ABSTRACT

Sorting is a crucial process in various sectors, including agriculture and industry, playing a vital role in production and distribution. Generally, tomato farmers still sort maturity levels manually, often leading to classification errors and fatigue from repetitive tasks. This research developed an automated tomato sorting method based on maturity levels using the TCS34725 color sensor integrated with an Arduino microcontroller. Test results showed that the system could sort tomatoes with an accuracy of 77.5% indoors and 70% outdoors. The use of the RCNN method for tomato classification achieved an accuracy of 92.5% with a 7.5% error rate. With these results, the Arduino-based automatic tomato sorter with RCNN comparison successfully enhanced efficiency in separating ripe and unripe tomatoes, providing a faster and more accurate solution compared to manual sorting. This system has improved sorting efficiency and reduced manual involvement in the process. This innovation is expected to encourage the adoption of technology in the agricultural sector, boost production efficiency, and contribute to the advancement of the agricultural industry..

Keywords: *Arduino Uno, tomato sorting, TCS34725 sensor*