蝦苗計數系統

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摘　要

　　隨著人們越來越重視休閒活動，觀賞水族產業的需求也是日益增加。觀賞蝦更為其中一重要元素。數蝦作業屬於帶水作業，且觀賞蝦苗數量多、個頭小，準確計數不但複雜且困難。每年，在全球各地種苗場與養戶交易過程中，因為數蝦苗而花費了大量人力物力。耗費的人力不說，觀賞蝦常在這樣一次又一次的折騰中死亡。用數位科技取代人工，不但降低成本，也能確保蝦苗品質。

　　現今社會中，電腦視覺已被大量應用在生活各處，本研究便是採用 OpenCV 此種電腦視覺常用的技術，搭配外接鏡頭對桶內的蝦苗進行及時拍攝，同步使用基於 OpenCV 平台開發的演算法，對桶內影像進行及時運算，再將影像處理後的結果上傳至雲端，方便串連其他資訊系統。本研究製作一低成本，高性能和高精確度之蝦苗計數系統，準確率高達 97%以上，並減少人力資源及時間。

關鍵詞：觀賞蝦、電腦視覺、OpenCV

Shrimp Counting System

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Abstract

With the increasing emphasis on leisure activities, the demand for the ornamental aquarium industry is also increasing. Ornamental shrimp is one of the more important elements. Counting shrimp is an operation with water, and the number of ornamental shrimp fry is large and small, so accurate counting is not only complicated and difficult. Every year, in the process of trading between seedling farms and farmers around the world, it takes lots of manpower and material resources because of counting shrimp fry. Not to mention the labor-intensive, ornamental shrimp often die in such tossing again and again. Replacing labor with digital technology not only reduces costs, but also ensures the quality of shrimp fry.

In today's society, computer vision has been widely used in all parts of life. In this study, OpenCV, a commonly used computer vision technology, is used with an external lens to shoot shrimp fry in a bucket in time, and the algorithm developed based on the OpenCV platform is used simultaneously. The method is used to calculate the images in the bucket in time, and then upload the image processing results to the cloud, which is convenient for connecting to other information systems. In this study, a low-cost, high-performance and high-accuracy shrimp fry counting system was fabricated, with an accuracy rate of over 97%, and reduced human resources and time.

Keywords: ornamental shrimp, computer vision OpenCV

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