

Team Volvo CE

EXPE 2017



VOLVO



Chen
Zhong



Naser
Dehalbi



Alex
Gruebele



Shenli
Yuan



Noor
Ameen



Hassan
Safawizadeh



Louise
Karlsson



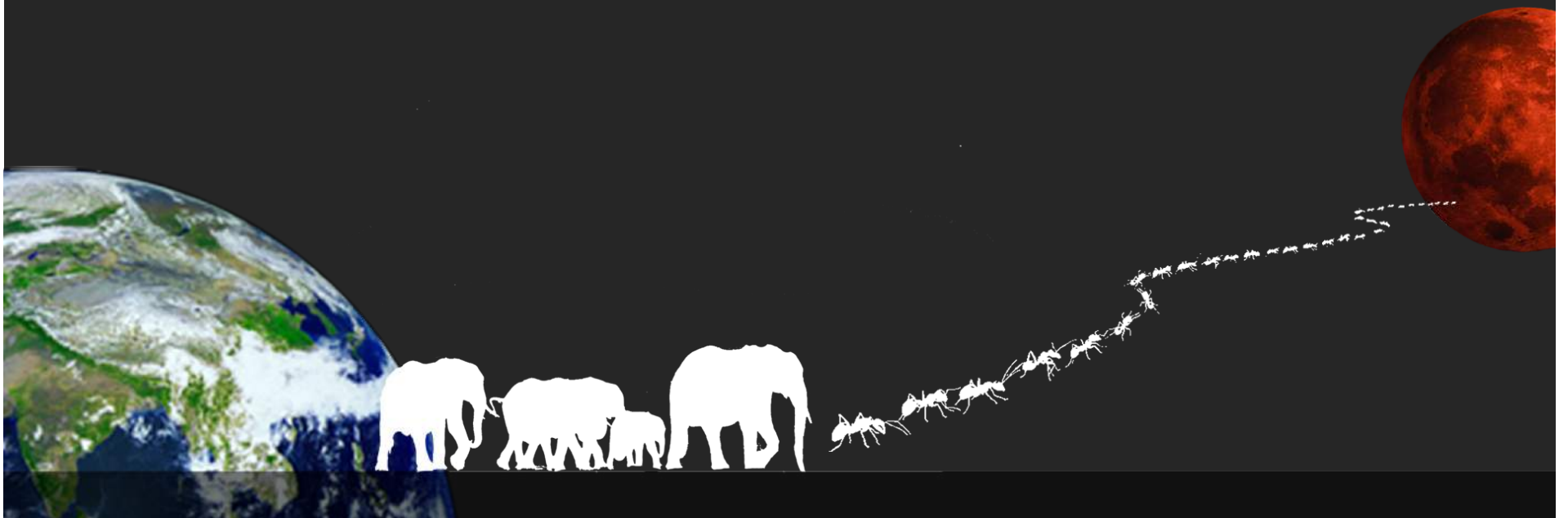
Kristian
Elawad



Exploration initiative in collaboration with
Volvo Construction Equipment

The Prompt

- Look into the future of construction
- “From Elephants to Ants, from Earth to Mars”



The Prompt

- Swarms make something bigger than the individual
- Why hasn't this happened?



The Problem

- Dynamic construction sites
- Packed with materials
- It turns out that this is also a problem for workers

