

Coverage	
Sector (s)	Consumer Discretionary Industrials
Industry Group(s)	Capital Goods Commercial & Professional Services Consumer Durables & Apparel
Industry(ies)	Commercial Services & Supplies Electrical Equipment Industrial Conglomerates Leisure Products Machinery
Sub Industry (ies)	Agricultural & Farm Machinery Construction Machinery & Heavy Trucks Electrical Components & Equipment Industrial Conglomerates Industrial Machinery Leisure Products Security & Alarm Services
Theme(s)	Consumer Life & Home Industrial Machines
# Companies represented in this report	45

	Score		
	High	Median	Low
Company Nam	Caterpillar Inc	Dover Corp	AZZ Incorporated
Ticker	CAT	DOV	AZZ
IoE Score	43	19	0

Portfolio							
Period	Company	Ticker	Index	Rank	IoE Score	Momentum	Commentary
2017-Q2	Caterpillar Inc	CAT	S&P 500	1	43	5%	
2017-Q2	AGCO Corp	AGCO	S&P 400	3	38	-3%	
2017-Q2	PACCAR Inc	PCAR	S&P 500	3	38	12%	
2017-Q2	Emerson Electric Co	EMR	S&P 500	4	37	6%	
2017-Q2	Rockwell Automation Inc	ROK	S&P 500	5	34	-6%	
2017-Q2	Cummins Inc	CMI	S&P 500	6	33	14%	
2017-Q2	Komatsu-Joy Global	TYO	S&P 500	7	32	-26%	
2016-Q4	Flowserve Corp	FLS	S&P 500	8	30	15%	
2017-Q2	Oshkosh Corporation	OSK	S&P 400	10	27	29%	
2017-Q2	Ingersoll-Rand Plc -Industrial Machi	IR	S&P 500	11	26	8%	
2017-Q2	Harsco Corp	HSC	S&P 400	14	25	0%	
2017-Q2	Xylem Inc	XYL	S&P 500	15	24	20%	
2017-Q2	Parker-Hannifin Corp	PH	S&P 500	17	23	15%	
2017-Q2	ITT Corporation	ITT	S&P 400	19	22	-4%	
2016-Q4	Textron/Arctic Cat Inc	TXT	Other Publ	21	21	75%	
2017-Q2	Lincoln Electric Hldgs	LECO	S&P 400	21	21	0%	

Most Recent Period Scored	Ranking	Company	Company Ticker	Ranking		IoE Score	IoE Score Last Scored Period	Change Q/Q	Peer Group Median Change	Momentum Score
				S&P Classification	IoE Score					
2017-Q2	1	Caterpillar Inc	CAT	S&P 500	43	41	5%	6%	Y	
2017-Q2	3	AGCO Corp	AGCO	S&P 400	38	39	-3%	6%	R	
2017-Q2	3	PACCAR Inc	PCAR	S&P 500	38	34	12%	6%	G	
2017-Q2	4	Emerson Electric Co	EMR	S&P 500	37	35	6%	6%	G	
2017-Q2	5	Rockwell Automation Inc	ROK	S&P 500	34	36	-6%	6%	R	
2017-Q2	6	Cummins Inc	CMI	S&P 500	33	29	14%	6%	G	
2017-Q2	7	Komatsu-Joy Global	TYO	S&P 500	32	43	-26%	6%	R	
2016-Q4	8	Flowserve Corp	FLS	S&P 500	30	26	15%	6%	G	
2017-Q2	10	Stanley Black & Decker	SWK	S&P 500	27	31	-13%	-4%	R	
2017-Q2	10	Oshkosh Corporation	OSK	S&P 400	27	21	29%	6%	G	
2017-Q2	11	Ingersoll-Rand Plc -Industrial M	IR	S&P 500	26	24	8%	-4%	G	
2017-Q2	14	Harsco Corp	HSC	S&P 400	25	25	0%	-4%	G	
2017-Q2	14	Astec Industries Inc	ASTE	S&P 600	25	29	-14%	-4%	R	
2017-Q2	14	Deere & Co	DE	S&P 500	25	28	-11%	-4%	R	
2017-Q2	15	Xylem Inc	XYL	S&P 500	24	20	20%	-4%	G	
2017-Q2	17	Parker-Hannifin Corp	PH	S&P 500	23	20	15%	-4%	G	
2017-Q2	17	Acuity Brands Inc	AYI	S&P 400	23	27	-15%	-4%	R	
2017-Q2	19	ITT Corporation	ITT	S&P 400	22	23	-4%	-4%	G	
2017-Q2	19	Eaton Corp plc	ETN	S&P 500	22	24	-8%	-4%	R	
2017-Q2	21	Lincoln Electric Hldgs	LECO	S&P 400	21	21	0%	-4%	G	
2016-Q4	21	Textron/Arctic Cat Inc	TXT	Other Public	21	12	75%	-4%	G	
2017-Q2	22	AMETEK Inc	AME	S&P 500	20	21	-5%	-4%	R	
2017-Q2	26	Dover Corp	DOV	S&P 500	19	15	27%	-4%	G	
2017-Q2	26	Valmont Industries Inc	VMI	S&P 400	19	21	-10%	-4%	R	
2017-Q2	26	Lindsay Corporation	LNN	S&P 600	19	20	-5%	-4%	R	

Most Recent Period Scored	Ranking	Company	Company Ticker	S&P Classification	IoE Score	IoE Score Last Scored Period	Change Q/Q	Peer Group Median Change	Momentum Score
2017-Q2	26	Graco Inc	GGG	S&P 400	19	18	6%	-4%	G
2017-Q2	28	Nordson Corp	NDSN	S&P 400	17	16	6%	-4%	G
2017-Q2	28	Tyco/Johnson Controls	JCI	S&P 500	17	21	-19%	-4%	R
2017-Q2	31	Donaldson Co	DCI	S&P 400	14	18	-22%	-4%	R
2017-Q2	31	Toro Co	TTC	S&P 600	14	16	-13%	-4%	R
2017-Q2	31	Pentair PLC	PNR	S&P 500	14	14	0%	-4%	G
2017-Q2	32	Regal Beloit Corp	RBC	S&P 400	13	11	18%	-4%	G
2017-Q2	33	Crane Co	CR	S&P 400	12	12	0%	-4%	G
2017-Q2	34	Snap On Inc	SNA	S&P 500	11	12	-8%	-4%	R
2016-Q4	35	Federal Signal Corp	FSS	S&P 600	10	11	-9%	-4%	R
2017-Q2	37	Illinois Tool Works Inc	ITW	S&P 500	9	3	200%	-4%	G
2017-Q2	37	Terex Corp	TEX	S&P 400	9	9	0%	0%	G
2017-Q2	39	Timken Co	TKR	S&P 400	7	2	250%	0%	G
2017-Q2	39	IDEX Corp	IEX	S&P 400	7	1	600%	0%	G
2017-Q2	40	Wabtec	WAB	S&P 400	4	6	-33%	0%	R
2017-Q2	41	Kennametal Inc	KMT	S&P 400	1	1	0%	0%	G
2017-Q2	45	CLARCOR Inc	CLC	Private	0	0	0%	0%	G
2017-Q2	45	AZZ Incorporated	AZZ	S&P 600	0	0	0%	0%	G
2017-Q2	45	Trinity Industries Inc	TRN	S&P 400	0	0	0%	0%	G
2017-Q2	45	Titan Intl Inc	TZ4	S&P 600	0	0	0%	0%	G



IoE SCORE LEADERS LAGGARDS

Current Period Rank	Leaders (top 20%)	At Par (next 60%)	Laggards (next 20%)
Median	34	19	1
	Caterpillar Inc 43	Stanley Black & Decker 27	Terex Corp 9
	AGCO Corp 38	Ingersoll-Rand Plc -Industrial Machiner 26	IDEX Corp 7
	PACCAR Inc 38	Astec Industries Inc 25	Timken Co 7
	Emerson Electric Co 37	Deere & Co 25	Wabtec 4
	Rockwell Automation Inc 34	Harsco Corp 25	Kennametal Inc 1
	Cummins Inc 33	Xylem Inc 24	AZZ Incorporated 0
	Komatsu-Joy Global 32	Acuity Brands Inc 23	CLARCOR Inc 0
	Flowserve Corp 30	Parker-Hannifin Corp 23	Titan Intl Inc 0
	Oshkosh Corporation 27	Eaton Corp plc 22	Trinity Industries Inc 0
		ITT Corporation 22	
		Lincoln Electric Hldgs 21	
		Textron/Arctic Cat Inc 21	
		AMETEK Inc 20	
		Dover Corp 19	
		Graco Inc 19	
		Lindsay Corporation 19	
		Valmont Industries Inc 19	
		Nordson Corp 17	
		Tyco/Johnson Controls 17	
		Donaldson Co 14	
		Pentair PLC 14	
		Toro Co 14	

