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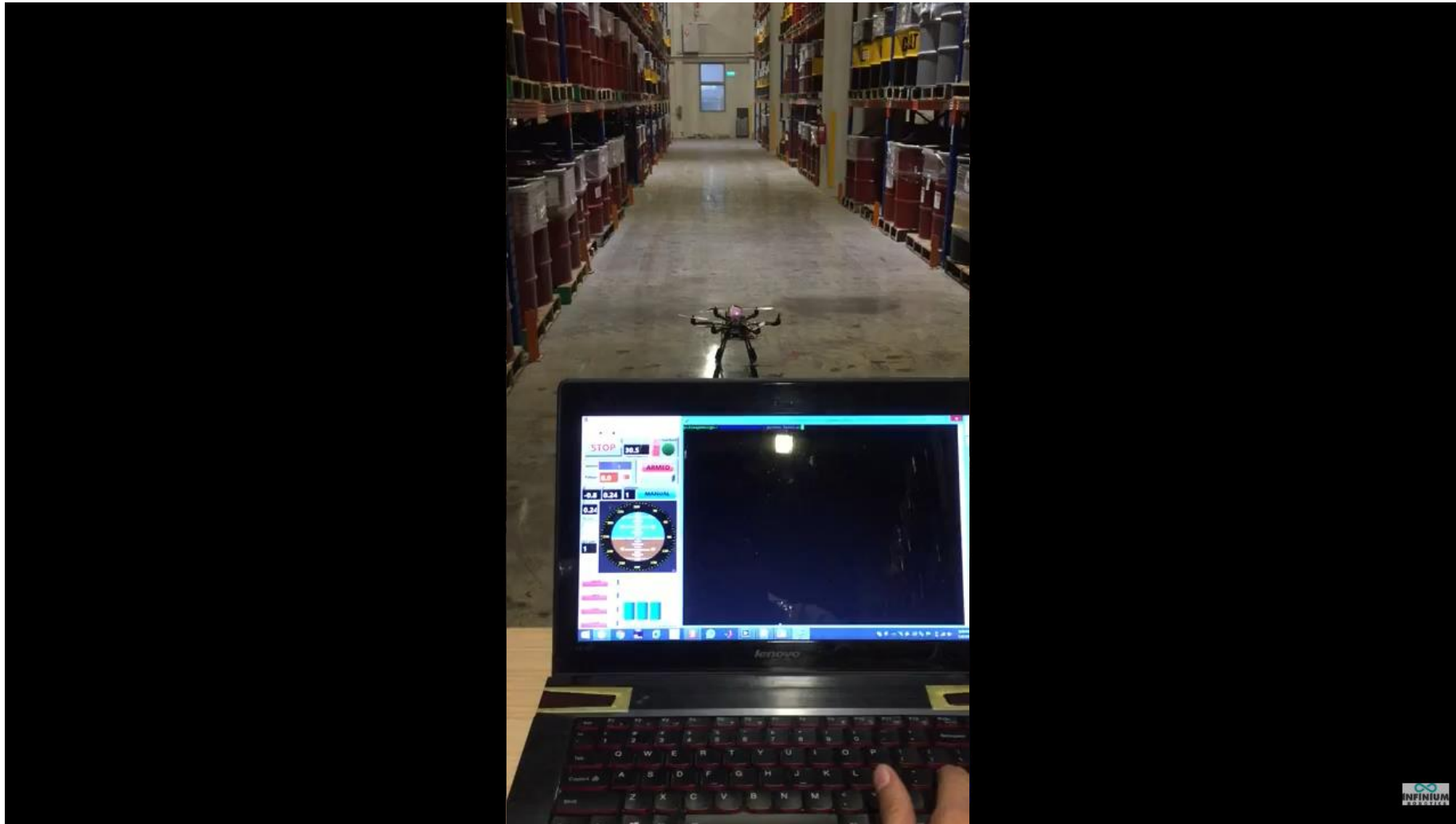
Infinium Scan

