



Technology update

Presented by Mario Angel

Timber Measurement Society meeting

Who we are?

+20 years of innovation in industrial measurement systems to transform the processes of our customers.
+50 systems installed around the world.

Our main goal is **to improve the processes of our clients by incorporating technologies** that increase efficiency, control and optimize resources.

We are constantly looking for new opportunities to improve industrial processes, that is why we research, design and develop products with global scalability potential.

Our products are the result of **integrating different hardware technologies and the development of intelligent software systems**, using techniques of pattern recognition, image analysis, machine learning, among others.





2009



2011



2016



We are constantly looking for new technologies and sensors to improve our systems performance.

Forest Industry focus



Our main solutions are:

WOODTECH
A RED TO GREEN COMPANY



LOGMETER®

Technology that helps companies to improve results managing logs

LOGMETER DIRECT BENEFITS

- Accurate estimation and measurement of different log characteristics.
- Reduction of risks associated with the manual inspection and measurement of loads.
- Real time log information.
- Auditing records for 100% trucks.
- Load and bundle log distributions per provider.
- Reduction of processing time associated with manual measurement and inspections.

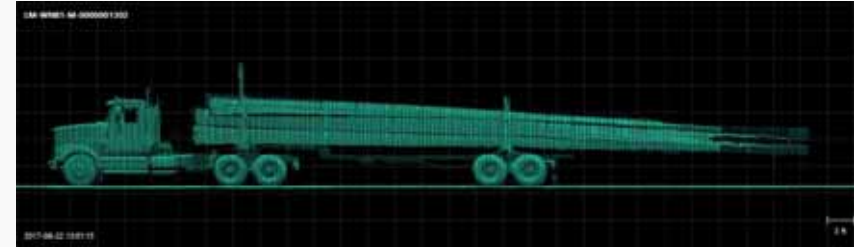


Logmeter measurement process

DATA CAPTURE

Lateral and top Surface.

The capture is accomplished by the speed and longitudinal lasers.



SEGMENTATION

Limits of bundles, vehicles, and base of loads

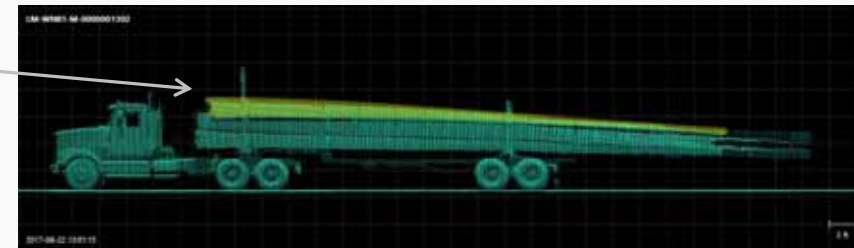
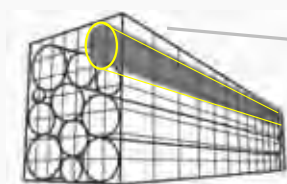
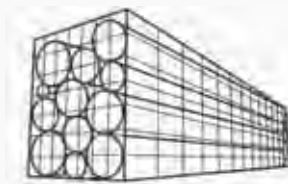
Calculation of most representative limits, considered as the average of limits of peripheral logs.



