OYSTER MUSHROOM QUALITY SORTING TOOL CONTROL SYSTEM USING FUZZY LOGIC BASED COLOR SENSOR

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ABSTRACT

In this research, the author designed an oyster mushroom quality sorting tool using a color sensor based on Fuzzy Logic. The sensors used are TCS34725 color sensors, servo motors and DC motors to drive the conveyor belt. In the research carried out, it was discovered that the value reading on the color sensor was greatly influenced by the distance and lighting received by the sensor. So the researchers added lights as a medium to equalize the lux value which affects the light reading. The distance of the sensor to the object also greatly influences the reading of the R, G and G values, so that in designing the FLC, the color reading value will be placed at a distance of 2.0 cm - 3.6 cm. The Fuzzy Logic Controller Input Design is divided into 3 sets based on input from color sensor readings, namely R, G and B and 1 output, where the Fuzzy output uses the Sugeno method to make it easier to process data to move the servo actuator later. Based on the test results, FLC is able to sort good quality mushroom objects, poor quality mushrooms and non-mushroom objects with a success rate of 85% and failure of 15%. And for testing the tool's mechanical system, it has a success rate of 73%.

Keywords: Fuzzy logic, RGB, Sugeno method