Indoor Unmanned Aerial Systems [UAS] for Logistics
Fully autonomous UAS for inventory scanning
and physical stock-taking

Drones doing stock-taking in a Warehouse (Video 1)

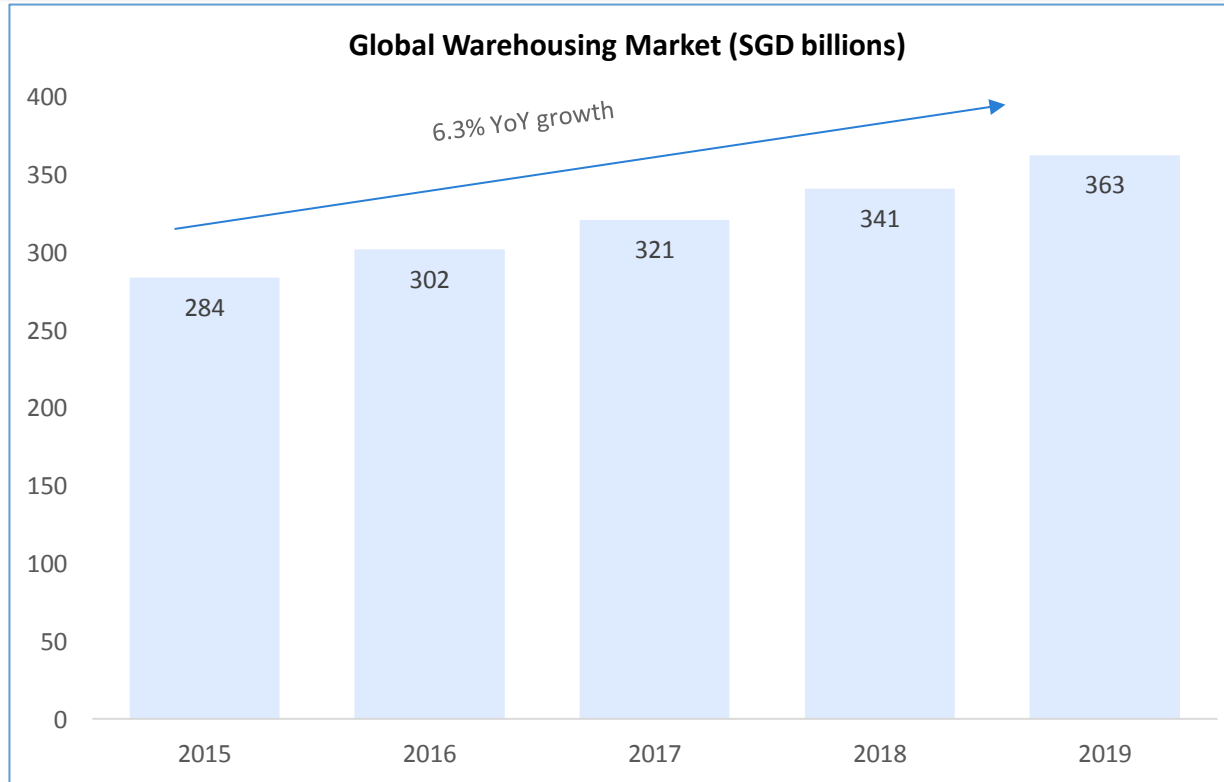


Automated Drones in Warehouses (Video 2)



Video URL: <https://youtu.be/axrGIKTuzTE>

Market Opportunity



S\$302b
in 2016



S\$363b
in 2019

- Warehousing industry grow rate estimated at 6.3% YoY growth
- Largely due to rise of e-commerce sales
- Cycle-count an important feature of warehousing industry
- Costs of manufacturing drones -> going down

Problem Statement



Manual Labour –
*Lack of Manpower,
Slow and inaccurate*



Inventory Write-off –
*Loss of Profits due to stock
aging, stock obsolescence
and pilferage*



Safety –
*Safety of workers
compromised*

Why Drones for Inventory Counting in Warehouses?



