

Getting virtual infrastructure models out of the computer and into the workspace

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Credit: University of Cambridge

Engineers will soon be able to visualize Building Information Models (BIMs) in full scale at their offices or superimposed on the real structure at construction sites, thanks to technology developed by the Department of Engineering's Construction IT laboratory in collaboration with Trimble and Microsoft.

The new mixed reality technologies for visualizing fully textured

infrastructure models in the office and schedule-loaded BIMs on site were recently shown at BETT, a major technology show in London by partner Microsoft.

Using the Bridge Inspector HoloLens app created by the Cambridge team, engineers are able to inspect the condition of infrastructure in office as if they were standing on site in front of the real asset. "Bringing a bridge to life at full scale while still being aware of your surroundings is a major time saver for experienced inspectors," explains Dr Ioannis Brilakis, who has been pioneering the as-is virtualization of existing infrastructure assets since 2005. The research behind this work conducted by PhD student Philipp Huethwohl will revolutionise the way we inspect major structures in the future.

The Progress Monitoring HoloLens app on the other hand also created by the Cambridge team allows engineering to bring four dimensional design models to site and intelligently superimpose them on the real structure. The app allows construction inspectors to both visualize progress and automatically detect building elements that should have been built at the time of their visit but are missing. "All elements missing are marked as behind-schedule automatically in the 4D model simply by looking at them during an inspection visit" explains Marianna Kopsida, who is the PhD student responsible for this project.

The team's current research focuses on how to guide inspectors in these massive models and focus their attention on the elements most relevant to their inspection task-list. "This is all about productivity and improving workflows", explains Dr Brilakis, which is a prerequisite for enabling industry wide technology adoption.

Provided by University of Cambridge

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