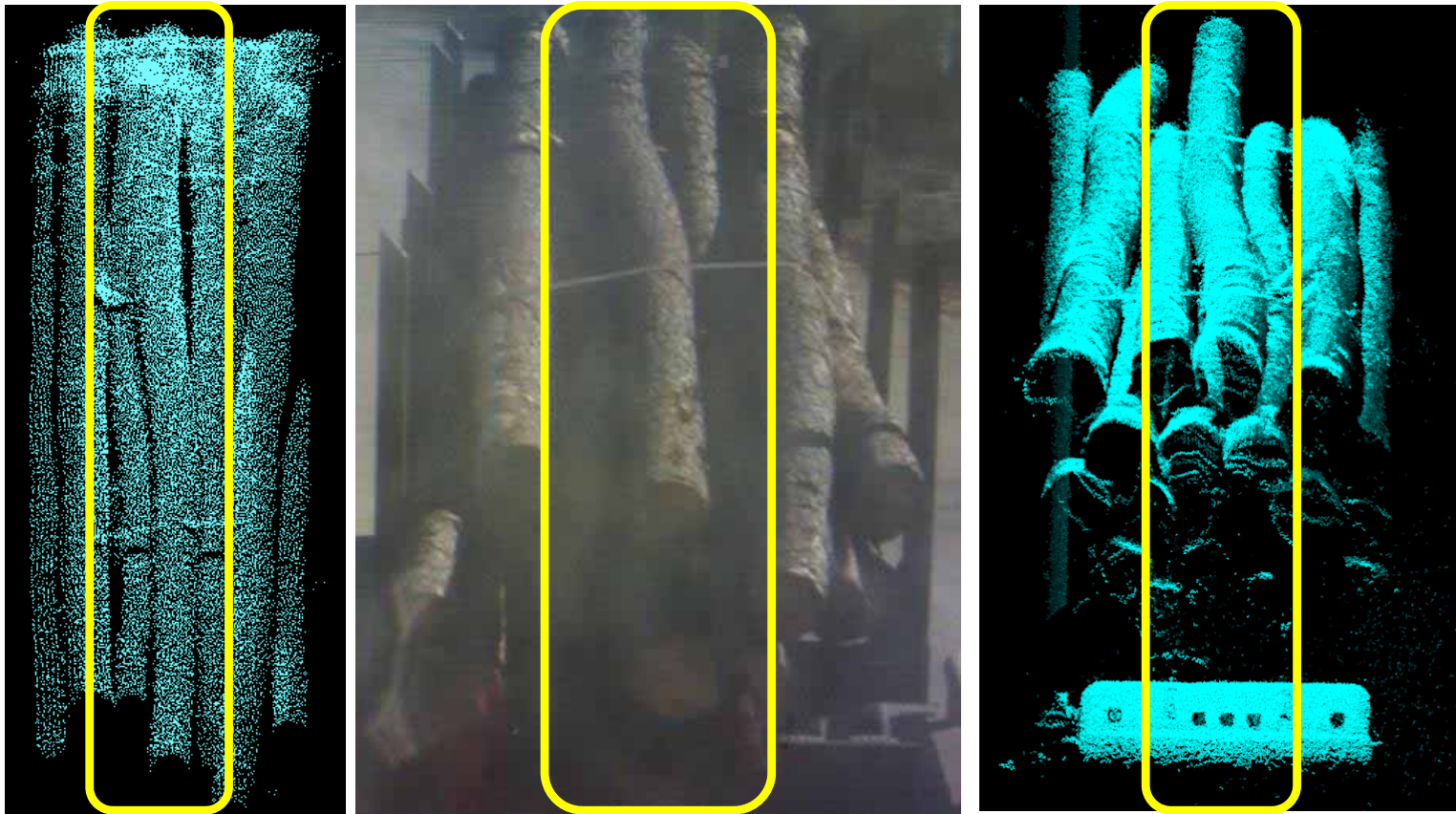
CALCULATION OF VARIABLES

Length, width, height, stereo volume and biometric characteristics

The circumscribed box of the load is calculated in each transversal slice within the limits of each bundle. Peripheral logs are identified and used for estimation of average diameter, length, conicity and curvatures.

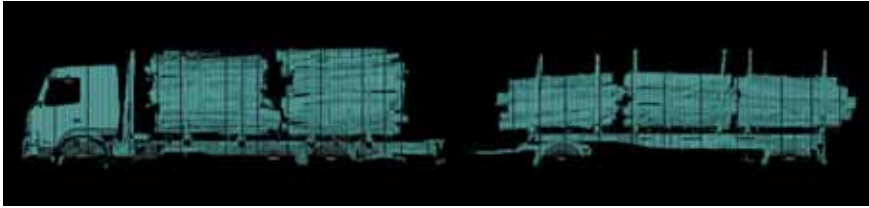


Identifying and measuring sweepy logs

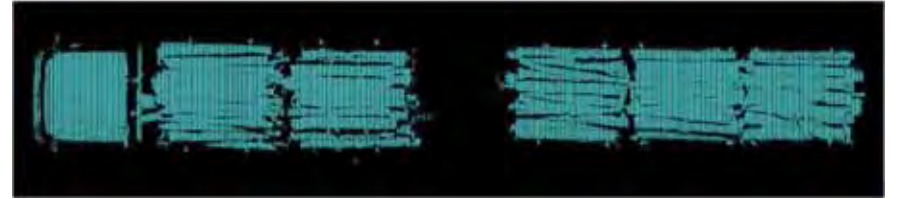


Scans, photographs and measurements of defective logs for payment deduction and conflict resolution with log suppliers.