The time is **now.**



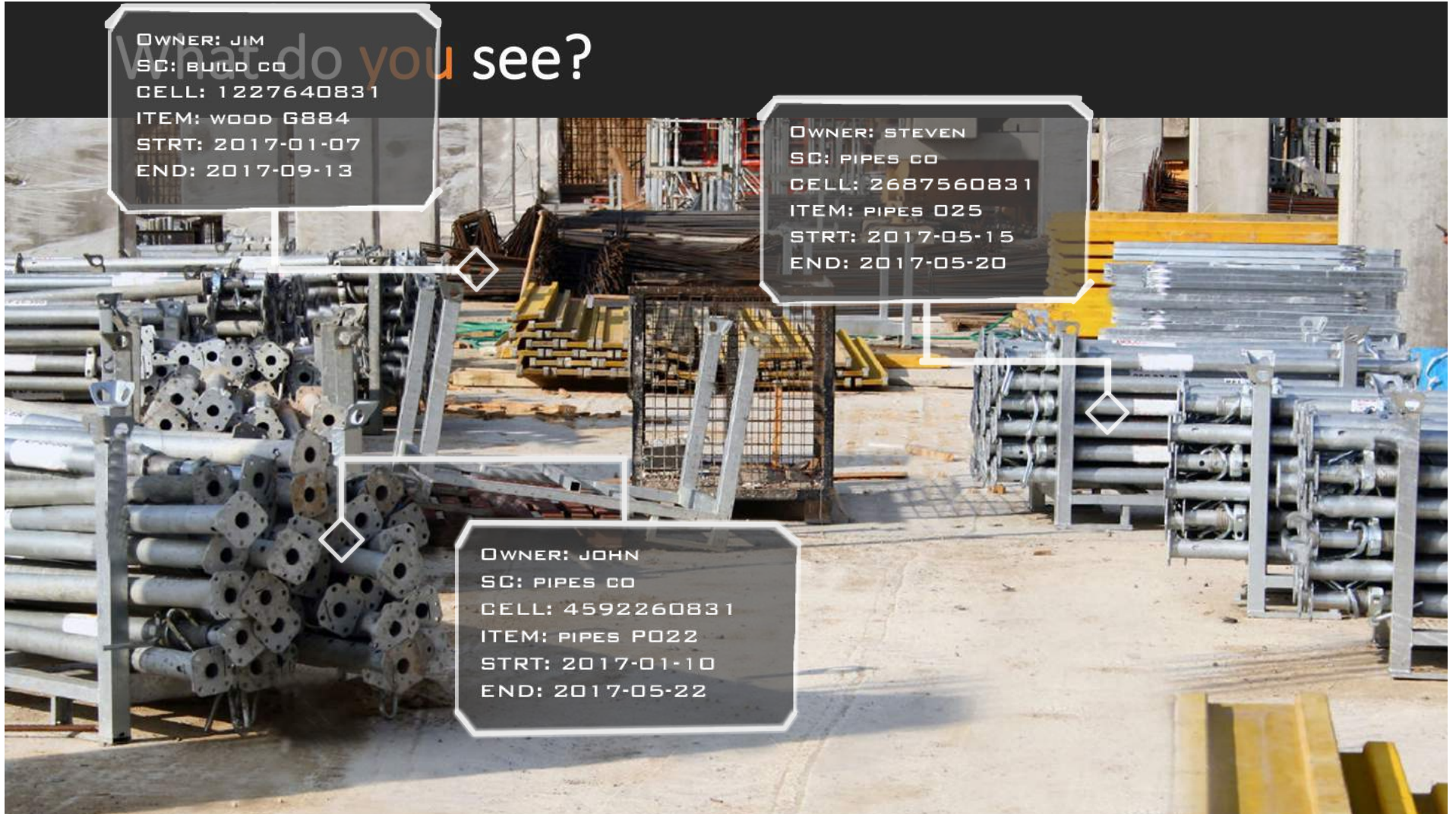


OWNER: JIM
SC: BUILD CO
CELL: 1227640831
ITEM: WOOD G884
STRT: 2017-01-07
END: 2017-09-13

What do you see?

