Leveraging on Contactless Technology to Track and Locate Prefabricated Components: A Digital Platform Based Approach



Presented by:

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About Hubble.Build

We are Asia's leading technology company focused on the construction industry.

Established since 2016, we have built on a strong foundation in data engineering and smart analytics. We are motivated by a shared goal to use technology to transform our sector and root out inefficiencies.

We believe the future of construction is autonomous self-building and we're on a mission to build the world's first autonomous construction site via our Hubble.Build platform.

Our Hubble.Build platform aims to keep your 4M data (Man, Machine, Material and Money), workflows and teams in sync for a seamless collaboration.





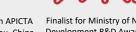
Top 15 Most Promising Startups SG:D TechBlazer awards 2018



CEMEX Ventures Top 50 Global Startups



Represented Singapore in APICTA Awards 2018 in Guangzhou. China





Awarded by BCA-IMDA to build Singapore's first Construction



Approved AIS Payroll Software Vendor



Our incredibly talented team

Located across the Asia region, our team members are committed and motivated by common purpose to bring technologies to our customers, helping them to transform and build better cities of tomorrow for all.



Challenges

- Supply of prefabricated modules disrupted by the implementation of the Malaysia Government Movement Control Order (MCO) due to lack of production sites in Singapore.
- During the onset of the COVID-19 pandemic, tracking of prefabricated modules and planning resources and equipment ahead of time became even more complex, resulting in months of delay for construction projects in Singapore.
- Skyrocketing storage fees due to lack of holding facilities also deterred construction firms from making advance delivery of prefabricated modules.
- Existing method of creating and updating of components scheduling have been manually carried out in excel which is time consuming and tedious.
- Difficult to keep track of the state of prefabricated components in real-time, as it requires intensive human intervention, which causes communication with stakeholders to be delayed.



News report on Singapore construction delay attributed by the disruption in Prefabricated Prefinished Volumetric Construction (PPVC) supply.

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Existing manual tracking method via excel



Proposed Integrated Digital Delivery Platform

Digitalize and Visualize the entire value chain of Prefab Components Production, Delivery to Installation with transparency and efficiency

Component Directory

Manage your prefab components in timely manner

- Bulk import and update your large component list
- Centralise all component profiles and manage all components progress in one place

Wall Chart

Visualise your production, delivery, and installation progress in real time

- Ensure the prefab component production, delivery and installation are on schedule
- Achieve just-in-time component delivery to secure optimum inventory on site and avoid over-ordering

Dashboard

Track overall project progress at one glance

- Actionable Indicator of project progress for management to monitor planned vs actual.
- Insights into progress details before problems emerges
- Maximize collaboration amongst contractors according to installation progress

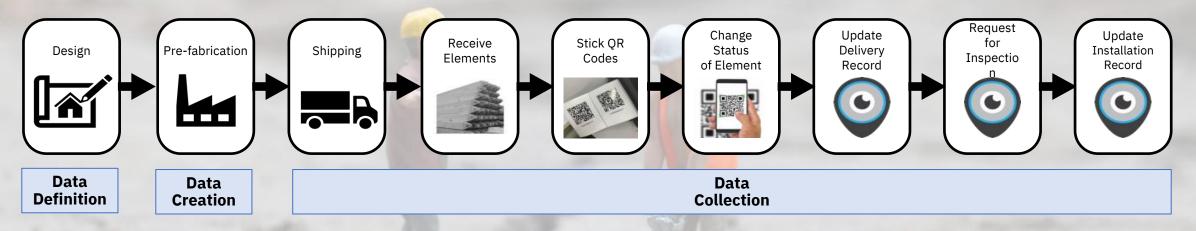
Records

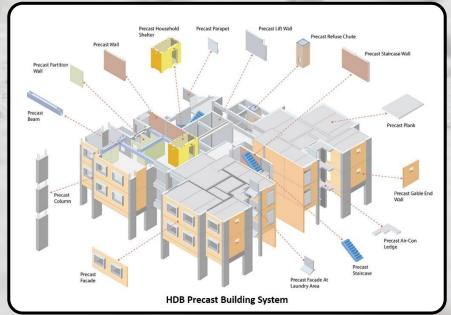
Digitalize component record update with QR Code

- Track your materials in an efficient way via a unique QR code on-the-go
- Real time synchronization from mobile submission on site to office
- Avoid double work on site and in office to update records



Model of Data Collection Across the Material Management Activity Timeline



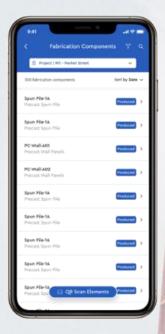


Overview of a typical precast building system for HDB



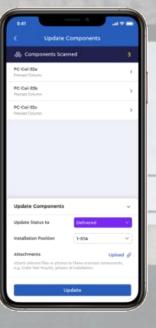
Dynamic Quick Response (QR) Code Contactless Technology