Lavitoo Tool 360° detail



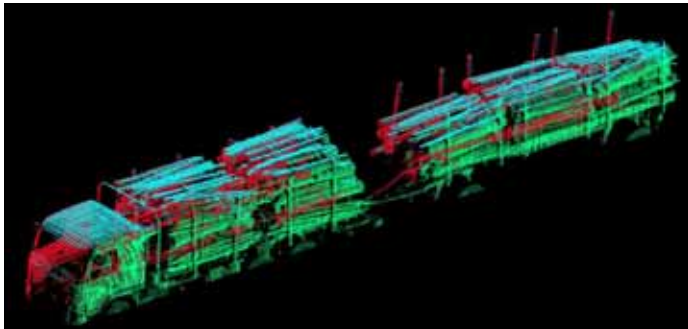
SIDE VIEW OF 3D MODEL



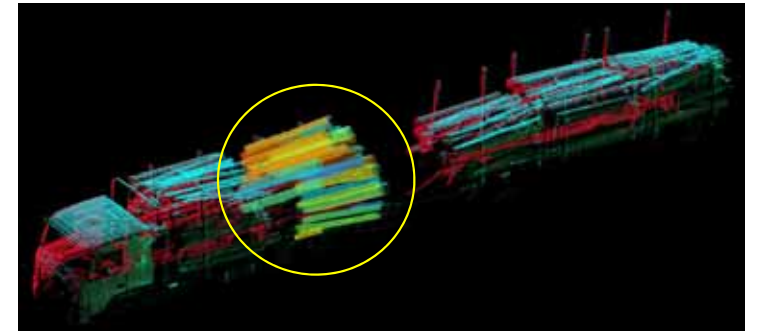
TOP VIEW OF 3D MODEL



BACK VIEW OF 3D MODEL

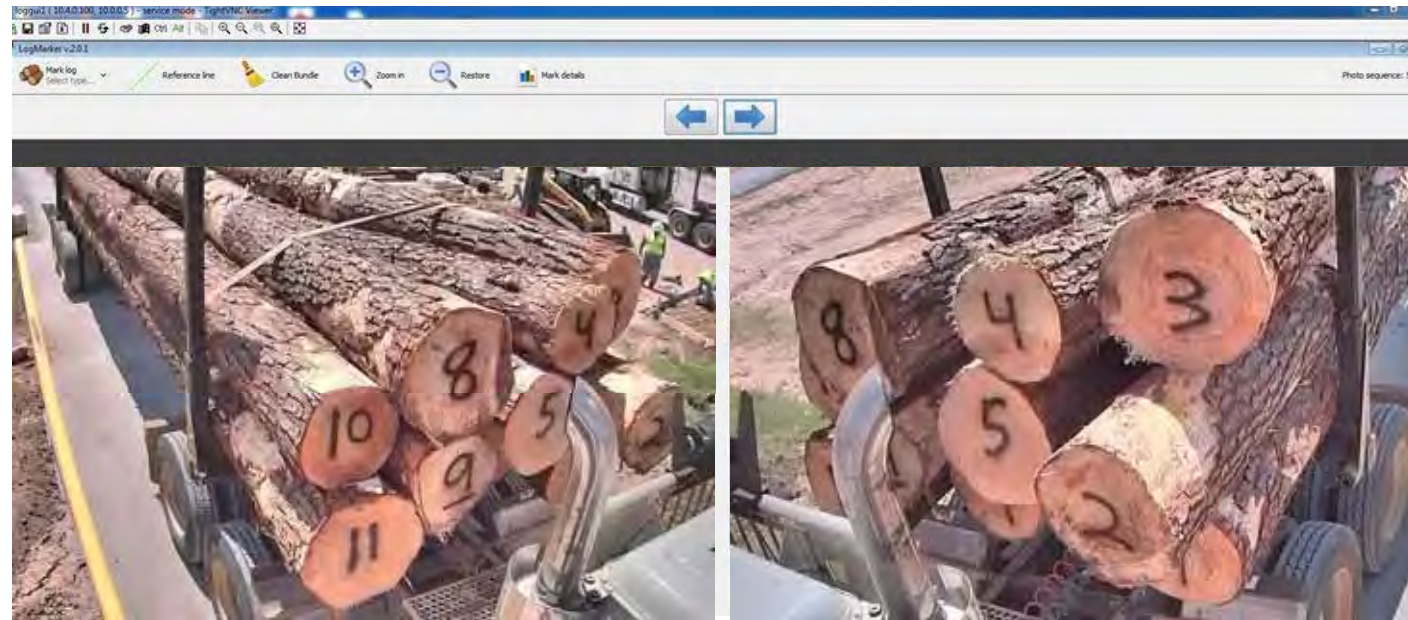


PERSPECTIVE VIEW OF 3D MODEL



SEGMENTATION IN 3D MODEL

Logmarker



Complementing the automatic scanning process the Logmeter will take pictures for the operator to select and mark on the computer screen defective logs using the Logmarker module.



Reporting system

WOODTECH Sawmill Logmeter Report

Logmeter Check Information
 Event ID: L4171044444444444
 Creation Date: 2015-07-29 15:57:25
 Date Range: 10/20/15

Logmeter Estimates
 Total Volume: 13.41 cu ft
 Total Sawn Volume: 42.0 cu ft
 Number of Items: 41

Logmeter Scanning

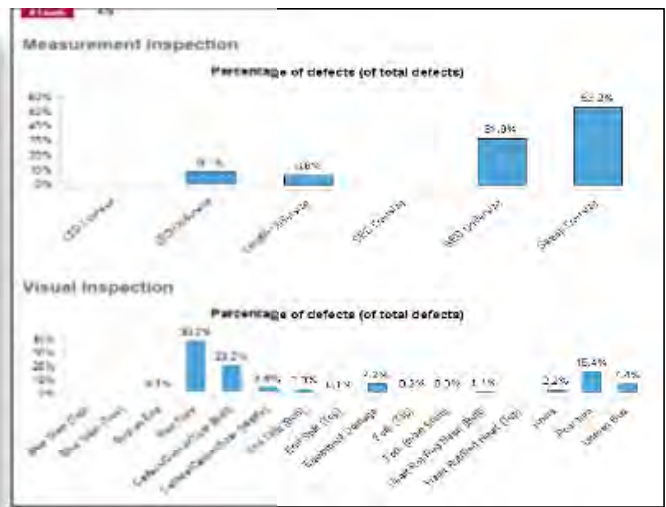
Small End Scanner

Average Speed: 2.7%
 Average Accuracy: 93.5%

Large End Scanner

Average Speed: 11.5%
 Average Accuracy: 95.5%

Logmeter Visual Presentation

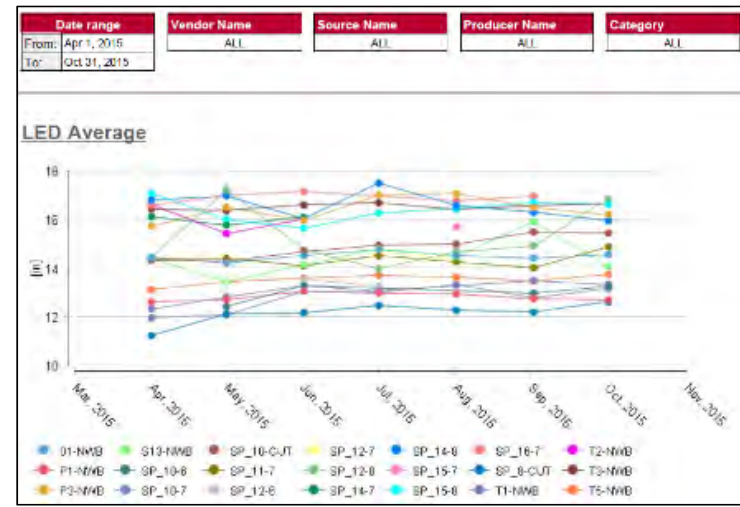


WOODTECH Defect Ranking

R.D. TO GREEN COMPANY

Date range	Vendor Name	Source Name	Producer Name	Category
From: Oct 31, 2015	All	All	All	All
To: Oct 31, 2015				

Vendor name	Source name	Producer name	Defects	Loose	Defects / Load	Estimated No. of items	Defects / Stems
ALBERTA PULP & PAPER CO. (P&P)	Alberta Pulp (11-30)	QND 41	21	12	7.6	352	15.1%
ALBERTA PULP & PAPER CO. (P&P)	Alberta Pulp (11-30)	WARRIOR PROMERIS SERRA LOGGING	12	3	3.3	38	12.4%
ALBERTA PULP & PAPER CO. (P&P)	Alberta Pulp (11-30)	WARRIOR PROMERIS SERRA LOGGING	24	2	2.4	225	11.0%
ALBERTA PULP & PAPER CO. (P&P)	Alberta Pulp (11-30)	WARRIOR PROMERIS SERRA LOGGING	24	14	3.8	758	13.6%
ALBERTA PULP & PAPER CO. (P&P)	Alberta Pulp (11-30)	WARRIOR PROMERIS SERRA LOGGING	22	3	7.2	166	14.2%