OWNER: STEVEN
SC: PIPES CO
CELL: 2687560831
ITEM: PIPES 025
STRT: 2017-05-15
END: 2017-05-20

OWNER: JOHN
SC: PIPES CO
CELL: 4592260831
ITEM: PIPES P022
STRT: 2017-01-10
END: 2017-05-22

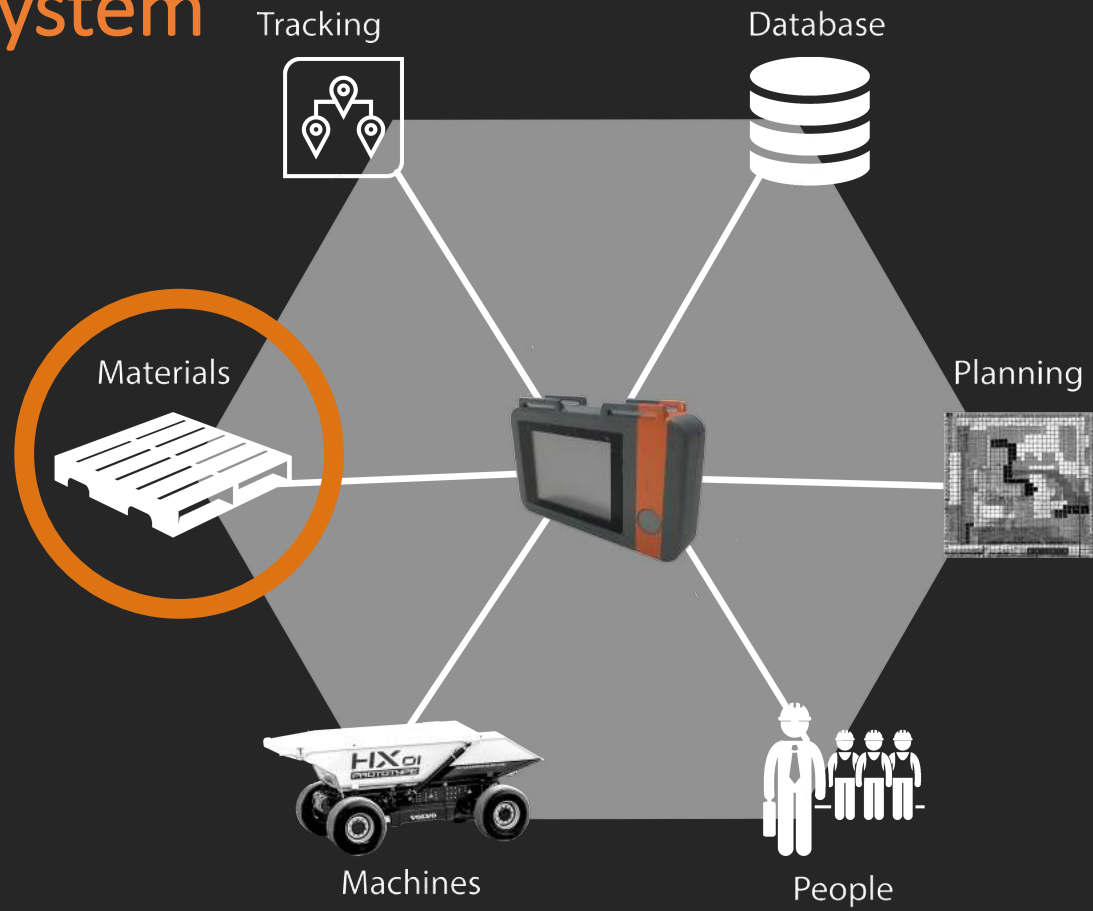


Big Impact

- Will revolutionize all phases of a project
 - Planning
 - Production
 - Finalizing
- Bring value to the industry and society