Regal Beloit Corp	13
Crane Co	12
Snap On Inc	11
Federal Signal Corp	10
Illinois Tool Works Inc	9

Top IoE Scores Across VIEW Pillars

Rank	IoE	Score/80	Value	Score/20	Innovation	Score/20	Engagement	Score/20	Wave	Score/20
1	Caterpillar Inc	43	AGCO Corp	9	Caterpillar Inc	12	Caterpillar Inc	12	Caterpillar Inc	11
2	AGCO Corp	38	Komatsu-Joy Global	8	AGCO Corp	10	Emerson Electric Co	11	PACCAR Inc	11
3	PACCAR Inc	38	Rockwell Automation Inc	8	PACCAR Inc	10	Ingersoll-Rand Plc - Industrial Machinery	11	Emerson Electric Co	11
4	Emerson Electric Co	37	Caterpillar Inc	8	Cummins Inc	10	PACCAR Inc	10	AGCO Corp	10
5	Rockwell Automation Inc	34	Harsco Corp	7	Komatsu-Joy Global	8	AGCO Corp	9	Rockwell Automation Inc	10

Momentum

	Value	Innovation	Engagement	Wave
Last Scored Period: Industry Score (avg)	3	4	5	5
Current Period High Score	9	12	12	11
Current Period Low Score	0	0	0	0
Current Period: Industry score (avg)	4	4	5	6

Most Improved (% improvement from last scored period to current period)										
Rank	IoE	%	Value	%	Innovation	%	Engagement	%	Wave	%
1	IDEX Corp	600%	Dover Corp	150%	Illinois Tool Works Inc	200%	IDEX Corp	200%	Illinois Tool Works Inc	400%
2	Timken Co	250%	Regal Beloit Corp	100%	Textron/Arctic Cat Inc	100%	Timken Co	200%	Timken Co	300%
3	Illinois Tool Works Inc	200%	Wabtec	100%	Parker-Hannifin Corp	50%	Regal Beloit Corp	100%	IDEX Corp	300%
4	Textron/Arctic Cat Inc	75%	Textron/Arctic Cat Inc	100%	Emerson Electric Co	33%	Textron/Arctic Cat Inc	75%	Xylem Inc	60%
5	Oshkosh Corporation	29%	Illinois Tool Works Inc	100%	Flowserve Corp	33%	Terex Corp	50%	Textron/Arctic Cat Inc	50%

Headwinds (% loss from last scored period to current period)										
Rank	IoE	%	Value	%	Innovation	%	Engagement	%	Wave	%
1	Wabtec	-33%	Tyco/Johnson Controls	-50%	Federal Signal Corp	-100%	Illinois Tool Works Inc	-33%	Wabtec	-75%
2	Komatsu-Joy Global	-26%	Donaldson Co	-33%	Toro Co	-50%	Valmont Industries Inc	-33%	Tyco/Johnson Controls	-40%
3	Donaldson Co	-22%	Valmont Industries Inc	-25%	Komatsu-Joy Global	-33%	Federal Signal Corp	-33%	Komatsu-Joy Global	-38%
4	Tyco/Johnson Controls	-19%	Eaton Corp plc	-20%	Acuity Brands Inc	-33%	Crane Co	-33%	Acuity Brands Inc	-33%
5	Acuity Brands Inc	-15%	Astec Industries Inc	-13%	Eaton Corp plc	-33%	Stanley Black & Decker	-25%	Donaldson Co	-33%

IoE Technology Pivot Initiatives by Business Function

Unique Initiatives Across Business Function:	Market Facing Product / Service	Marketing & Sales	Post Sales Support/ Maintenance	Research & Development	Distribution & Logistics	Manufacturing & Assembly	Infrastructure - Buildings, Warehouses, etc	Workforce Optimization (HR, IT, Procurement, etc)	
Total:	547	291	15	59	120	11	29	4	18
IoE Technology Pivot	Market Facing Product / Service	Marketing & Sales	Post Sales Support/ Maintenance	Research & Development	Distribution & Logistics	Manufacturing & Assembly	Infrastructure - Buildings, Warehouses, etc	Workforce Optimization (HR, IT, Procurement, etc)	
Adaptive Manufacturing (3D Printing) (29)	4		1	13		11			
Remote Monitoring (120)	78		26	12	2	1		1	
Augmented Reality (18)	2	2	5	7		2			
Virtual Reality (19)	3	4	4	4		2		2	
IOT Connected Device (19)	13			5				1	
Telematics (22)	15		3	4					
RFID (12)	4			2	3	3			
Robotics (25)	10			8		5	1	1	
Artificial Intelligence (12)	6			5				1	
Visualization: Imaging & Mapping (33)	19		5	7	1			1	
Mobile/Applications (36)	22	4	8	1				1	
Big Data & Analytics (47)	19	2	9	13	1	2	1		
Cloud Delivery (54)	27		8	4	3			12	
IOT Sensors in Things (69)	47		2	18		2			
Sensor Networks (Connected Environment) (102)	61		5	30	1	3	2		
Analytics (23)	13		7	3					
3D (other) (7)	5			1				1	
Telemedicine (1)	1								
Video (1)			1						
Laser 2 (1)	1								
Video Sensing (2)	1			1					
Digitization (3)		1		1				1	
Platform (IoT, etc) (13)	6	1	1	5					

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Laser (5)	4					1		
Unmanned / Remote Operated (1)	1							
Camera Sensing (7)	5			2				
Connectivity (Broadband, satellite, etc) (8)	6			2				
IoE Cloud Services - SaaS (9)	5		3	1				
Autonomous Vehicle (10)	6			3		1		
Drones (11)	4	1	1	2	1	1	1	
Machine Learning (M2M) (11)	3		3	5				
IOT Wearable (5)	3		1			1		

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Adaptive Manufacturing (3D Printing) (29)	<p>4: Crane Co: [Materials] New design that leverages 3D metal printing technology to create microchannels, or "fingers", for cooling fluid.</p> <p>Stanley Black & Decker: 3D Printer: Stanley Black and Decker releases new Stanley Model 1 3D printer by collaborating with Sindoh.</p> <p>ITT Corporation: Connected Mine: i-ALERT@2 Equipment Health Monitor with Bluetooth Smart technology. ProCast® Reengineered Replacement Parts service: offers parts solution combined with 3D printing technology (Marketing n Sales)</p> <p>Dover Corp: OK, a Dover subsidiary offering 3D Printers through Quant 3D</p>		<p>1: ITT Corporation: Connected Mine: ProCast® Reengineered Replacement Parts service: offers parts solution combined with 3D printing technology (Marketing n Sales)</p>	<p>13: Lincoln Electric Hldgs: Lincoln Electric is part of a team that has received \$1 million funding through America Makes in conjunction with the National Center for Defense Manufacturing and Machining (NCDMM) for pursuing laser hot wire technology for additive manufacturing (AM)</p> <p>Stanley Black & Decker: 3D prototyping has dramatically improved the speed of design iterations. In some instances, Stanley Black & Decker has reduced its design cycle time from 18 months to 6 weeks</p> <p>Parker-Hannifin Corp: 3D-printing: reduced lead time for its prototypes as well as the number of iterations needed,</p> <p>Komatsu-Joy Global: ADAPTIVE</p>		<p>11: Caterpillar Inc: 3D Printing: Caterpillar signed a deal with additive manufacturing solutions provider FIT AG to 3D print aluminum and titanium parts.</p> <p>Textron/Arctic Cat Inc: Cessna Denali business aircraft : Textron will use GE Aviation's turboprop which will 3D print aircraft components from titanium and steel and will build additive manufacturing ecosystem</p> <p>Caterpillar Inc: "3D Printing: Caterpillar collaborated with OSF HealthCare to design 3D printed hearts for surgical planning"</p> <p>Cummins Inc: 3D Printing: Cummins uses 3D printing to replace a corroded magnesium water pump.</p> <p>Graco Inc: 3D</p>		