WOODTECH Minimum Load Criteria

R.D. TO GREEN COMPANY

Date range	Vendor Name	Source Name	Producer Name	Category	Marking	ODI
From: Oct 1, 2015	All	All	All	All	Historical	Current
To: Oct 31, 2015						

#	Event ID	Vendor name	Load number	Creation Date	Category	Avg LED (ft)	Avg SED (ft)	Avg Length (ft)	Avg Weight (lb)
1	LV-MNFI-M-000002224	GRACOVIC FORESTRY LLC	143702	10/17/15	TS-MRG	13.6	8.2	25.9	3.2
2	LV-MNFI-M-000002222	NORTH EDGIST LOGGING INC	143702	10/01/15	SP 15-1	15.1	8.0	46.8	3.2
3	LV-MNFI-M-000002222	NORTH EDGIST LOGGING INC	143701	10/01/15	SP 15-0	17.0	8.7	48.8	3.0
4	LV-MNFI-M-000002221	PULM CREEK MARKETING INC	143702	10/31/15	P1-MWB	12.7	7.7	43.7	3.1
5	LV-MNFI-M-000002103	POOPULLO FOREST PRODUCTS INC	143688	10/01/15	SP 15-7	13.6	7.8	26.5	3.0
6	LV-MNFI-M-000002103	POOPULLO FOREST PRODUCTS INC	143686	10/01/15	SP 15-7	13.2	7.5	26.3	2.8
7	LV-MNFI-M-000002103	LOG CREEK TIMBER CO INC	143687	10/01/15	SP 15-0	15.7	10.1	46.3	3.0
8	LV-MNFI-M-000002107	LOG CREEK TIMBER CO INC	143686	10/31/15	TS-MRG	17.3	8.8	47.8	2.7
9	LV-MNFI-M-000002103	PULM CREEK MARKETING INC	143685	10/01/15	P1-MWB	13.0	7.5	43.3	2.7
10	LV-MNFI-M-000002105	PULM CREEK MARKETING INC	143684	10/01/15	P1-MWB	13.4	8.1	41.3	3.7
11	LV-MNFI-M-000002104	PULM CREEK MARKETING INC	143683	10/01/15	P1-MWB	12.9	8.1	39.4	3.2
12	LV-MNFI-M-000002103	PULM CREEK MARKETING INC	143682	10/01/15	P1-MWB	12.6	8.1	38.1	2.4
13	LV-MNFI-M-000002102	MENTAL FOREST PRODUCTS INC	143681	10/01/15	SP 15-7	15.8	7.9	38.0	3.0
14	LV-MNFI-M-000002101	CHARLES & DOUG LITTLE INC	143680	10/01/15	SP 15-7	16.2	7.9	50.6	3.2
15	LV-MNFI-M-000002102	LOG CREEK TIMBER CO INC	143680	10/01/15	SP 15-7	12.6	8.4	37.2	2.9
16	LV-MNFI-M-000002100	REDMONT PULP INC	143680	10/01/15	SP 12-9	16.0	8.3	46.1	3.1
17	LV-MNFI-M-000002100	REDMONT PULP INC	143687	10/01/15	SP 12-7	14.4	8.0	37.0	3.2
18	LV-MNFI-M-000002100	PULM CREEK MARKETING INC	143685	10/01/15	P1-MWB	13.6	7.8	40.2	2.4
19	LV-MNFI-M-000002100	NORTH EDGIST LOGGING INC	143685	10/01/15	SP 15-7	15.6	8.2	34.5	2.7
20	LV-MNFI-M-000002100	LOG CREEK TIMBER CO INC	143684	10/01/15	TS-MRG	16.5	8.0	47.5	2.3