The System



1

Setup

2

Place

3

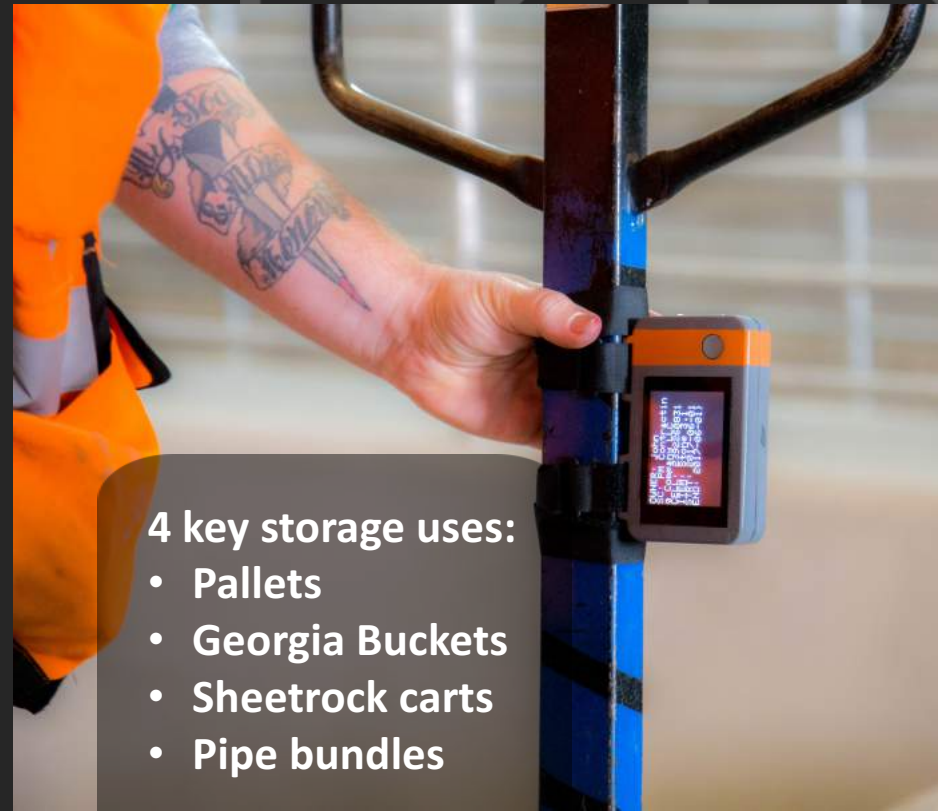
Track

Overview: Setup

- Material comes in through loading dock
- Upload information to tag



Overview: Place



4 key storage uses:

