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Development of a Low-Cost Automated Sample Presentation and Analysis System for Counting and Classifying Nematode Eggs

A thesis presented in partial fulfilment of the requirements for the degree of

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Abstract

This thesis discusses the concept development and design of a low-cost, automated, sample presentation system for faecal egg counting, and classification. The system developed uses microfluidics to present nematode eggs for digital imaging to produce images suitable for image analysis and classification. The system costs are kept low by using simple manufacturing methods and commonly available equipment to produce microfluidic counting chambers, which can be interfaced with conventional microscopes. This thesis includes details of the design and implementation of the software developed to allow capture and processing of images from the presentation system. This thesis also includes details on the measures taken to correct for the optical aberrations introduced by the sample presentation system.

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