Robotic Total Stations

"One accurate measurement is worth more than a thousand expert opinions."

Admiral Grace Hopper

Total station installed within Union Station

Total Station installed within the BC interior

Robotic Total Station Monitoring (RTSM) is a near real-time system used to monitor an array of different structures that may be subject to movement from changes in the surrounding environment. The system can be deployed to monitor a structure's performance, whether there are concerns about impacts from construction work in the vicinity, ground movements (settlement or heaving from tunneling) or protection of workers from potential failures. The RTSM provides highly accurate results of continuously monitored locations, which can help mitigate risk to the owner or constructor.

The monitoring data is uploaded in real-time to the computer on site. The data is automatically reviewed and compared to the preselected alarm limit values within the monitoring software. If alarm thresholds are exceeded, an alarm is immediately issued by the system, which considerably decreases the amount of time between taking a reading and identifying if a threshold has been breached. The alarms can be in the form of an e-mail or text message alert or a physical buzzer and/or strobe light installed on site.

The Robotic Total Station Monitoring system consists of robotic total stations, specialized monitoring software, monitoring prisms and computers used to control the instruments and store the monitoring data. Connection between the total stations and computers can be made via wireless radio or cabling between the units.

The RTSM system can be installed within the active zone, which allows for the total station(s) to be closer to the area of concern, thereby reducing the distance required to read allowing for greater accuracies. With its ability to measure the locations of a set of reference prisms installed outside the area, the total station can then calculate its own position. The total station then measures the locations of a series of monitoring points within the monitoring area.

Such systems have been successfully deployed around the Toronto area within TTC tunnels, throughout the Union Station revitalization and to monitor active CN and GO train rails during construction. Monir has successfully installed a robotic system within the BC interior using solar panels and wireless technologies as the treacherous and challenging terrain allowed for limited access to the slope with no ability to run cables between the systems or computer on site.

ISO 9001 Registered

2359 Royal Windsor Drive, Unit 25, Mississauga, Ontario, L5L 5M5
Tel: 905-822-0090   Fax: 905-822-7911   info@monir.ca   www.monir.ca