



Stone Three

The Future of Work. Now.

Particle Size Analyser (Truck)

Stone Three introduces its latest deep learning based Truck Particle Size Analyser (PSA) offering improved accuracy. The Stone Three Truck PSA system is a reliable and robust machine vision-based system used to measure the size distribution of bulk material such as mineral ore haul trucks. This system makes use of the latest industrial high-resolution and wide dynamic range camera technology for superior accuracy and robustness.

Key Benefits

The system automatically identifies and scans each truck before and during the tipping process to provide detailed data on the ore received and has the following benefits:

- It is automated, real-time and statistically representative.
- Measurement turnaround is fast and allows for rapid intervention, for example rerouting of trucks with oversized material
- Automatic deep learning based truck and ore region detection enables the system to operate on any truck size or model
- Ideal for trending PSD changes and enables process performance monitoring.
- It is also a very valuable input to Advanced Control Systems for process stabilization and optimization.
- The machine vision based measurement is non-contact and therefore robust and low maintenance.



Machine Learning PSA Performance

Stone Three now utilizes the latest deep learning particle segmentation technology. This enables particle detection performance, significantly better than traditional water-shedding approaches. The ore region is automatically detected for increased performance since areas containing fines are automatically identified and included in the PSD analysis. Large rock detection performance is also increased since this method can detect partially hidden particles and are robust against the presence of sunlight and shadows on the imaging area. Graphical Processing Unit (GPU) hardware is leveraged for faster analysis frequency.

Capabilities

The Stone Three PSA scans the truck load before tipping to identify any oversized material in the top layer before offload. During the tipping process it analyses multiple images in order to analyse not only the top layer but all subsequent layers. This enables the construction of a better representative PSD and also allows for the detection of hidden oversized particles. High resolution cameras with wide dynamic range capabilities are used for robustness against varying outdoor lighting conditions and high intensity floodlights enables high quality images during night time. The PSD data is made available for integration into the client's SCADA, historian and control systems using industry standard protocols such as OPC.

Applications

The Stone Three Truck PSA has proven to add significant benefit in the following applications:

- Optimisation of blasting by measuring run of mine ore PSD.
- Optimisation of primary crusher operations
- Identifying and re-routing trucks that contains oversized material to prevent crusher damage and blockages

Health Monitoring

Stone Three continuously monitors system health for sensor issues with communication, camera or light equipment. Server health monitoring includes disk space, CPU usage, Memory usage, and OPC health monitoring.

Technical Support

Stone Three places significant emphasis on timely, consistent and accurate technical support and has developed reliable and cost-effective systems to achieve this objective. Stone Three supplies a comprehensive technical support plan as part of their value adding service. Technical support includes remote support and routine site inspections. Weekly reports are sent to the client detailing system uptime, OPC health and PSD performance indicators.

