimal conditions to constantly condense the water under any external conditions. In this regard the project aims to propose an alternative to facilitate the adjustment of parameters that may be constantly changing when there is no isolated or controlled system and is required a continue adaptation to get favourable results, in this case, improve the quantity of water collected in a specific time.

Keywords

ARDUINO, dropwise condensation, automation, Peltier cell.

Reference

Thanh X. Nguyen, et al., J. Phys. Chem. C 2011, 115

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