- Pallets
- Georgia Buckets
- Sheetrock carts
- Pipe bundles

Overview: Track

- Track
- Plan
- Manage



System: Tag

Displays critical info

Low power mode lasts months

Unique barcode

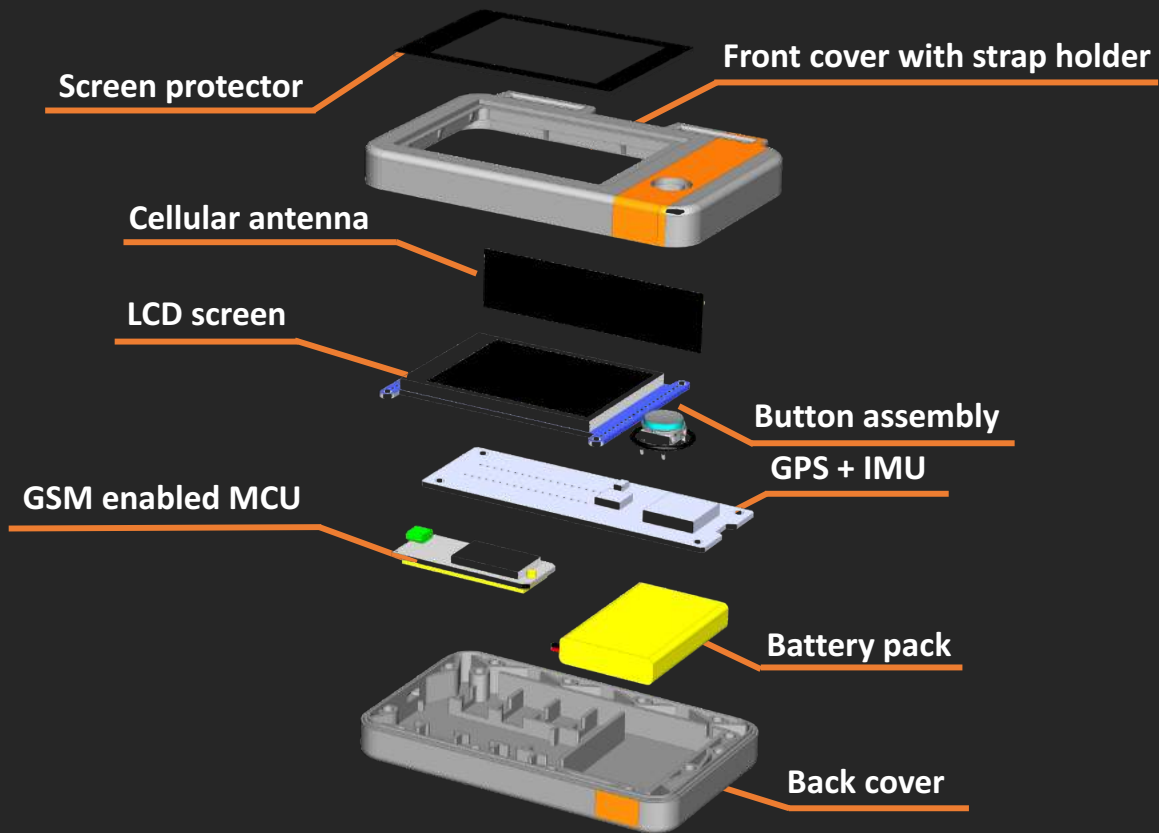
Versatile loops for straps

Water resistant case

Button activates screen



System: Tag



System: Hub

Barcode input

Rugged mobile case

App pushes info to tag

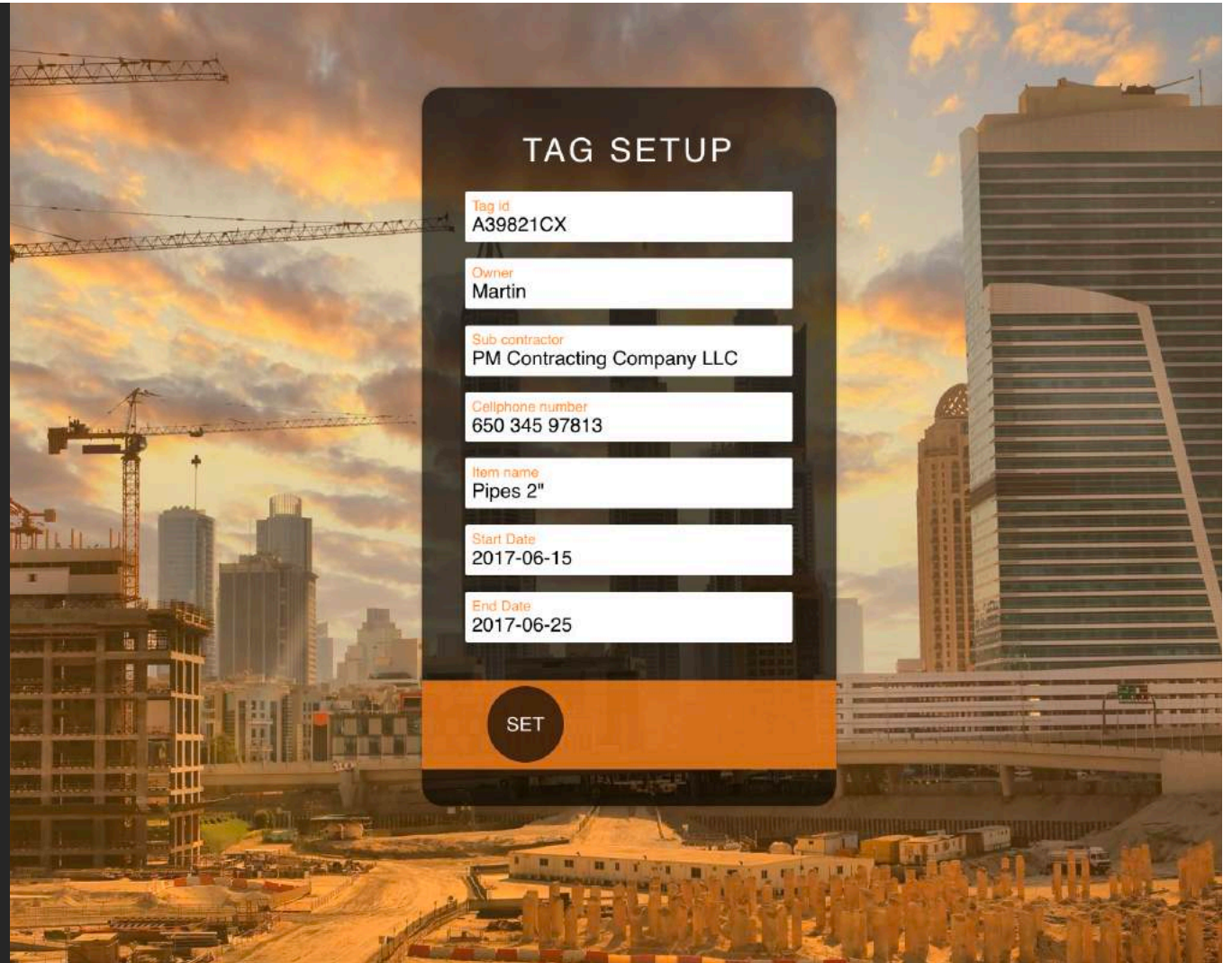
Keyboard + mouse input

Charges units



System: Hub

