Intel Genuino-Based Cow Estrous Detector

Kurniawan, Yuan (School: SMA Negeri Bali Mandara)
Prabaswara, I Dewa Gede (School: SMAN Bali Mandara)

During this time, conventional method to determine cow estrous period by checking the vulva and the behaviour of female cow has not been effective and inaccurate yet. The previous researches had found out some parameters of cow estrous condition, but still in independent factor, such as body temperature, urine gas, etc. The purpose of this research is to develop a cow estrous detector based on Intel Genuino in one integrated system: MQ135 sensor (to measure breathing frequency), heartbeat sensor, DS18b20 temperature sensor, distance sensor (to measure movement frequency), and the algorithm calculation. The study was conducted at SMA Negeri Bali Mandara and selected cattle farms in Bali, using descriptive quantitative method. The measured physical characteristics to indicate an estrous cow condition are 1) breathing frequency: 17-20 times per minute, 2) heartbeat: 61-70 times per minute, 3) body temperature: 39-40 degrees Celsius, and 4) movement frequency: 65-77 times per minute. When the cow is in the estrous period, output data of this device are in the form of texts displayed on the LCD, LED light, buzzer sound, and Short Message Service (SMS) on mobile phone. From 10 random cow samples in first experiment, 3 cows are indicated in estrous period. In the second experiment, from 27 cows that indicated in estrous period by conventional method, 22 of them are also in estrous period by this device, with suitability of about 81%. Keywords: Intel Genuino, cow estrous detector, MQ135 sensor, heartbeat sensor, DS18b20 temperature sensor, and distance sensor.

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