Machine Vision-Based Automatic Raw Fish Handling and Weighing System of Taiwan Tilapia

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Abstract

This study proposes a vision-based automatic raw fish handling system to speed up fish cleaning and weighing. The proposed fish weighing system used a camera to capture projected images of fishes. Applying image processing techniques, physical properties of fishes, such as length, width, perimeter and area were obtained. Followed by regression analysis, weightlength, weight-height, weight-perimeter and weight-area relationships were derived. Analysis results of fifty tilapias show that coefficient of determination of the regression equation relating weight and area is 0.9303. The high value suggests that a tilapia's weight is highly correlated with its projected area. Therefore, use a tilapia's area to estimate its weight is justifiable.

Keyword：Machine Vision, Raw Fish Handling, Fish Weighing, Regression Analysis, Tilapia.