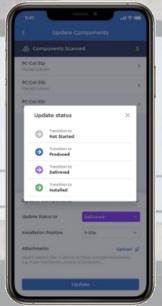
Update precast components status in real-time

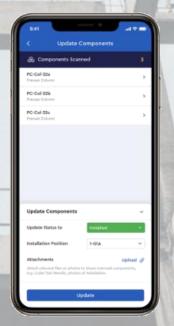


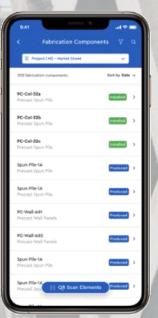












Upload precast components status via QR scan-to-go



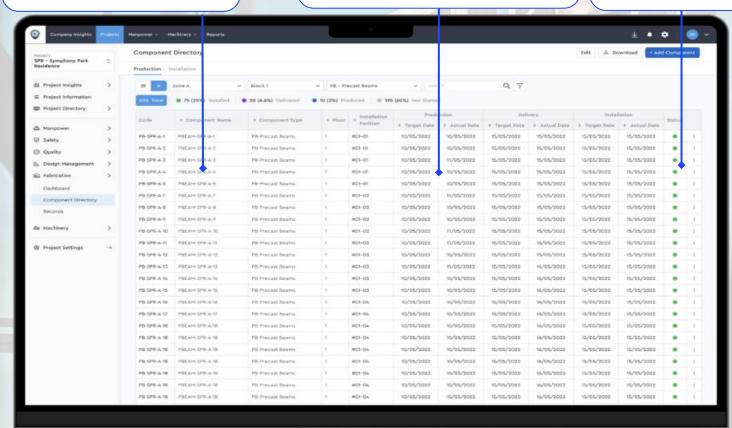
Component Directory - List View

Optimize Collaboration

Identify and track component progress by status at a glance

Monitor planned vs actual dates to mitigate the delay of site installation

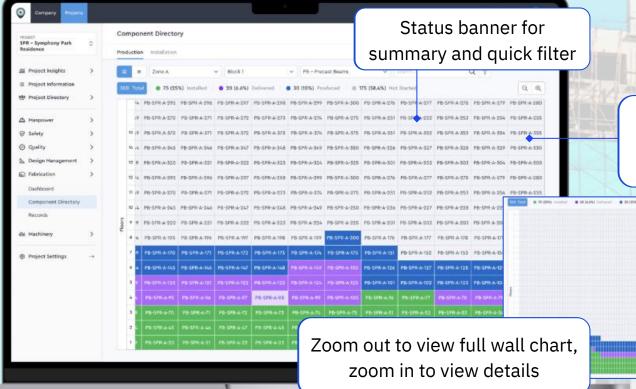
Effectively manage and update the delivery and installation status