1. Fully Automated Solution
2. Can ***climb heights*** in warehouses -> Improves safety reducing need for workers to climb heights
3. Highly scalable – not dependent on manpower

Why **Indoor** Drones will be a reality faster than **Outdoor** delivery drones?

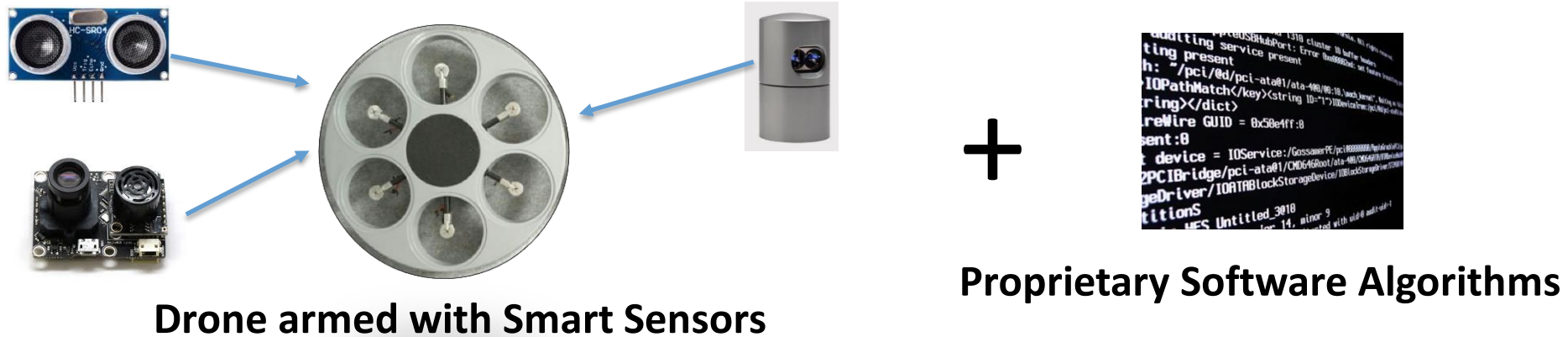
1. No restrictions on regulations for indoors
2. Current technological limitations on battery endurance is not a problem for indoor flights as recharging bases can be placed indoors
3. No issues with Privacy for indoor drones
4. No issues with public safety for indoor drones



How to enable Drone flight Indoors?

Main Technical Challenge in Warehouses: *No GPS Positioning indoors*

Infinium Robotics' Proprietary Approach to Enable Indoor Flights:



