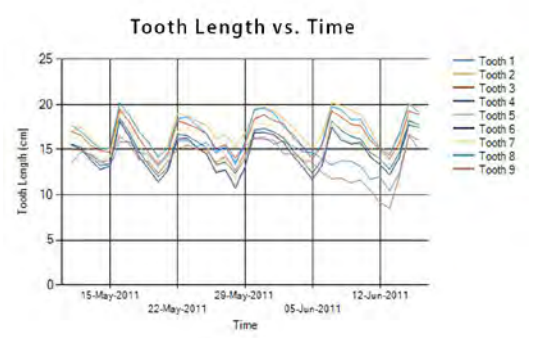
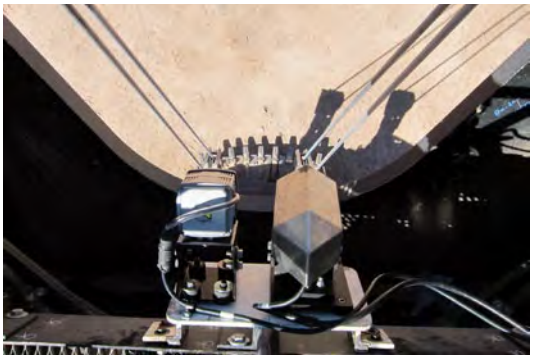
WearMetrics™

A Real-Time Tooth-Wear Monitoring System

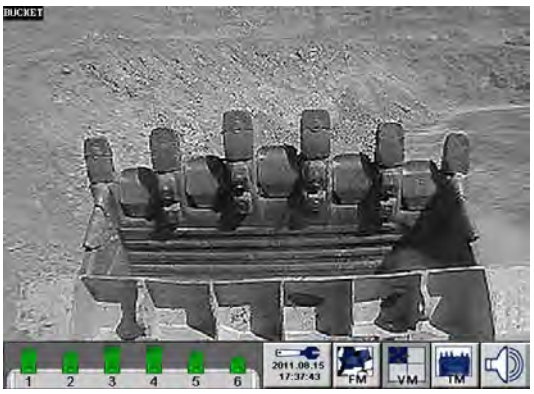
Real-time tooth-wear status over the network



Analyze tooth wear rates and failure trends



Designed to withstand shock and vibration



Operator-oriented system interface

INCREASE PRODUCTIVITY

Continued operation with worn shovel teeth reduces the effectiveness and efficiency of the shovel, resulting in increased cutting forces, longer fill times, and an increased likelihood of missing teeth or adaptors. An unplanned changeout can result in up to two-hours of unexpected downtime. To prevent loss of productivity due to tooth failure, careful monitoring of the shovel teeth and an optimal changeout strategy is crucial.

AUTOMATIC TOOTH-WEAR MONITORING

The WearMetrics™ solution continuously monitors each tooth on the shovel dipper, providing the mine management and the shovel operator with valuable feedback on the status of the shovel. The system uses a rugged camera mounted on the shovel with a clear view of the dipper and implements advanced image processing algorithms to automatically monitor the shovel tooth-wear status.

OPTIMIZE TEETH CHANGEOUT STRATEGIES

The shovel teeth status is logged at periodic intervals and can be easily viewed, organized, and analyzed using the WM-Desktop software or Microsoft Excel™. By analyzing the data and trends in the wear rate of the shovel teeth, the change-out strategy can be optimized to maximize shovel productivity, while minimizing maintenance costs.

NETWORK CONNECTIVITY

The WearMetrics™ embedded computer is equipped with an Ethernet port to provide instant connectivity to a wireless mesh network or directly to a laptop. This connectivity allows the mine management to check the instantaneous teeth status remotely, saving the trouble of having to go to the shovel periodically to check the shovel teeth status manually.

"The average lost production as a result of an unplanned change-out of a tooth set was estimated at US$ 38,368. Adding the cost of the teeth and man-hours to this, the total cost of an unplanned changeout of a tooth set is estimated at US$ 41,368."

- 2009 case study of an American copper mine

WearMetrics™ System

WM-Desktop

Microsoft® Windows® Embedded Partner