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				<p>MANUFACTURING Trimble and Komatsu Ltd. announced that they are collaborating to improve their customers' ability to exchange 3D construction site data between Komatsu and Trimble construction software</p> <p>Astec Industries Inc: Astec Cuts Product Development Cycle Time from Months to Days with 3D Printing</p> <p>Caterpillar Inc: Caterpillar opened three new innovation spaces - Two in Mossville, the innovation accelerator and additive manufacturing or 3D printing factory</p> <p>Ingersoll-Rand Plc - Industrial Machinery: Collaborating with ORNL to make world's largest 3D printer with WHAM 3D printing system (Wide and High Additive Manufacturing).</p> <p>Emerson Electric Co: Emerson opens Solutions Center and Education Center in Dubai. Equipped with innovations</p>		<p>Printing: Recently Graco designed a spray texture gun based on functional models built with tough ABS plastic parts from a Dimension 3D printer.</p> <p>Snap On Inc: 3D Printing: Snap is using Snapmaker 3D Printer which is a all-metal 3D printer. It is capable of laser engraving and CNC carvin</p> <p>Emerson Electric Co: Additive Center: Emerson opened an advanced additive manufacturing center at its Singapore campus. This is Emerson's second location to have additive manufacturing capabilities (making 3D objects from a digital model).</p> <p>Cummins Inc: Additive Manufacturing: Cummins was able to pursue the new technology that was launched by Jason Jones, CEO and co- founder of Hybrid Manufacturing Technologies</p> <p>Astec Industries Inc: Astec, is employing 3D printing in burner</p>		

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				<p>such as augmented reality and 3D imaging,</p> <p>Eaton Corp plc: Innovation Center India: 3D-printing of metals and creating products to convert waste heat back into usable energy</p> <p>Timken Co: IoT:Timken India, a subsidiary of Timken Company, is scaling up its R&D efforts towards advanced bearing technology, beginning by leveraging 3D printing, IoT, cloud, big data, predictive maintenance</p> <p>Eaton Corp plc: More Eaton facilities are using 3D printing to create precise prototypes, increase speed to market and reduce waste by "growing" rather than machining parts</p> <p>Emerson Electric Co: Singapore: Center r&d on methods of using 3D printing for the manufacture of industrial control valves.</p> <p>Timken Co: Timken; using 3-D printing for years to make product prototypes and to test design concepts.</p>		<p>manufacturing</p> <p>Lincoln Electric Hldgs: Large Scale Metal AM manufactures large steel parts by using a robot to move a MIG welding head around, growing the part layer by layer.</p> <p>Oshkosh Corporation: Laser: The quality-control methods currently use Laser Powder Bed Fusion Additive Manufacturing</p>		

IoE Technology Pivot	Market Facing Product / Service	Marketing & Sales	Post Sales Support/ Maintenance	Research & Development	Distribution & Logistics	Manufacturing & Assembly	Infrastructure - Buildings, Warehouses,	Workforce Optimization (HR, IT,
<p>Remote Monitoring (120)</p>	<p>78: Lindsay Corporation: Remote monitoring and control product: The Elecsys Light Guard Pulse enables streetlight control and fault reporting</p> <p>Valmont Industries Inc: Remote Monitoring/ Sensor: The new Valley ICON smart panels Valley ICON10, equipped with a 10-inch, full-color touchscreen display control with a remote device WiFi Access technology</p> <p>Ingersoll-Rand Plc - Industrial Machinery: Remote Monitoring: Ingersoll Rand Next Generation R-Series rotary screw compressors come with Remote monitoring</p> <p>Lincoln Electric Hldgs: REMOTE MONITORING: Lincoln Electric's new CrossLinc® Remote allows operators to adjust welding settings</p> <p>Donaldson Co: WaveLength™ allows users to remotely view the status of their filter systems, giving customers the opportunity to improve operational</p>		<p>26: Caterpillar Inc: Product Link fleet-management technology. Product Link, which uses cellular and satellite technology to monitor the condition of a customer's fleet</p> <p>Lindsay Corporation: Remote Monitoring Apps: designed to give customers enhanced control of Elecsys remote monitors and improved insight into their systems.</p> <p>Komatsu-Joy Global: 10% of Joy Global Inc.'s mining equipment now in service is connected to the manufacturer's Smart Services monitoring program.</p> <p>Caterpillar Inc: Age of Smart Iron – IoT program: Cat Connect Technology, designed to help customers achieve greater visibility (through data) into their machines to better anticipate maintenance needs and drive performance improvement.</p> <p>Regal Beloit Corp: App-based toolset: Features to Browning Toolbox</p>	<p>12: Acuity Brands Inc: Distech Control and DGLogik showcased building automation controls IOT tools at 2017 AHR Expo. [Eclypse connected]</p> <p>Caterpillar Inc: acquired Inspired Systems Pty Ltd. Inspired currently provides asset protection and condition-based monitoring systems for the rail industry.</p> <p>AMETEK Inc: AMETEK Announces Two Acquisitions: Brookfield Engineering and ESP/SurgeX. ESP/SurgeX is a leader in power protection, monitoring, and diagnostic solutions.</p> <p>Caterpillar Inc: Caterpillar has entered into a strategic alliance with Modustri to develop better machine wear measurement</p> <p>Harsco Corp: Harsco Corp. is partnering with the Johns Hopkins University Applied Physics Laboratory to introduce unmanned vehicle</p>	<p>2: Rockwell Automation Inc: Developed new monitoring device for its Oil and Gas supply-chain network</p> <p>Federal Signal Corp: Signed a distributed partnership. FS solution & Joe Johnson Equipment will sell and support the Gerotto Lombrico remote-controlled mini excavator</p>	<p>1: Emerson Electric Co: New manufacturing facility in Dammam First Industrial City in Saudi Arabia. Control and Safety Systems for Well heads (Oil & Gas)</p>		<p>1: Emerson Electric Co: Opened new education facilities at its Solutions Center in Aberdeen. The expansion provides for a range of training courses</p>

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	<p>efficiencies and uptimes. AssetScan is an integrated, battery-powered sensor monitoring system</p> <p>Crane Co: [Merchandising] Crane's Intelligent Store Service: easier for operators to manage machines remotely, including over-the-air software updates, custom messaging and "retail insights" monitoring.</p> <p>Caterpillar Inc: Acquired M2M Corp: Enabling customers to monitor their assets, perform remote diagnostics and streamline maintenance and dispatch to achieve operational excellence.</p> <p>Emerson Electric Co: AMS ARES™ Platform, designed to prioritize and deliver asset and device health data</p> <p>Parker-Hannifin Corp: Asset Monitoring: SensoNODE family, monitoring the condition of assets farther than ever before. Monitor asset health</p> <p>Deere & Co:</p>		<p>Technician provides motor information to user.</p> <p>Cummins Inc: Connected Advisor: provides an additional level of support in interpreting engine issues and improving operational efficiency with time-to-service recommendations</p> <p>Cummins Inc: Connected Software Updates, delivering secure over-the-air programming enabled through a capable telematics service</p> <p>PACCAR Inc: Connected Truck; SmartLINQ Service Management, powered by Decisiv, will be integrated with the PACCAR Solutions portal in 2017</p> <p>Cummins Inc: Data Enabled Mining Solution, monitor engines and deliver accurate, real-time operating information,</p> <p>AGCO Corp: Fuse Connected Services combines the right machines, technology, parts, service and support to help customers optimize their</p>	<p>technology to railway safety and security operations.</p> <p>Emerson Electric Co: Invested in two food monitoring companies: - Locus Traxx, - PakSense</p> <p>Komatsu-Joy Global: Iridium Communications Inc signed a deal with Komatsu to provide global asset tracking and monitoring for KOMTRAX system, with over KOMTRAX-equipped vehicles</p> <p>Komatsu-Joy Global: Mining: JoySmart: automated monitoring system that trawls through machine data with the ability to detect any changes in component behavior to predict an onset of failure.</p> <p>Emerson Electric Co: Modius, a leading software provider of real-time facilities monitoring solutions entered into strategic partnership with Emerson.</p> <p>Dover Corp: w/ Honeywell customer development program for its Industrial IOT ecosystem.</p>					