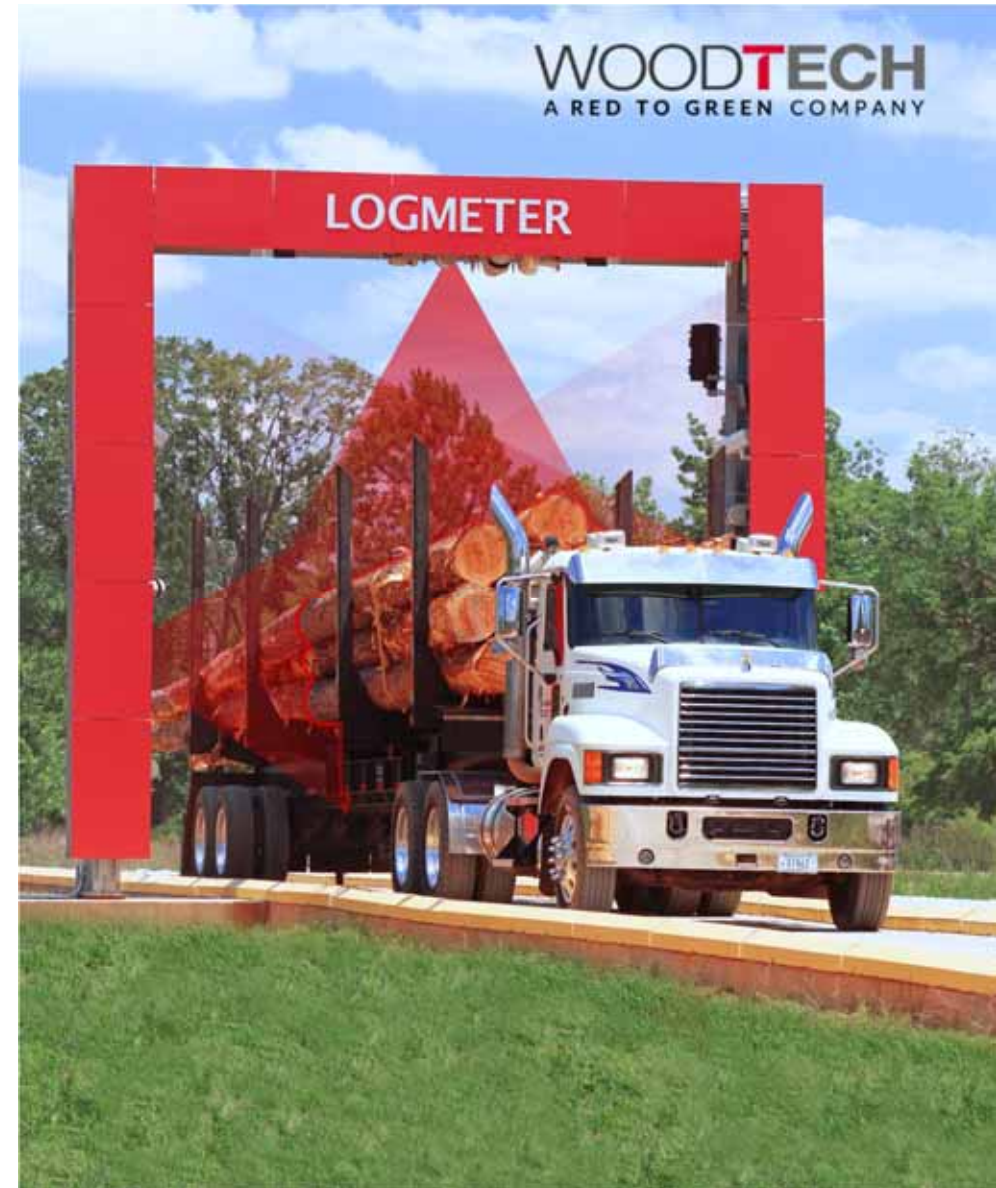
Logmeter before the scales



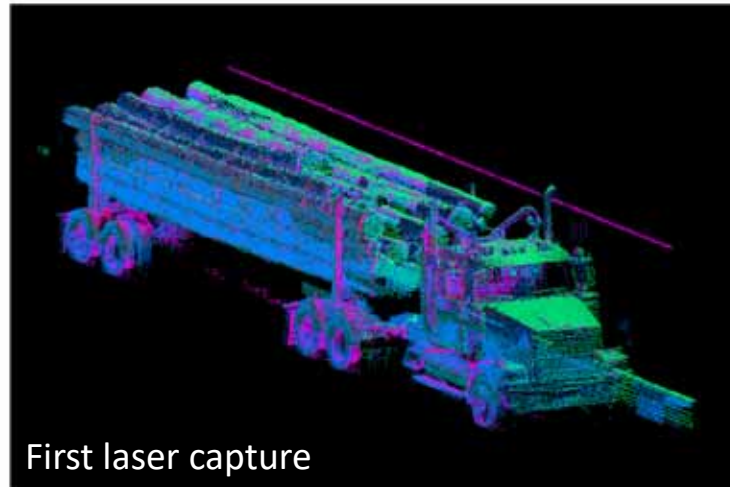
Logmeter VIDEO



The **impact** of scanning, measuring and auditing every single log load entering the mill and before it is unloaded is realized in the improvement of log **size and quality** enabling smoother running in the mill and resulting in increased efficiencies, recovery and profitability of the operation.



