ABSTRACT

Animal husbandry is one of the main factors in the Indonesian economy. One of them is laying hens farm. The cleanliness of the cage affects the health of the chickens so that egg productivity can be disrupted. Therefore, the cleanliness of the cage environment must be cleaned regularly. In order for cage monitoring to be carried out in real-time and accurately, research is proposed with the title of detecting the environmental conditions of chicken coops using an integrated Wireless Sensor Network. Testing was carried out in Mr. Rachmat's laying hen cage located in Cilengkrang Village, Cilengkrang District, Bandung Regency. This system uses Arduino UNO as a microcontroller and ESP32 as a connecting node from hardware to software. DHT-22 sensor to detect temperature and humidity and MQ-135 sensor to detect ammonia gas. The read data is displayed on the LCD screen in the cage area and sent to the website monitoring system through the connecting node, namely ESP32. This allows remote access to data via the internet. Testing was carried out for 7 consecutive days at the same time and 1 full day. Based on the test results for 7 days, the average temperature value is 28.75°C, the average humidity value is 54.51% and the average value of ammonia gas is 15.95 ppm. While the test results for 1 full day show the average temperature value is 27.54 ° C, the average humidity value is 61.48% and the average ammonia gas value is 5.58 ppm. Based on the test results, it shows that the tool made is able to detect the environmental conditions of the laying hens coop, namely temperature, humidity and also ammonia gas. By having a high accurate value of the cage environment data, officers can take the necessary actions immediately to ensure the cleanliness of the laying hens coop.

Keywords: Wireless Sensor Network, Laying Hens Coop, Environmental Condition Monitoring.