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	<p>Automatic Remote Diagnosis: ADT having a new automatic differential lock provides both cross-axle differential lock and inter-axle differential lock options that can power the ADTs through soft underfoot conditions or steep terrains</p> <p>ITT Corporation: BIW Connector Systems brand has launched a unique seven-contact wellhead outlet to connect safely and reliably to monitoring equipment in oil and gas production wells</p> <p>Rockwell Automation Inc: Bulletin Platform: access data from field devices and more easily control process operations in hazardous areas</p> <p>Caterpillar Inc: Caterpillar And Torc Robotics Launch Remote Control System For Cat® Skid Steer, Multi Terrain And Compact Track Loaders</p> <p>Cummins Inc: CLOUD TECHNOLOGY/Remote Monitoring: Cloud remote monitoring system, providing real-time information</p>		<p>operation and maximize uptime through preventative maintenance, machine condition monitoring and year-round consultation.</p> <p>Valmont Industries Inc: IoT data also helps Valmont track its products' performance over their life cycles.</p> <p>Deere & Co: JDLink™ Dashboard for Customers to Better Understand and Manage Equipment. John Deere is launching a new telematics interface enabling customers to better optimize their machines,</p> <p>Komatsu-Joy Global: Joy Global has joined forces with Boston-based software company PTC to equip its operations center with PTC software to monitor maintenance needs, environmental metrics and safety conditions deep underground</p> <p>Toro Co: Lynx® Central Control System: Toro upgrade Lynx® central control system that provides remote control of</p>	<p>Honeywell's data consolidation, cyber security, software development combines with Dover's monitoring system will provide robust Industrial IOT ecosystem.</p> <p>Harsco Corp: w/ Hydro Industries (water treatment) steel-producing sites : remote monitoring focus</p> <p>Deere & Co: w/ LHP Telematics are creating custom telematics solutions for the heavy equipment original manufacturer (OEM) marketplace and aftermarket construction fleets</p>				

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	<p>and notifications to ensure the generator is available when needed.</p> <p>Cummins Inc: Connected Diagnostics: Motorcoaches that are equipped with a telematics service.Real-time engine fault code analysis, probable diagnosis and recommended actions.</p> <p>Komatsu-Joy Global: Connected Dozer/Mining: D51EX/PX-24 crawler dozer. Provide real time solution, KOMTRAX 5.0 telematics system monitors and provides basic machine data.</p> <p>Komatsu-Joy Global: Connected excavators: PC170LC-11, HB365LC-3 hybrid, PC650LC-11 hydraulic excavator. (using IoT platform; KOMTRAX 5.0)</p> <p>Komatsu-Joy Global: Connected Off Highway Truck: HD465-8 and HD605-8. automatically maintains a selected downhill travel speed.KOMTRAX and the monitor panel provide critical</p>		<p>irrigation systems. The enhanced sensor inputs collect data regarding rainfall, pressure, temperature, status and flow.</p> <p>Toro Co: Lynx® Dash: Monitoring system enables standalone service that can be integrated into existing Lynx central control systems or can also be used in combination with SiteVision, the Toro Turf Guard® wireless soil moisture monitoring system software.</p> <p>Flowserve Corp: Monitors pumps/devices in real-time, cutting the number of repair trips from three to one. [Vuforia]</p> <p>Rockwell Automation Inc: New diagnostic reliability service: Provides an expert who closely tracks equipment performance to advise on reliability improvements to the production facility.</p> <p>Harsco Corp: NURO Connect, the new software application, developed by Harsco Corporation's Patterson-Kelley</p>						

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	<p>information. PLM data is available on the machine monitor and remotely via the web.</p> <p>Terex Corp: Crane Remote monitoring: GPS location, start and stop times, fuel consumption, tonnages, cone settings, wear ratings, operating hours, maintenance status, etc</p> <p>Cummins Inc: Cummins Connected Diagnostics application is available to industrial and power-generation customers using Pacific Controls' IOT Galaxy 2021 Managed Service</p> <p>Flowserve Corp: Customers want DATA & IoT analytics to retool and differentiate its offerings with predictive maintenance capabilities</p> <p>Harsco Corp: Drone Tamper is Not a drone. Utilizes continuous action technology. Remote controlled - autonomous rail.</p> <p>Eaton Corp plc: Eaton Corp., licensed Krutz's</p>		<p>division. It is capable of indoor boiler monitoring. Boiler monitoring and troubleshooting is possible from virtually any remote location.</p> <p>Deere & Co: Partnering w/ Telogis to derive key data and insights from connected equipments.</p> <p>Emerson Electric Co: Power Plant: integrated control and simulation platform Ovation gives operators real-time, virtual way to evaluate different operating strategies before implementing them,</p> <p>Cummins Inc: Sensors in its equipment to monitor operations and manage maintenance.</p> <p>Astec Industries Inc: Siemens' TIA Portal platform. ASTEC's system-wide control solution is called the DASH system, which allows real-time monitoring of multiple asphalt plants simultaneously.</p> <p>Astec Industries Inc: The DASH project displays</p>					

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	<p>technology for its LifeSense sensing product. Monitors hydraulic hoses to identify the wear and tear of a hose that could lead to a failure.</p> <p>Eaton Corp plc: Eaton launched PredictPulse™ remote monitoring and management service</p> <p>Pentair PLC: eDge software platform, helps customers optimize maintenance cycles, gain control of critical assets, and reduce costs.</p> <p>Snap On Inc: EECS550 Wireless Battery System Tester: Freedom to move around a vehicle with the main module communicating via Bluetooth® to the monitoring unit connected directly to the vehicle battery.</p> <p>Lindsay Corporation: Elecsys SentraLink DR remote monitoring solution: new SentraLink DR remote monitoring solution. Oil and gas well sites, storage tanks, valve sites, leak detection, city gates, regulator</p>		<p>process performance from multiple plants in a graphical interface that looks like an automotive dashboard, making it easy to spot stoppages or production bottlenecks.</p> <p>Toro Co: The Internet of Turf: Data collection & management system consolidates five of Toro's key technological products and services under one umbrella. Remote control, asset mgmt, soil monitor</p> <p>AGCO Corp: Valtra Smart revolutionizes remote telematics for tractors, both in terms of cost effectiveness and ease of use.</p> <p>Flowserve Corp: w/ National Instruments (NI), Hewlett Packard, and PTC created Flowserve pump. Using CompactRIO, this pump is a complete intelligent IIoT solution for predictive maintenance with the use of augmented reality.</p>					

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	<p>stations, pump stations, and many other industrial sites</p> <p>Emerson Electric Co: Emerson's ProAct™ Transportservice, offers automated, centralized remote monitoring of refrigerated containers</p> <p>Lindsay Corporation: FieldNetPivot Control: FieldNET helps growers more effectively manage all their center pivots using the latest innovation in remote controls technology</p> <p>Oshkosh Corporation: Fire truck ladders:Command Zone local and remote monitoring system.</p> <p>Lincoln Electric Hldgs: Flextec 650X multi-process wireless welder gives operators full functionality. It is controlled by CrossLinc Remote</p> <p>Toro Co: Golf Mgmt: GPS Spraying Multi Pro® 1750 with GeoLink™ technology:Real Time Kinematic (RTK) correction system</p>							

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	<p>configurations.</p> <p>Graco Inc: Graco's Harrier line-up of controllers offers new capabilities to monitor chemical injection pump units in the field from remote locations</p> <p>ITT Corporation: i-ALERT2 condition monitor, which is smaller than a credit card, tracks vibration, temperature and run-time hours, and it is the first to combine the latest in Bluetooth low-energy and sensor technologies into an industrial package.</p> <p>Eaton Corp plc: Intelligent Power Manager: remote monitoring that can manage multiple devices across a network from a single user interface. [dated]</p> <p>Cummins Inc: International Truck is now the first truck OEM to offer OTA programming for Cummins engines</p> <p>Parker-Hannifin Corp: Internet of Things/Predictive Maintenance: ServiceJunior CONNECT was introduced by Parker</p>							

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	<p>Deere & Co: John Deere expanded E-series articulated dump truck (ADT) lineup. The vehicle's cab monitor provides an easy-to-read LCD screen with onboard diagnostics, digital gauges and vital system indicators</p> <p>Deere & Co: John Deere Golf and OnGolf introduced OnLink, a cloud-based golf course management platform to collect data and manage equipment, labor, water, chemicals and nutrients, and playing conditions</p> <p>Deere & Co: John Deere Mobile RTK Signal. This latest innovation in machine guidance and telematics from John Deere delivers repeatable RTK accuracy to a machine via a cellular connection to accurately and reliably guide precise field operations</p> <p>Toro Co: Lynx® Smart Satellite: all-new golf course irrigation controller designed for enhanced performance and greater reliability. It has enhanced</p>							