New pilot, new places





SYMBiOT

Technology that helps companies to reduce steep slope yarding risks

Forest harvesting

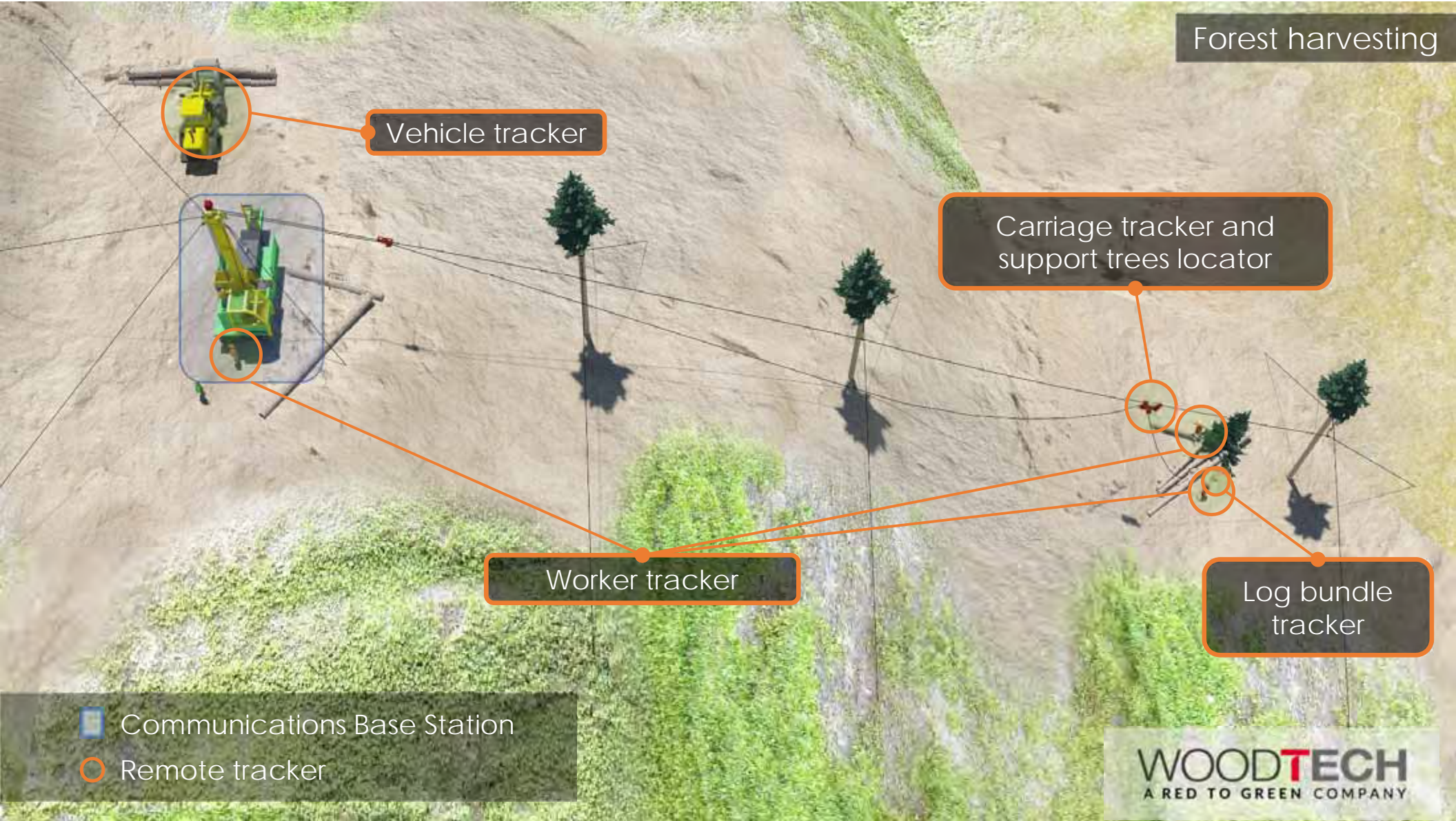
Vehicle tracker

Carriage tracker and support trees locator

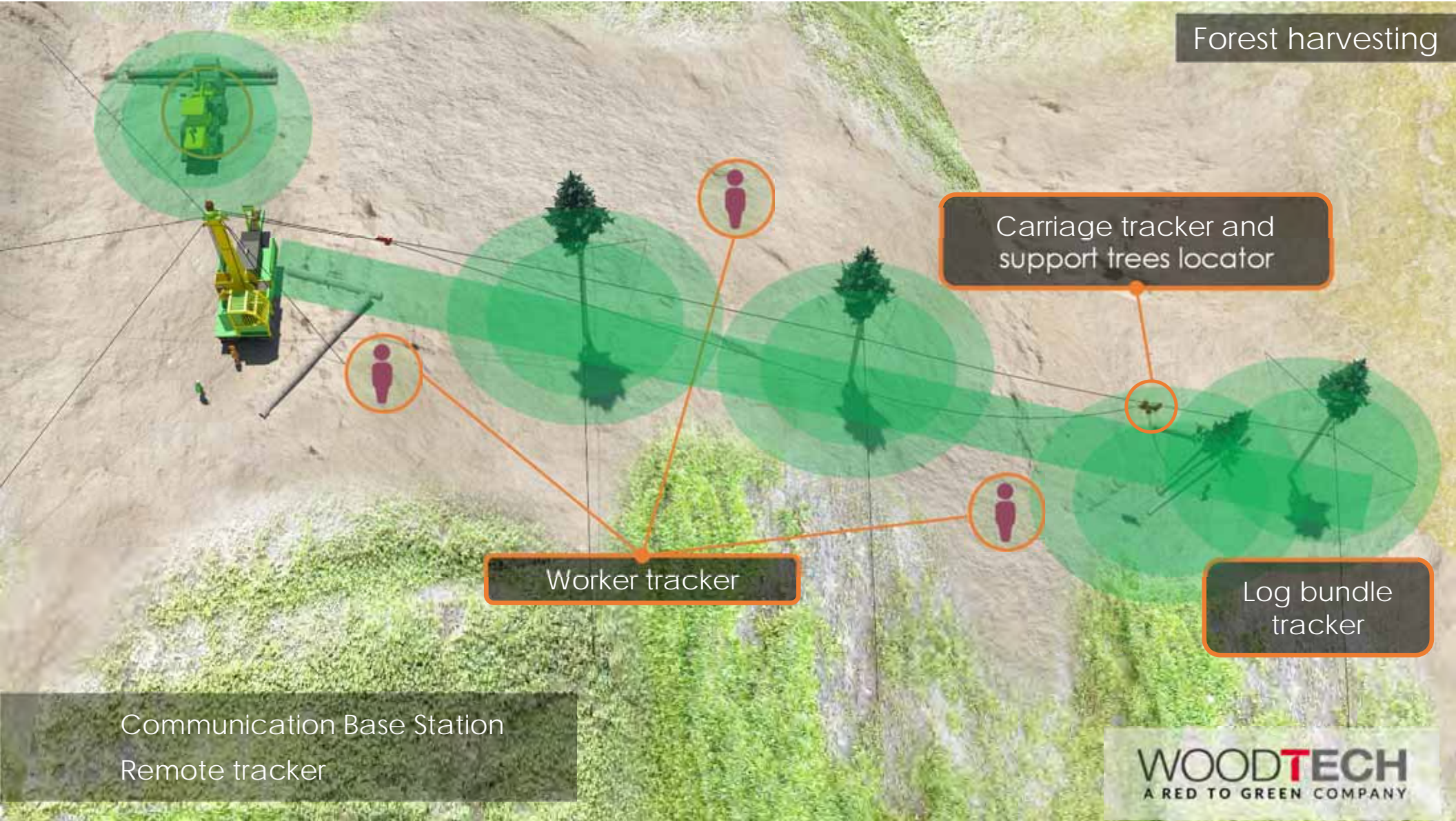
Worker tracker

Log bundle tracker

- Communications Base Station
