ABSTRACT

In the past few years there have been outbreaks of disease in four-legged livestock, especially in the Bandung area, which is one of the largest animal husbandry centers in West Java. The spread of the disease is caused by many factors, one of which is the breeders who do not know the condition of the animals they breed. Especially some indicators of disease outbreaks that are difficult to detect such as animal temperature, animal heart rate, and animal behavior. This research project provides a solution to the problem of disease in four-legged livestock in order to reduxe the amount of spread and prevent the disease from getting worse.

This research project is equipped with the main system in the form of a smart necklace designed using the esp8266 microcontroller, along with the sensors it uses, such as the MLX90615 temperature sensor, the HW-827 heart rate sensor, the proximity sensor to the surface JSN-04SRT, and the MPU 6050 motion sensor. The microcontroller itself functions as a programming or input center to run existing sensors while at the same time the data will be read first through the Arduino IDE. Then in the next system the monitoring result data will be sent to firebase and finally the monitoring result data can be displayed through the application.

Based on the results of monitoring that had been carried out on the health of the cows for one day, the observations showed that the cows observed were classified as healthy. This is based on the observation that the temperature, heart rate, and behavior of cows are normal. This information is supported by the results of temperature sensor measurements ranging from 36-37.7°C, heart rate ranging from 60-70 BPM, neck distance to the ground 78.2-83.1 cm, and varied movements on the motion sensor. Then based on the entire test, this test results in an average accuracy of all sensors reaching 98.11%.

Keywords: Internet of Things (IoT), Four-Legged Livestock, Temperature, Heart Rate, Distance to Surface, smart collar, and Application.