- Integrates delivery
- Upload to device



System: Inform



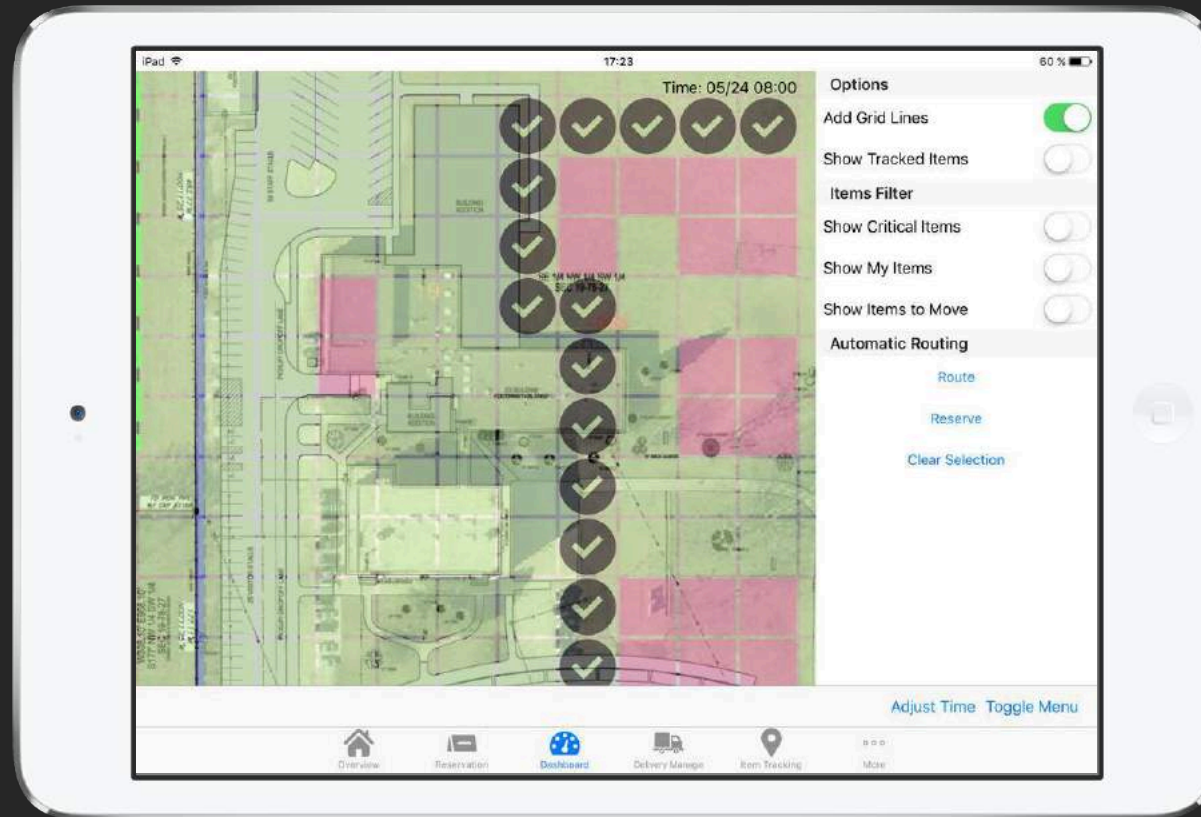
System: Track items



System: Reserve Space

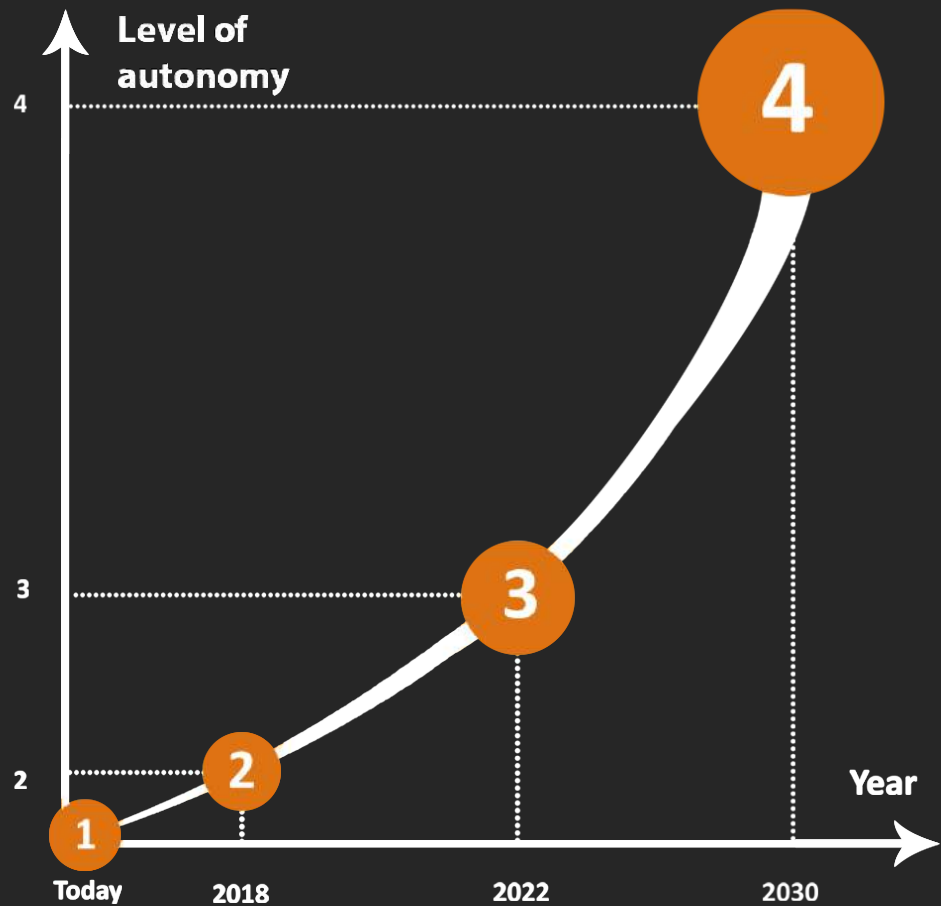


System: Plan routes



Going Forward

1. Prototype, **ME310 EXPE**
2. Product in use **globally**
- Laying the **foundation**
3. Automated machines deployed
- Utilize **infrastructure**
4. Work site fully **digitalized**
- **10x** site operation reached



1. EXPE prototype

1



2. Smaller & bundled to material

2



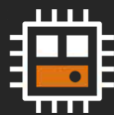
3. No power needed

3



4. System on a chip

4



Thanks

Teaching team:

- George Toye
- Larry Leifer
- Kate Stephenson
- John Richardson
- Christian Johansson
- Samuel Frishman
- Nick Azpiroz
- Danee Kenyon
- Teresa Tombelli
- Ryan Ruvald

Sponsors:

- Jenny Elfsberg
- Martin Frank

DPR partners:

- Jonathan Mayfield
- Salman Usmani

Questions?

For more, please stop by our booth across the street!