- Remote tracker



Forest harvesting



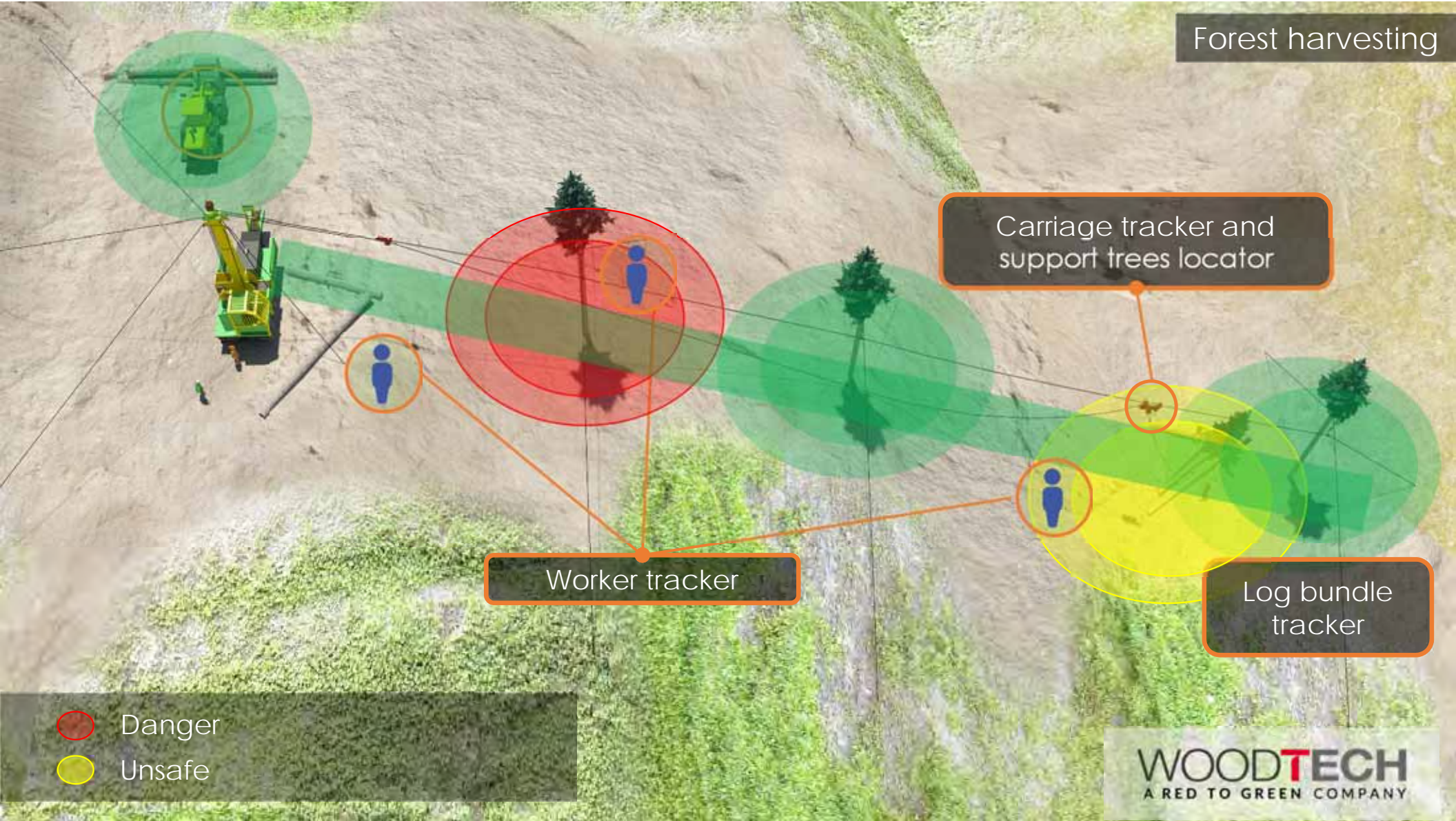
Carriage tracker and support trees locator

Worker tracker

Log bundle tracker

Communication Base Station Remote tracker

Forest harvesting



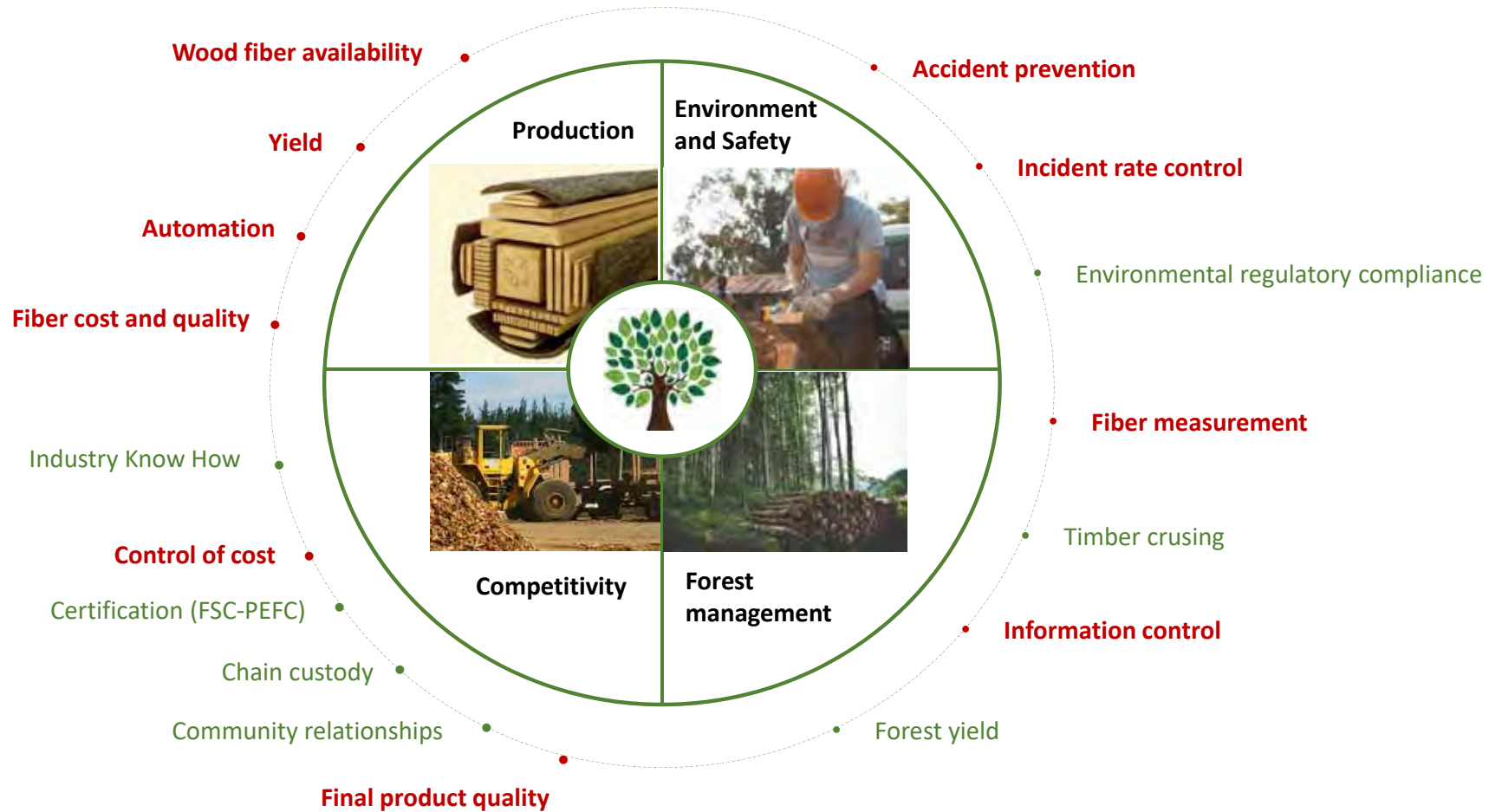
Carriage tracker and support trees locator

