

ABSTRACT

Livestock play an important role in people's lives, such as in meeting food needs, clothing needs, as transportation, and so on. Therefore, the community should participate in maintaining the welfare and health of livestock. One of the things that can be done to maintain it is to monitor the movement and behavior of farm animals. Therefore, a system is needed where farmers can supervise it such as by using technology where farmers can supervise anywhere without the need to come to their livestock pens.

In this final project we propose a system for detecting the movement of farm animals at night with digital imagery based on depth-sensing acquisition. The main advantage of this system lies in the ability of the Frame Difference algorithm to detect the movement of farm animals at night and low light conditions. Using depth imagery, the system can see through the darkness and detect moving farm animals even in situations with very limited lighting. In addition, this system also provides information related to livestock activities, such as sleep patterns, diet, or behavior changes that can indicate health problems by displaying them on graph data.

In this final project, a system is designed to detect the movement of livestock at night using camera technology that will be connected to a microcomputer. The system for detecting the movement of farm animals at night displays a video containing a bounding box and a large graph of the area against time. The algorithm used in the application to detect this movement is Frame Difference. This system with the Frame Difference method succeeded in detecting the movement of livestock at night by obtaining an average accuracy of 76.15% and a standard deviation of 12.44.

Keywords: *Frame Difference, GUI, Depth Sensor Camera*