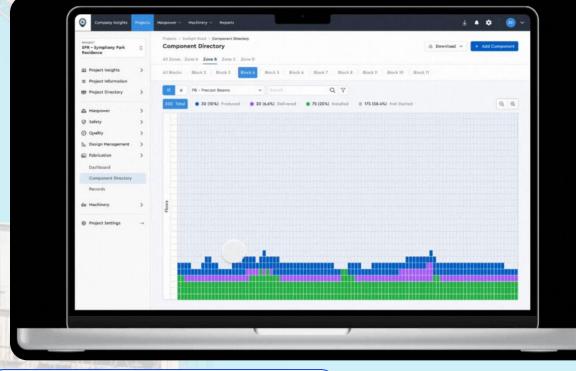




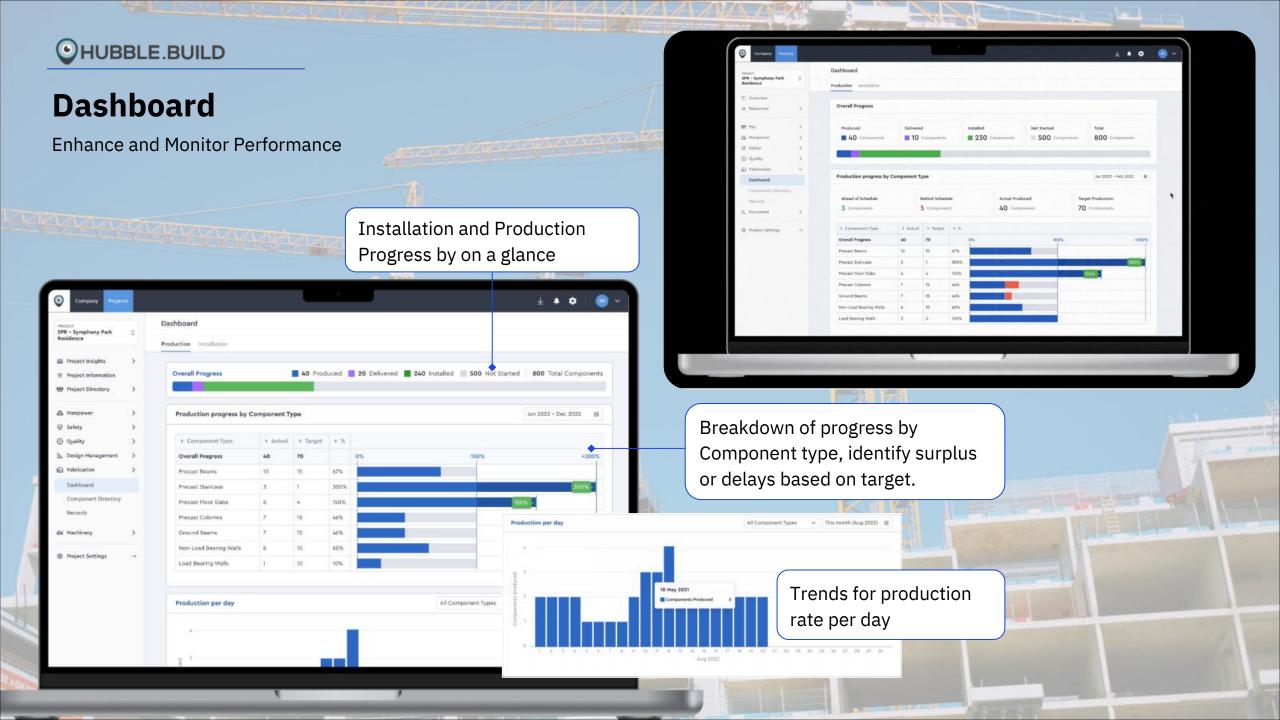
Component Directory - Wall Chart

Visualize Progress





Visualization of Fabrication
Components Status for straight site
storage and installation tracking

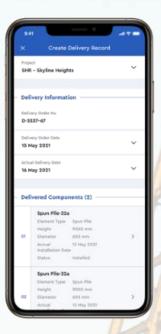


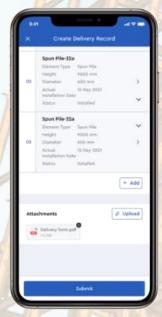


Records

Digitalize component record update with QR code

Delivery Record



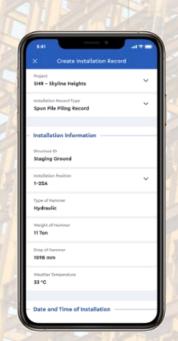


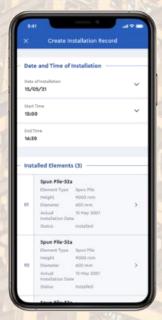


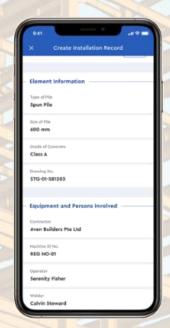
Boost Field Efficiency and Productivity

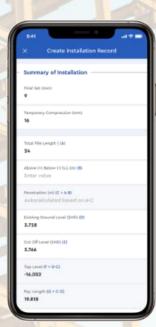
- Real-time updates between project site, factory site, and offices
- Get anytime, anywhere access to Delivery and Installation Records

Installation Record













Cost-Benefit Analysis

Fixed Investment Cost

- One time implementation cost by project basis
- Not necessary to purchase any hardware apart from a printer to print QR code labels, given everyone has a camera mobile phone

Variable Operating Cost

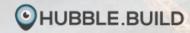
- Cost largely associated with GPRS network connectivity and sticker paper labels
- Does not require additional headcount to operate as scanning process can be integrated and manned into existing processes

Direct Benefits

- Reduction of man hours spent on material, manpower and machinery management
- Reduce logistic complexity and avoid incurring expensive storage fees due to overestimating or overordering
- Reduce overall costs of up to 20%

Indirect Benefits

- Improve labour productivity
- Improve process efficiency
- Increase overall construction speed up to 50%



Proven Application

Residential



Development site for HDB Tampines N9C15

Industrial



Development site layout for Offshore Marine Centre 2

EXPERIENCE THE TRANSFORMATION



Scan to Demo