Worker tracker

Log bundle tracker

● Danger
● Unsafe

Woodtech Measurement Solutions





BULK METER

New international airport in Mexico City

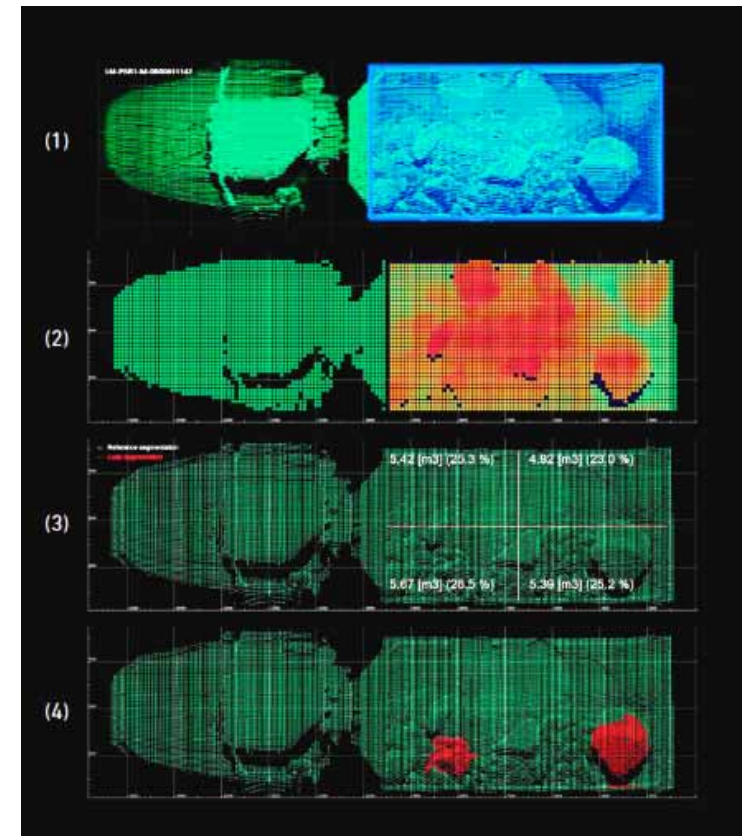
WOODTECH
A RED TO GREEN COMPANY

1,500 trucks/day

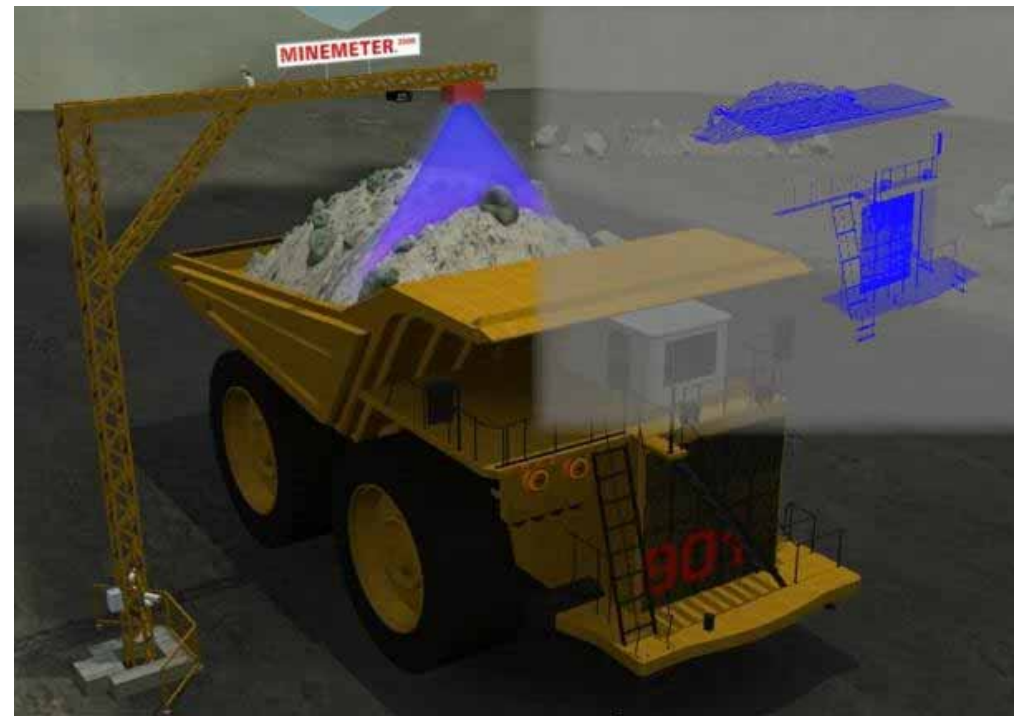


COCONAL, Mexico City

New international airport in Mexico City



Mining operation





WOODTECH

A RED TO GREEN COMPANY

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