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	<p>wireless communications, sensor input kit compatibility, remote diagnostic tools</p> <p>Flowserve Corp: Monitoring Valves: PMV D3 wireless positioner; improves operational efficiency by allowing communication to, and monitoring of, process control / sensor equipment [dated]</p> <p>Eaton Corp plc: New 5P rackmount compact uninterruptible power supply (UPS) has advance Intelligent Power Manager (IPM) software, allowing for remote management</p> <p>Emerson Electric Co: Oil & Gas: Paine™ 328-12-0010 data logger and digital transmitter that acquires, stores, and transmits critical information to improve downhole oil and gas operation</p> <p>Parker-Hannifin Corp: Parker Energy Solutions system (PES) provides customers with wireless connectivity and device-level energy and system performance details</p>							

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	<p>AMETEK Inc: Powervar's FMS solutions enable users to remotely monitor and control other systems (HVAC, coolers, etc.) and see if equipment is degrading, making cost-effective preventative maintenance a reality.</p> <p>Caterpillar Inc: Remote Monitoring and IoT: Caterpillar announced to launch new Cat® Connect hardware and software to enable equipment managers to connect all of their assets</p> <p>Ingersoll-Rand Plc - Industrial Machinery: Remote Monitoring Modem (RMM+) is a remote communication device for Thermo King refrigerated containers.</p> <p>Ingersoll-Rand Plc - Industrial Machinery: Remote monitoring of HVAC systems and data analysis through its Trane Intelligent Services.</p> <p>Pentair PLC: Remote monitoring system: temperature monitoring capability for the NGC-30, NGC-40 and ACCS-30 heat tracing</p>							

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	<p>control and monitoring systems</p> <p>Terex Corp: Remote Monitoring, Real Time Tracking: remote real-time tracking and diagnostics for crushing and screening machine</p> <p>AGCO Corp: Remote monitoring, Wireless Network: Tractor Management Center</p> <p>AMETEK Inc: Remote Monitoring/Sensor: GEMCO 958A embedded Linear Displacement Transducer (LDT)</p> <p>Graco Inc: Remote Monitoring/Sensor: Graco utilizes Brushless DC electric pumps in their intelligent paint kitchen (IPK) solution, which is a network of smart sensors and control devices</p> <p>Toro Co: Remote Monitoring: Evolution® AG Controller: Irrigation and fertigation controller for agriculture and horticulture. The Evolution AG can be set to water, mist or both in seconds, minutes or hours</p>							

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	<p>Lindsay Corporation: Remote Monitoring: Pivot Control Line. Remotely change the application depth, reverse or stop the pivot, control the end-gun and run variable rate plans</p> <p>Caterpillar Inc: Remote Monitoring: CAT launched Cat XQ125 mobile diesel generator set. Cat XQ mobile diesel generator allows the dealer to remotely monitor multiple generator set parameters</p> <p>Illinois Tool Works Inc: REMOTE Monitoring: Hobart offering a software and hardware solutions call HTe where communication driver software package use data files and user interface for host support. HTe allow to remotely manage data, diagnostics and upgrades</p> <p>Acuity Brands Inc: REMOTE MONITORING: Networked lighting systems using wireless streetlight monitoring technology,</p>							

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	<p>Parker-Hannifin Corp: Remote Monitoring: Parker launched a hydraulic pilot system for the proportional remote control of directional valves, pumps, motors, etc.</p> <p>Oshkosh Corporation: Remote Monitoring: The Oshkosh P-19R allows Marines to repair and troubleshoot vehicles, view real-time performance data and remotely access diagnostics information.</p> <p>Xylem Inc: Remote Monitoring: Xylem has developed its remote control and monitoring system, Godwin Field Smart Technology (FST), for use by contractors</p> <p>Xylem Inc: ResiBoost: intelligent variable frequency drive (VFD) that matches system demand to maximize pump efficiency and minimize wear and tear.</p> <p>AMETEK Inc: Sensor, Infrared remote: products can be controlled by infrared remote - All the images and</p>							

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	<p>videos can be transferred through USB drive from ClearChart 4X and ClearChart 4P</p> <p>IDEX Corp: SENSOR/AUTOMATION: IDEX Health & Science, a subsidiary of IDEX Corp., announces the release of their new QuickStart Sensor product</p> <p>AMETEK Inc: Sensor/Infrared/Remote Monitoring: AMETEK Land will launch its Near Infrared Borescope (NIR-B) 3XR which delivers continuous, high-accuracy reformer tube wall temperature (TWT) measurement</p> <p>Astec Industries Inc: Silobot: Inspection service. The remote control capabilities of the Silobot inspection device keep workers out of the confined space of the silos and out of harm's way.</p> <p>Komatsu-Joy Global: Smart construction advisory service: February 2015, the advisory service uses drones and other equipment to conduct surveys</p>							

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	<p>and generate 3D data for uploading to construction machinery for semi-automatic operation.</p> <p>AMETEK Inc: SPOT actuator: remotely controlled alignment of a SPOT pyrometer for industrial processing applications.</p> <p>Cummins Inc: Telematics/Connected Device: Cummins has launched Connected Advisor, delivering a new telematics-based solution that provides meaningful information to its customers,</p> <p>PACCAR Inc: TruckTech+ and SmartLINQ: remote diagnostics. Real time monitoring/Analytics</p> <p>Valmont Industries Inc: Valmont Base Station 3</p> <p>Oshkosh Corporation: Virtual reality/ sensor-based technology/ robotics and remote control. Focus on robotics and monitor work remotely. launched nine new products</p> <p>Eaton Corp plc: Visual Power Manager software</p>							

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	<p>provides data center and information technology (IT) professionals with the tools to monitor and manage rack power distribution units</p> <p>Lindsay Corporation: Water Harvesting: Cloud-Based Telemetry Takes Pumping System Monitoring to the Next Level: watervision cloud</p> <p>Toro Co: Web-Enabled Smart Controller Platform: SMRT Logic™ and SMRTscape™ are for mobile landscape control system, both works to enable mobile wireless control of irrigation systems, outdoor lighting and more using a smart phone, tablet or PC</p> <p>Federal Signal Corp: Wireless emergency shut-off wrist strap as an added safety feature for all new Vector HXX vacuum excavators manufactured after January 2017.</p> <p>Regal Beloit Corp: wireless Vgreen variable speed pump motors: Vlink operator monitors pump motor</p>							

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<p>Augmented Reality (18)</p>	<p>2: Textron/Arctic Cat Inc: Bell Helicopter: Deck control system embedded with augmented reality and an artificial intelligence computer assistance system</p> <p>Komatsu-Joy Global: Connected Mine: P&H 77XD blasthole drill. It has an augmented reality table highlighting smart material handling options; and a Joy longwall visualization system w/3-D graphics</p>	<p>2: Ingersoll-Rand Plc - Industrial Machinery: Augmented Reality/Virtual Reality :Integrated Marketing Campaign : campaign featured a customized box, marketing materials printed with augmented reality triggers</p> <p>Cummins Inc: Cummins Power generation show: augmented reality to trigger a 3D QSK95 model generator set and a video of the Cloud break Mine case study. Delegates were impressed with the app, and many expressed interest in downloading it.</p>	<p>5: Caterpillar Inc: "Scope AR" partnered with Caterpillar Inc to design an augmented reality-based live support video calling platform built specifically for the unique remote assistance needs of industries using heavymachine</p> <p>Deere & Co: Augmented Reality:[PTC] Support to the technician in the difficult work of fixing and maintaining complicated machines</p> <p>Caterpillar Inc: Caterpillar is using VR and AR solutions from PTC, Inc., delivering technology that enables industrial customers to aggregate, analyse, and deploy product information to support their decision making.</p> <p>AGCO Corp: Field support team: Google Glass in field to support farmer and communicate with contact center</p> <p>Flowserve Corp: w/ National Instruments (NI), Hewlett Packard, and PTC created</p>	<p>7: Emerson Electric Co: IOT, AR, VR: At CERA Week 2017, Emerson showcased the Industrial Internet of Things (IoT) to life</p> <p>Deere & Co: Partnering with Designworks, a BMW Group subsidiary, John Deere will showcase Fixstern; machine intelligence and connectivity with integrated augmented interfaces.(Backhoe of the future)</p> <p>Eaton Corp plc: AR: Eaton and The Marsden Group Collaborate to Demonstrate the Applications of Augmented Reality Technology</p> <p>Ingersoll-Rand Plc - Industrial Machinery: AR: Monitoring Augmented Reality. E.g. HVAC Remote Monitoring, send less experienced service technicians</p> <p>Caterpillar Inc: Caterpillar is developing virtual and augmented reality to design and service heavy equipment</p> <p>Emerson Electric</p>		<p>2: AGCO Corp: Augmented Reality: AGCO is increasing the efficiency, quality and safety of its manufacturing programs by doubling the number of Glass, an assisted reality, wearable headset device at six additional factories</p> <p>Parker-Hannifin Corp: Using DAQRI Smart Helmet (DSH): currently beta-testing</p>		

