

Pushing technology to tackle Covid

Mark Poveda looks at a quartet of technology solutions that are helping the engineering and construction sector stay safe and adapt to the new normal

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In my last column I pondered the subject of how we can continue to grow our businesses while suppressing the spread of Covid-19 in our communities. Two months down the line, and although things are looking up with the roll out of the vaccination programme, the truth is that we have to find new ways to live with the virus.

We are fortunate that within our industry we already have many existing technologies that enable us to complete ongoing projects and take on new ones while observing social distance - the most obvious of these technologies being drone surveying, 3D Laser Scanning, Mobile Mapping (undertaken from the safety of a vehicle) and, of course, robotic surveying.

However, what's been particularly encouraging for me is the way that I've seen KOREC customers take a fresh look at what's available and adapt it for the current climate or even take it on for the first time. In particular, four applications have especially impressed me over the last six months and will hopefully stimulate other new ideas for both technology development and take up.

Safe data sharing

The ECC Design & Engineering Group works on large infrastructure projects, such as data centres, and consequently has a very demanding 3D Laser Scanning schedule. Using Trimble Cloud Engine Software (TCE) and its own scanned data, the company based in County Louth in Ireland has created a 'living' document of the scanned point cloud, ideal for safely monitoring the construction process and detecting clashes, etc. This interactive information is viewable in a format that can be easily understood by technical and non-technical stakeholders.

The TCE software allows each scan dataset to be shared as a simple URL link added as a note to a 2D drawing (identical to inserting a webpage link in an email) which is then shared with the client and contractors by email - no large files required!



Trimble's XR10 is the only HoloLens 2 solution compatible with an industry-standard hard hat and is certified for use in safety-controlled environments.

Remote monitoring

There have recently been some really dramatic advances in Trimble Monitoring solutions, and Newcastle-based Academy Geomatics were one of the first companies to take full advantage of using a remote set up on a recent tunnel monitoring job. For this task, (which involved measuring small movements within a metro tunnel using a high accuracy Trimble Total Station), a member of the KOREC monitoring team was able to remotely configure the Trimble communication hub (an M1 set-top box) from the safety of his office using no on-site staff at all. This hub controls the Total Station within the tunnel.

Not only did this ensure that the system was up-and-running almost immediately and checkable on the next Academy surveyor's nightshift, it also eliminated the need to access the tunnel, cut travel expenses, and avoided the cost of having KOREC personnel on-site during five night shifts. It all added-up to the most Covid-safe method possible. Additionally, the camera on the instrument provides an 'eye on the site' without the need for anyone to physically be within the tunnel.

Lone worker protection

'Lone worker' is a built-in feature of all KOREC Mapping's data capture apps and, in the last 12 months, has proved to be a well-used feature thanks to its three options: *Basic tracking*: for all workers, all the time to all locations. Here, information is transmitted wirelessly to a

portal providing a complete picture of where the worker is at all times. *Push button alert*: a simple press of the button sends a message to named individuals requesting assistance or a call back. *Lone working when offline*: Before entering the area of danger/no signal, the lone worker can set a timer depending on the length of the task. The worker receives an immediate confirmation from a portal and the countdown begins. The countdown is cancelled on completion of the job. If not, alerts are sent automatically. Our latest customer requested that these alerts be sent to a WhatsApp group.

Using Mixed Reality

Even during Covid it is still possible to collaborate, save time and effectively manage projects while keeping workers safe. This is thanks to mixed reality systems such as Trimble's HoloLens XR10 hardhat/headset and it's something we've seen multiple KOREC customers doing. By combining the XR10 with Microsoft Dynamics 365 Remote Assist, engineers or contractors in the field can call anyone in the office, share files, view real-world environments together, make annotations, comments, and drawings, and view overlay BIM data for design versus as-built comparisons.

In short, information can be viewed by multiple users simultaneously, and most importantly safely, from anywhere with internet access - perfect for keeping people apart during Covid.