

ABSTRACT

Original Kampung Chicken (AKA) is a type of local Indonesian chicken. There are many benefits produced by AKA, namely as a food ingredient to the completeness of traditional ceremonies such as those carried out by the Balinese people, especially in Seririt Village, Seririt District, Buleleng Regency, Bali Province. However, in Seririt Village itself, AKA's livestock production cannot meet community demand. This is due to the slow productivity of AKA parents in producing DOC, due to the nature of AKA itself in laying eggs and hatching eggs into chicks which take a long time. Not to mention that when the eggs were incubated, death occurred in the eggs. Therefore we need a tool that can replace the role of the hen in hatching eggs in order to increase AKA livestock production in Seririt Village. In this research, an egg incubator equipped with a control and monitoring system will be designed. The control system used is PID control to control temperature, and two-position control for flipping eggs. Meanwhile, the monitoring system used is a monitoring system based on the Internet of Things. The PID control system that is designed has K_p , K_i , and K_d constants which are 26.3171, 0.1610 and 0.0010755. The two-position control system produces good performance where the system can work according to the set time, which is once every 6 hours every day and starts on the 4th day to the 31st day. The monitoring system can send temperature, humidity, current, voltage, and electrical power data to Thingspeak and Thingview. In addition, the effectiveness of the tool which was assessed from the hatchability, mortality and duration of the eggs to hatch produced satisfactory results, each with a value of 80-100%, 0-20% and 20 days. The electric power consumed by the tool is 64.14 kW and the calculation of the costs incurred is Rp. 92,582.62.

Keyword : hatching device, PID, hatchability, IoT