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			<p>Flowserve pump. Using CompactRIO, this pump is a complete intelligent IIoT solution for predictive maintenance with the use of augmented reality.</p>	<p>Co: Emerson opens Solutions Center and Education Center in Dubai. Equipped with innovations such as augmented reality and 3D imaging,</p> <p>Eaton Corp plc: w/The Marsden Group demonstrated applications of augmented reality technology in hydraulic equipment at the International Fluid Power Expo</p>				
<p>Virtual Reality (19)</p>	<p>3: Oshkosh Corporation: Striker Aircraft Rescue and Fire Fighting (ARFF) vehicles: virtual reality training system</p> <p>Oshkosh Corporation: Virtual reality/ sensor-based technology/ robotics and remote control. Focus on robotics and monitor work remotely. launched nine new products</p> <p>Dover Corp: VIRTUAL REALITY: DESTACO, a Dover Company, is proud to announce the launch of its new Accelerate® Vision Virtual Reality (VR) digital design solutions tool.</p>	<p>4: Textron/Arctic Cat Inc: Arctic Cat dealers can strap on a pair of goggles equipped with a Samsung Galaxy and Oculus virtual reality technology: M8000 Sleds demo in Las Vegas</p> <p>Lincoln Electric Hldgs: Uses VR to let young people test their welding skills around the country at career fairs, Boy Scout jamborees, farmer conventions and robot-building competitions. The system helps recruiters screen job candidates and find the best welders in the bunch,”</p> <p>PACCAR Inc: Virtual Experience’ using the latest in</p>	<p>4: Caterpillar Inc: "Scope AR" partnered with Caterpillar Inc to design an augmented reality-based live support video calling platform built specifically for the unique remote assistance needs of industries using heavymachine</p> <p>Caterpillar Inc: Caterpillar is using VR and AR solutions from PTC, Inc., delivering technology that enables industrial customers to aggregate, analyse, and deploy product information to support their decision making.</p> <p>Lincoln Electric Hldgs: ROBOTICS/VIRTUA</p>	<p>4: Caterpillar Inc: Virtual Reality: Caterpillar Inc.'s Technical Research Center is home to one of the country's largest virtual reality simulators known as the C.A.V.E.</p> <p>Caterpillar Inc: Caterpillar is developing virtual and augmented reality to design and service heavy equipment</p> <p>Rockwell Automation Inc: Virtual Reality: At at Hannover Messe 2017 Rockwell and Microsoft demonstrated virtual design on a Microsoft HoloLens headset</p> <p>Cummins Inc:</p>		<p>2: Dover Corp: DESTACO launched its new Accelerate Vision, Virtual Reality digital design solutions tool allows the use of robot-assisted production cells during manufacturing operations without any drawing.</p> <p>Komatsu-Joy Global: Training WorksiteVR: VR application developed by Immersive Technology. This application is used in Komatsu's PC200 & PC300 excavators and will be used in upcoming products.</p>		<p>2: Komatsu-Joy Global: 3D/VR training simulator: Operators who train with the virtual mining equipment simulator are more capable operators when working in real-world mine sites</p> <p>Oshkosh Corporation: Uses Unity engine to provide online training for their machinery operators. Unity is a game engine. With help of virtual reality it allows developers to create environments for educational projects</p>

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		<p>360 degree video technology at the Paccar Parts booth</p> <p>Terex Corp: VR: showcased new products and innovations: virtual reality systems gave visitors the experience of walking through one of the Terex Cranes centers</p>	<p>REALITY: Lincoln Electric's Welding School and Technical Training department will host seminars as well as training courses on Robotic programming and VRTEX Virtual Reality</p> <p>Oshkosh Corporation: Virtual Reality: JLG Industries, Inc., an Oshkosh Corporation company partnered with ForgeFX Training Simulations to develop the JLG Immersive Trainer</p>	<p>Virtual Reality: Virtual Reality helps Cummins to see the big pictures. In CAVE, formally known as the CTC's Advanced Virtual-prototyping Environment,</p>				
<p>IOT Connected Device (19)</p>	<p>13: Ingersoll-Rand Plc - Industrial Machinery: Nexia introduced Samsung's new POWERbot Wi-Fi vacuum in their automation. So it can be operated with advance Geo-Fencing technology. User will be notified according to the situation.</p> <p>Ingersoll-Rand Plc - Industrial Machinery: Smart Home System: Nexia is providing the electronic brain power to the Z-Wave Alliance home, demonstrated at the Consumer Electronics Show (CES). Trane XL1050 climate</p>			<p>5: Caterpillar Inc: Bright Wolf IoT Platform - driving industrial grade equipment operational systems and rapidly responding to the unique and evolving marine market requirements</p> <p>Cummins Inc: Cummins is part of a research project led by Purdue University that wants to significantly reduce fuel consumption through automated systems that interconnect trucks and transportation infrastructure using sensors and online cloud technology.</p>				<p>1: Harsco Corp: Collaborate w/Vodafone to provide total protection to employees when working in isolated or particularly dangerous locations. Rugged phone w/sensors: detects falls, impacts, and extended lack of movement or loss of vertical position.</p>

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	<p>control.w/Samsung</p> <p>Donaldson Co: WaveLength™ allows users to remotely view the status of their filter systems, giving customers the opportunity to improve operational efficiencies and uptimes. AssetScan is an integrated, battery-powered sensor monitoring system</p> <p>Crane Co: [Aerospace] SmartStem® Wireless Tire Pressure System for Planes</p> <p>Komatsu-Joy Global: Connected Mine: CPA 295 which can be mounted on any excavator. Due to Intelsense controller system it automatically detects and analyzes various rock layouts.</p> <p>Snap On Inc: EECS550 Wireless Battery System Tester: Freedom to move around a vehicle with the main module communicating via Bluetooth® to the monitoring unit connected directly to the vehicle battery.</p>			<p>Pentair PLC: Customer of Arrayent Inc - start up, connected platform for IoT.</p> <p>Oshkosh Corporation: Internet of Things (IoT): McNeilus Truck & Manufacturing, Inc.an Oshkosh Corporation company, and FleetMind, a Safe Fleet brand,</p> <p>AGCO Corp: IoT: AGCO is presently working on to develop smart agriculture technology which holds the key to farmers being able optimise their operations and achieve EU and international sustainable policy goals.</p>				

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	<p>Xylem Inc: Global water turbidity sensor & meter: Submersible Water Quality WQ730 Turbidity Sensor & WQ770-B Turbidity Meter (DATE NOT SURE)</p> <p>Emerson Electric Co: IoT Platform: Plantweb digital ecosystem, a scalable portfolio of standards-based hardware, software, intelligent devices and services for securely IIoT</p> <p>Acuity Brands Inc: IOT: Acuity Brands Inc launched new brand: Atrius. Consolidates the portfolio of IoT solutions and Atrius software platform</p> <p>Deere & Co: John Deere Golf and OnGolf introduced OnLink, a cloud-based golf course management platform to collect data and manage equipment, labor, water, chemicals and nutrients, and playing conditions</p> <p>Ingersoll-Rand Plc - Industrial Machinery: Nexia I Indoor and Outdoor HD camera with Smart technology. Outdoor camera has doorbell</p>							

