Weighing system for underground haulage trucks

A special bachelor thesis project (Chalmers) and Student project (RWTH Aachen) with an international team collaborating with a real industrial problem.

In LKAB’s underground mine Malmberget ore is loaded on 90-tonnes haulage trucks. Today each scoop is weighed when loaded, however this is not stored and later it is just assumed that each truck carries 90 tonnes. A weighing system would give a better process balance and reduce the number of empty drives. Traditional scales takes to much room or has other limitations.

This project will start with inventory of available techniques and then evaluate how these would perform underground. An analysis of the possible benefits of a weighing system can also be included. Real system requirements from the company (LKAB) will be present (Lehto, 2008):

- Registing of load weight per individual (truck) in real-time,
- Accuracy in parity with weigh on loading machines, about 4 %, or better.
- Time for weighing must not affect the production flow negatively
- Reliability accoring to LKABs requirements
- Communiaction with the mines exisitng system

Expected outcome: A suggestion of a system (a concept), including documentation. (I.e. not a working product)

This will be a special chance to collaborate with a real company and their requirement in an international environment. Half the team will be Chalmers students. The other half will be students from RWTH Aachen in Germany. Communication and collaborating skills will be trained.

Litterature suggestion:
Lehto, Å., 2008, Förstudie Vågsystem Bergtruckar Malmberget.