

## **ABSTRACT**

### **DESIGN OF EBB AND FLOW AUTOMATIC HYDROPONIC SYSTEM FOR CHILLI CULTIVATION**

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Ebb and flow hydroponic system generally used a timer to control nutrient addition. The use of the timer, however has major disadvantage including inefficiency of nutrient usage. This research aimed at designing of ebb and flow automatic hydroponic system which able to turn on/off the pump based on the moisture content using microcontroller.

The research was conducted at Greenhouse Facility of the Integrated Field Lab of Agriculture School, the University of Lampung from April - June 2014. The procedure begins with the manufacture of instrument, calibration, system design tool, the power supply circuit, equipment test and field test.

The results showed that has been successfully realized automatic ebb and flow hydroponic system working based on the moisture content. The value of setting point obtained for controlling water content for turning on the pump was  $\leq 34.95\%$  and turning off the pump was  $\geq 69.83\%$ . Cultivation test using chilli pepper resulted that automatic ebb and flow hydroponic system was significantly better than manually system one, in terms of plant height and number of leaves.

*Keyword: hydroponic, ebb and flow system, microcontroller, moisture content.*