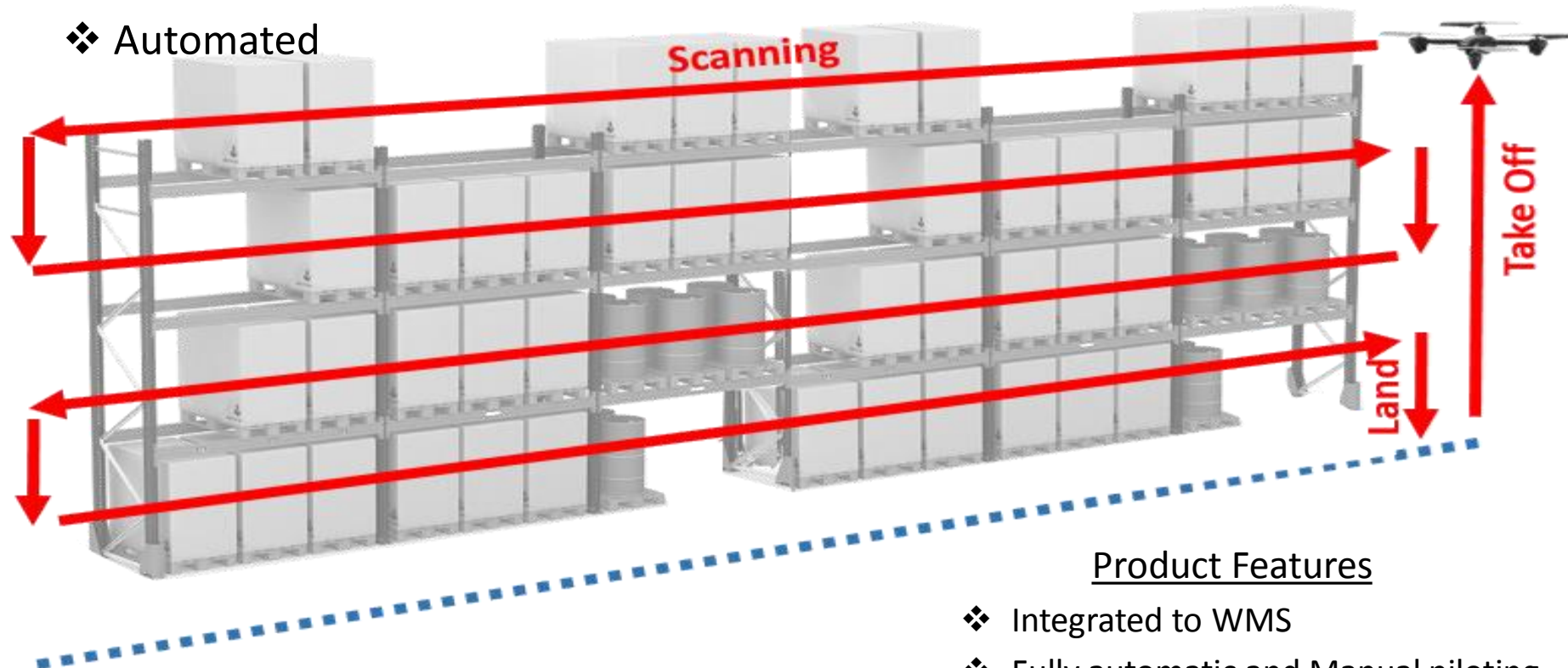
Key Technical Features:

- Proprietary indoor navigation system that requires no additional expensive infrastructure for the drone to ***navigate autonomously*** in an ***indoor*** environment such as a warehouse
- Using Computer Vision and LIDAR sensors in the warehouses to navigate drones indoors autonomously

Infinium-Scan stock-taking process

- Drone Cycle-count

- ❖ Fast
- ❖ Accurate
- ❖ Automated



Product Features

- ❖ Integrated to WMS
- ❖ Fully automatic and Manual piloting options available

Benefits of Infinium-Scan Solution



- **Three Main Benefits** of our automated stock-taking system:

Benefit 1: *Reduced manpower* resources

Benefit 2: *Reduce Inventory Write-off* (due to Pilferage, Stock Obsolescence, Stock Aging or leakage etc) with faster & more accurate cycle counts

Benefit 3: *Increased Stock visibility & Accuracy* leads to *Increased order fulfillment rate* which results in increased potential sales revenue

Comparison of Infinium-Scan with Traditional Methods



Typical Inventory Mgmt. Process	~2 Resources to cover 10,000 sqm. Technology Enabled Manual Handling 1 Print Spreadsheets 2 Scan Complete entire warehouse 3 Enter data 4 WMS System 2-3 seconds per pallet location 98.4% accuracy 8 seconds per pallet location <98.4% accuracy 5-10 mins of data entry for 1 inventory table Auto update Manual upload 12-24 hours per cycle	- Ability to update WMS is dependent on resources to perform inventory scanning - Accuracy of scanning barcodes / RFID requires skill and time effort - Updating of inventory data is sometimes performed manually
Infinium's Solution	Speed 10 minutes flight time 600 meters per flight 1 Accuracy 2 Scan Complete entire warehouse 1 second per meter Cycle count Annual count 99.9% accuracy 3 Automation Auto update WMS System Multiple cycles per day	- Increased speed to perform inventory scanning - Improved and consistent scanning - Auto update to WMS with ability to perform multiple cycles a day

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Infinium Scan Technology

