

5th Forest Engineering Conference

Contribution 67 in session “Measuring and tagging logs along the supply chain“

Development of an automated system for counting, measuring and tracking export logs arriving on trucks and railway wagons

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C3 is New Zealand’s largest on-wharf logistics company, providing logistical services for 30 million logs annually. C3’s expertise has been deployed internationally, providing services and information technology to log export operations in Australia and the Pacific North West of the USA. Every log arriving at the wharf is manually counted, measured by expert teams of log scalers, tagged and tracked. Automating these functions, using sensor technology based systems, could improve productivity of C3’s operations and increase log volume throughput at the ports. Development of an automated system has international implications since worldwide the movement of logs from forest to customer can be conservatively estimated at over 5 billion logs per annum.

A study was carried out in 2013 to investigate the feasibility of using computer vision on a hand-held device for accomplishing all three functions. As the device is scanned over the load face it acquires registered 3D and high resolution image data. State-of-the-art computer vision algorithms are then applied for simultaneous localisation and mapping (SLAM) of log ends, measuring underbark small end diameter, and tag reading. The feasibility study involved field trials. It also investigated and identified the role that modified work flow procedures, mensuration models for bark thickness and log taper, and camera optics and illumination would play in the successful implementation of this technology.

Development has moved onto a “proof-of-concept” stage which involves producing an early implementation to enable field trials and demonstration. Results from the feasibility study and the proof-of-concept will be presented at the conference.