

## **ABSTRACT**

Layer chickens are one of the potential poultry livestock in Indonesia. Laying hens are cultivated specifically to produce eggs commercially. In the rearing system of laying hens, there are often obstacles in the management of the farm, such as feeding and water quality. This Capstone Design focuses on creating a control system to overcome water quality problems on Mr. Rachmat's layer farm in Cisurupan Village, Cilengkrang District, Bandung Regency. The main problem faced is the poor water quality that causes clogging of the nipples and uneven feeding to the chickens.

Collecting data through extensive testing and interviews with laying hen farmers, the solution offered to overcome the problems that occur is to create a water control system so as to overcome the deposition of water in the pipe which causes slime on the nipple. In addition to water control, other sub-systems are also made, namely, temperature monitoring, ammonia gas monitoring, and water hardness measurement to determine the quality of the cage and water quality. This system is controlled using the Telegram application on a smartphone connected to the internet.

In this study, qualitative research was used using the grounded analysis method. There are 3 sensors that are tested, namely the TDS sensor, DHT11 sensor, and MQ137 sensor. The TDS sensor was tested 5 times to get an average water hardness accuracy of 7.84%, the DHT11 sensor was tested 6 times to get an average temperature and humidity accuracy of 2.68%, and the MQ135 sensor was tested 5 times to get an average result of 216.09ppm. In conclusion, this Capstone Design presents a solution that focuses on developing a water control system and monitoring the cage environment to improve the quality of life and productivity of laying hens at Mr. Rachmat's farm.

Keywords: Monitoring, Nipple, Farm, Sensor, Telegram.