

Analog Goes Digital Blood Fraction Identification Uses Basler ace GigE Cameras

Customer

RTS (www.rts-group.com) is part of Entologi (www.entologi.com), one of the UK's fastest growing engineering groups. RTS is a major supplier of automated products and solutions for industrial and scientific applications ranging from drug discovery, delivery, and quality control within pharmaceuticals, biotech, and biobanking to consumer goods, packaging, food manufacture, and nuclear and defense automation.

Application

Whole blood fractionation is a time consuming process when performed manually, but blood samples are highly variable in nature and this makes automation extremely difficult. As part of the UK Biobank project (www.ukbiobank.ac.uk), RTS developed a number of high throughput automated blood fractionation systems. These systems were needed to handle the application's high throughput and

quality requirements while managing the inherent variability of volume, viscosity, and turbidity in blood samples. Without these systems, a small army of technicians would be required to perform the fractionation task, and they would face the serious health and safety concerns inherent in working with unscreened blood.

Solution and Benefits

A unique patented vision system that is used to assess each individual blood sample and measure the individual fractions is key to the RTS solutions for automating the fractionation of blood. The acquired information is linked to a barcode on each input container and is stored in a central database. The stored fraction heights are used to calculate the volume of each fraction using known collection vessel dimensions. This information is then used by a liquid handling system to accurately aspirate off each fraction, before dispensing



High Throughput Blood Fractionation System



Transferring Buffy Coat to SBS Format Cryovials

them into cryovials in user specified aliquots for storage or downstream processing.

Automating blood fractionation saves time and money and also reduces the risk of a potentially dangerous job. Technicians who would otherwise be performing the task are free to engage in more challenging and productive tasks.

For their latest blood fractionation systems, RTS has deployed a Basler ace GigE camera (model acA1300-30gm) to replace an existing Sony XC-HR70 analog camera. By doing this, RTS has been able to:

- Update to the latest technology thus achieving significant cost savings in both camera and peripheral hardware.
- Gain an increase in camera resolution with no additional cost and potentially achieve an increase in accuracy of 25% for the detection of the fraction levels.
- Maintain the same sensor size and thus maintain the same FOV – a key requirement for the system.
- Avoid any costly changes to the design of the vision unit because the Basler ace GigE has the same mounting footprint as the XC-HR70.
- Avoid any software changes.

Technologies Used

- Basler ace GigE camera (acA1300-30gm)
- RTS SPRINT and FlexVision software



The Basler ace (acA1300-30gm)

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