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	<p>Sensor.+ IFTTT</p> <p>Eaton Corp plc: Sensor: Eaton introduces the All-Pro MS180BT sensor, a Bluetooth-enabled motion sensor allowing users to control outdoor security lighting</p> <p>Acuity Brands Inc: Smartphone controlled wall switch; nLight AIR rPODB is a battery-powered wall switch</p>							
<p>Telematics (22)</p>	<p>15: Cummins Inc: Connected Diagnostics: Motorcoaches that are equipped with a telematics service.Real-time engine fault code analysis, probable diagnosis and recommended actions.</p> <p>Komatsu-Joy Global: Connected Dozer/Mining: D51EX/PX-24 crawler dozer. Provide real time solution, KOMTRAX 5.0 telematics system monitors and provides basic machine data.</p> <p>Komatsu-Joy Global: Connected excavators: PC170LC-11,</p>		<p>3: Cummins Inc: Connected Software Updates, delivering secure over-the-air programming enabled through a capable telematics service</p> <p>PACCAR Inc: Connected Truck; SmartLINQ Service Management, powered by Decisiv, will be integrated with the PACCAR Solutions portal in 2017</p> <p>Deere & Co: JDLink™ Dashboard for Customers to Better Understand and Manage Equipment. John Deere is launching a new telematics interface enabling customers to better</p>	<p>4: ITT Corporation: Acquisition/Telematics: ITT Inc. announced that it has signed a Letter of Intent ("LOI") to acquire Ottawa, Canada-based Weather Telematics Inc."WTX Inc." or "Weather Telematics") through its IoT Labs Inc. subsidiary.</p> <p>Terex Corp: ORBCOMM Inc., a global provider of Machine-to-Machine (M2M) and Internet of Things (IoT) solutions: Terex Materials Processing end-to-end telematics solution to track and monitor Powerscreen® and Terex® Finlay machines.</p>				

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	<p>HB365LC-3 hybrid, PC650LC-11 hydraulic excavator. (using IoT platform; KOMTRAX 5.0)</p> <p>Komatsu-Joy Global: Connected Off Highway Truck: HD465-8 and HD605-8. automatically maintains a selected downhill travel speed.KOMTRAX and the monitor panel provide critical information. PLM data is available on the machine monitor and remotely via the web.</p> <p>Cummins Inc: International Truck is now the first truck OEM to offer OTA programming for Cummins engines</p> <p>Deere & Co: Introduced latest update in telematics products, the Modular Telematics Gateway 4G (MTG 4G LTE), is a mobile communications and processing platform for advanced telematics applications.</p> <p>Komatsu-Joy Global: IOT/TELEMATICS/SE NSOR: Komatsu America Corp.,It uses KOMTRAX telematics system and many more.</p>		<p>optimize their machines,</p>	<p>Caterpillar Inc: Telematics: Trimble and Caterpillar partnered to bring on-highway telematics to construction operations</p> <p>Deere & Co: w/ LHP Telematics are creating custom telematics solutions for the heavy equipment original equipment manufacturer (OEM) marketplace and aftermarket construction fleets</p>				

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	<p>Terex Corp: IoT: Terex Corp. and ORBCOMM developed end-to-end telematics solution to track and monitor Powerscreen® and Terex® Finlay machines.</p> <p>PACCAR Inc: Kenworth customers will benefit from real-time vehicle health monitoring technology provided by PeopleNet, the telematics provider for the Kenworth system</p> <p>PACCAR Inc: Predictive cruise control is the next step. Using a GPS locator function and programmed-in terrain mapping, it knows exactly where the vehicle is and what geographical conditions it will encounter</p> <p>Oshkosh Corporation: Smart Truck: SSV10 combines McNeilus refuse collection vehicles with FleetMind's mobile onboard computer and DVR platform. Telemetry data.</p> <p>Parker-Hannifin Corp: Telematics solutions: Online</p>							

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	<p>Web Portal and a Live Diagnostics Tool- CAN Data Worldwide. Transmit all Machine Data Remotely</p> <p>Cummins Inc: Telematics/Connected Device: Cummins has launched Connected Advisor, delivering a new telematics-based solution that provides meaningful information to its customers,</p> <p>PACCAR Inc: TruckTech+ and SmartLINQ: remote diagnostics. Real time monitoring/Analytics</p> <p>Valmont Industries Inc: Valmont Irrigation and AgSense Launch New Remote Monitoring and Control Solution: first AgSense telemetry product to completely integrate into Valley digital control panels.</p>							
RFID (12)	<p>4: Federal Signal Corp: CueCam body camera' GPS, video location tracking.CueClassify. w/Edesix. RFID based dynamic camera allocation, in-built Wi-Fi.</p>			<p>2: Federal Signal Corp: CueCam body camera' GPS, video location tracking.CueClassify. w/Edesix. RFID based dynamic camera allocation, in-built Wi-Fi.</p>	<p>3: Caterpillar Inc: Incorporated RFID Tracking system and started monitoring production monitoring system</p> <p>Stanley Black & Decker: inVIEW Platform: 3D RFID</p>	<p>3: Stanley Black & Decker: In the newest development for the IoT-forward company, it has invested in the systems of View Technologies and installed them in its own facilities.</p>		

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	<p>Tyco/Johnson Controls: Fitting room analytics: Robotic Inventory Visibility , Secure Mobile Self-Checkout</p> <p>Stanley Black & Decker: Indoor tracking system with badge devices (Healthcare)</p> <p>Parker-Hannifin Corp: Parker Tracking System (PTS): RFID technology to detect and identify hardness, elongation, tensile, and specific gravity.</p>			<p>Stanley Black & Decker: View Technologies, a joint venture between Stanley Black & Decker, Inc. and RF Controls, announced the team launching its real-time, location-based RFID services to the retail, logistics and manufacturing sectors.</p>	<p>Inventory Intelligence</p> <p>Astec Industries Inc: RFID technology with Siemens to create paperless, ticketless truck movement through their plants.</p>	<p>Stanley Black & Decker: Real time location system: Wifi infrastructure (Cisco)</p> <p>Stanley Black & Decker: Stanley Black & Decker has adopted Internet of Things in a plant in Mexico to monitor the status of production lines in real time via mobile devices and Wi-Fi RFID tags</p>		
Robotics (25)	<p>10: Graco Inc: Gema's RobotGun GM03-R: complex coating and other automation process. The system integration is carried out by external gun triggering via digital contact from the robot control.</p> <p>Caterpillar Inc: Caterpillar And Torc Robotics Launch Remote Control System For Cat@ Skid Steer, Multi Terrain And Compact Track Loaders</p> <p>Federal Signal Corp: Jetstream [Federal Signal] VertiDrive Handy, M3 Robot and M4</p>			<p>8: Lincoln Electric Hldgs: Acquired Rimrock Holdings, a privately held manufacturer and integrator of industrial automation products and robotic systems</p> <p>Lincoln Electric Hldgs: acquired Vizient@ Manufacturing Solutions ("Vizient"), a privately held robotic integrator specialized in custom engineered tooling and automated arc welding systems for general and heavy fabrication applications</p>		<p>5: Dover Corp: DESTACO launched its new Accelerate Vision, Virtual Reality digital design solutions tool allows the use of robot-assisted production cells during manufacturing operations without any drawing.</p> <p>Graco Inc: Graco has 115 robots throughout the company, most of which were added within the past 5 years.</p> <p>PACCAR Inc: Kenworth's Ohio plant to complete robotics-rich</p>	<p>1: Graco Inc: Robotics: Lab Learning Center, located in North Canton, Ohio. This Laboratory mainly focused on precision metering, mix and dispense equipment, and automation</p>	<p>1: Lincoln Electric Hldgs: 3-day robotic programming course at the college. Canyons in Santa Clarita, California</p>

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	<p>Robot.: Remove scale, rust, paint and other coatings vertically, horizontally or overhead with these magnetic innovative tools.</p> <p>Stanley Black & Decker: Launched Smartech Robotic Vacuum</p> <p>Lincoln Electric Hldgs: New ClassMate Robotic Trainer from Lincoln Electric Provides Complete Robotic Training Solution</p> <p>Oshkosh Corporation: Oshkosh Defense/TerraMax: Unmanned Ground Vehicle (UGV) leverage the latest robotics technology that enables the vehicles to perceive and navigate complex, off-road environments entirely unmanned, with minimal operator supervision.</p> <p>Lincoln Electric Hldgs: Robotic Big Area Additive Manufacturing (R-BAAM) with its new Power Wave Surface Tension Transfer (STT) system</p> <p>Illinois Tool Works Inc: Robotics: North Star Imaging's new</p>			<p>Harsco Corp: Harsco Corp. is partnering with the Johns Hopkins University Applied Physics Laboratory to introduce unmanned vehicle technology to railway safety and security operations.</p> <p>Lincoln Electric Hldgs: Hosted Future of Welding Summit 2017. ... robotic systems for controlled aluminum welding and compact multi-process advanced welding systems.</p> <p>AGCO Corp: MARS research project: AGCO/Fendt has developed small robot units which, with the assistance of a cloud-based solution, can be controlled independent of location during sowing operations.</p> <p>Oshkosh Corporation: Participated in the FIRST Robotics Competition program, where students build and program robots to perform prescribed tasks.</p> <p>Caterpillar Inc: Robotics: Australian</p>		<p>addition</p> <p>PACCAR Inc: The Kenworth T880 Vocational Truck : The 2.1-meter wide, stamped aluminum cab is robotically assembled at Kenworth factories.</p> <p>PACCAR Inc: Walsall Wheelbarrow Company factory is a hive of activity and the investment in robotic assembly lines has increased the production rate as well as introducing stricter quality control on the raw materials and the final product</p>		

