

Easier hoisting

Microchips, cameras and satellite monitoring are helping to make precast construction more efficient, and could someday allow tower cranes to be controlled remotely from the ground. Developed by Nanyang Technological University researchers, the new system was recently tried out at the Signature at Yishun executive condominium site by Kimly Construction.



1. TAGGED AND TRACKED

At regular construction sites, slabs of precast concrete have handwritten labels. Here, each precast part has its own Radio Frequency Identification (RFID) tag. This means they can be tracked: from arrival at the site, to being placed in specific storage slots, to being hoisted into place.

As the slabs travel, both the site inventory and the construction progress are automatically recorded in the site's BIM (Building Information Modelling) model – a digital, info-rich 3D model that can be used from the design stage all the way to building management.



2. BIRD'S-EYE VIEW

Tower-crane operators do not always have a clear view of the site. But here, a smart camera attached to the crane hook lets them see exactly where and how the load is moving.



3. SMARTER PATH

A computer model calculates the ideal lifting path (shown in black) for each precast element. With real-time GPS tracking, the crane operator can see how closely the load's actual path (shown in grey) matches the suggested one.