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	<p>robotiX technology makes automatic part loading and unloading effortless through a simple programming interface that allows the end-user to easily create new robotic motion programs.</p> <p>Astec Industries Inc: Silobot: Inspection service. The remote control capabilities of the Silobot inspection device keep workers out of the confined space of the silos and out of harm's way.</p> <p>Oshkosh Corporation: Virtual reality/ sensor-based technology/ robotics and remote control. Focus on robotics and monitor work remotely. launched nine new products</p>			<p>robotic technology company, Fastbrick Robotics Limited, has entered into a MOU with Caterpillar</p> <p>AGCO Corp: University of Georgia scientist Glen Rains is combining 3-D images and robotics to help farmers identify crop problems before they become an issue that will affect potential yields.</p>				
<p>Artificial Intelligence (12)</p>	<p>6: Textron/Arctic Cat Inc: Bell Helicopter: Deck control system embedded with augmented reality and an artificial intelligence computer assistance system</p> <p>Rockwell Automation Inc: FactoryTalk Analytics for Machines: Microsoft Azure cloud-enabled capability that</p>			<p>5: Deere & Co: Partnering with Designworks, a BMW Group subsidiary, John Deere will showcase Fixstern; machine intelligence and connectivity with integrated augmented interfaces.(Backhoe of the future)</p> <p>Dover Corp: AI Partnership:</p>				<p>1: Komatsu-Joy Global: Smart Construction- Komatsu introduced smart construction to innovate construction job sites. The company using KomConnect a cloud platform to restore and analyse all information.</p>

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	<p>empowers equipment builders with information.</p> <p>ITT Corporation: IOT/AI/sensors: ITT's PRO Services brand unveiled the i-ALERT Ai platform, a web interface allowing customers to take advantage of the Industrial Internet of Things to monitor all their i-ALERT2 enabled rotating equipment in one place.</p> <p>Pentair PLC: ScreenLogic Skill: voice control apps of this company. User can access Amazon Echo smart speaker & Alexa</p> <p>Komatsu-Joy Global: Smart construction service: AI evaluates past instances and delivers guidance to the supervisor's digital tablet, suggesting the minimum number of extra machines and dump trucks needed to get back on schedule.</p> <p>Rockwell Automation Inc: Will launch FactoryTalk Batch V13 in the first quarter of 2017</p>			<p>MOBOTIX AG and Dover Energy Automation</p> <p>PACCAR Inc: Autonomous vehicle/ connected device/ sensors & Artificial Intelligence: PACCAR, NVIDIA and Bosch partnered to launch autonomous trucks.</p> <p>Komatsu-Joy Global: Komatsu: Adopting artificial intelligence technologies - construction supervisors and workers.AI-based service to the menu of its Smart Construction service sometime later this year.</p> <p>Dover Corp: SparkCognition collaborate to provide predictive capabilities. Artificial intelligence and Spark's machine learning, cyber security is used in application of industrial IOT.</p>				
Visualization: Imaging &	19: Emerson Electric		5: Deere & Co: Design	7: Acuity Brands Inc:	1: Acuity Brands Inc:			1: Komatsu-Joy

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Mapping (33)	<p>Co: ASCO Numatics Integrated Automation Solutions: Build-to-blueprint construction: to match customer schematics, CAD drawing provided to confirm compliance with your application requirements etc.</p> <p>AMETEK Inc: Creaform's automated inspection solution, the MetraSCAN 3D R-Series.</p> <p>Snap On Inc: V2400 Imaging Wheel Alignment System: provides accurate and real-time measurements that improve productivity . With features as Vehicle Orientation Directional Indicator etc.</p> <p>Snap On Inc: Automated diagnostic wheel balancing system that the company claims is the first of its kind. Using laser mapping and a high-resolution 3-D</p> <p>AMETEK Inc: Cameca launches two new ultra high-sensitivity SIMS instruments. IMS 1300-HR3 and KLEORA. IMS 1300-</p>		<p>software solution for dealers working with customers. 3D design files when grading, enabling implementing grade-control software into machinery</p> <p>Komatsu-Joy Global: Mine monitoring: Drones to survey construction sites with highly precise data-capture and without GCPs (ground control points). Komatsu uses Skycatch EVO3x tablet flight app and the drone takes off, flies and lands completely autonomously.</p> <p>Deere & Co: Navigation: Updated TimberNavi Mapping solution for Skidders and Feller Bunchers</p> <p>Flowserve Corp: w/ ANSYS provider of engineering simulation software, announced partnership with Flowserve. By combining the power of ANSYS simulation technology with the Internet of Things (IoT) capabilities; digital twins. Complete system virtual physical prototypes</p> <p>AGCO Corp: Web-</p>	<p>Distech Control and DGLogik showcased building automation controls IOT tools at 2017 AHR Expo. [Eclypse connected]</p> <p>Dover Corp: Acquired Caldera Graphics; Technical software for the digital printing industry.</p> <p>Caterpillar Inc: Bright Wolf IoT Platform - driving industrial grade equipment operational systems and rapidly responding to the unique and evolving marine market requirements</p> <p>AMETEK Inc: Creaform Engineering announces major expansion which provides portable 3D measurement solutions and engineering services</p> <p>AMETEK Inc: CSA Certification for Near Infrared Borescope (NIR-B) 3XR for use in hazardous locations</p> <p>Dover Corp: Dover Energy Automation and MOBOTIX AG signed a partnership to develop the "Sight</p>	<p>Web-based design and visualization interface:</p>			<p>Global: Smart Construction-Komatsu introduced smart construction to innovate construction job sites. The company using KomConnect a cloud platform to restore and analyse all information.</p>

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	<p>HR3 remote operation, full automation, powerful application-dedicated software.</p> <p>Eaton Corp plc: Circuit Design Software Studio has 3D design capabilities</p> <p>Komatsu-Joy Global: Connected Mine: P&H 77XD blasthole drill. It has an augmented reality table highlighting smart material handling options; and a Joy longwall visualization system w/3-D graphics</p> <p>Komatsu-Joy Global: Connected Mining: PC360LCi-11 hydraulic excavator. It is the first 3D semi-automatic excavator with Intelligent Machine Control features. The machine utilizes 3D design data loaded into the machine's monitor to accurately display machine position.</p> <p>AMETEK Inc: Creaform's Pipecheck 3.3 automatically provides critical inspection data to determine the level of integrity and remaining service life of an operator's most</p>		<p>Based Tool, Cloud: FarmFacts, a BayWa company and AGCO announced a new web-based tool that will enable farmers to easily exchange and view geographical information from multiple manufacturers within one machine terminal</p>	<p>Optimization" solution for oil and gas well sites.3D motion detection, high-quality image capabilities smart IP and autonomous camera</p> <p>AGCO Corp: University of Georgia scientist Glen Rains is combining 3-D images and robotics to help farmers identify crop problems before they become an issue that will affect potential yields.</p>				

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	<p>valuable assets.</p> <p>Cummins Inc: Cummins Connected Diagnostics application is available to customers using Geotab's fleet management solution</p> <p>Graco Inc: Dynamic contour laser scanner; automated powder coating technique. 3D processing software</p> <p>Graco Inc: Graco Dispense Analyzer monitoring system which tracks and monitors each dispense "signature". Useful for finding micro bubbles below the surface,</p> <p>AMETEK Inc: HandySCAN 3D handheld scanner: Optional 3D scanning capabilities by adding the MetraSCAN 3D.</p> <p>Nordson Corp: Inspection:Electronics . FX-942 Dual Sided Optical Inspection System.</p> <p>Snap On Inc: SnapOn [John Bean] V3300: Diagnostic Wheel Alignment. Next generation user interface with intelligent predictive</p>							

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	<p>alignment.</p> <p>AGCO Corp: SOLO™ AGCO EDITION Unmanned Aerial Vehicle (UAV). Mission planning, cloud-based, high-resolution mapping software. w/#3DRobotics</p> <p>AMETEK Inc: SPECTROBLUE inductively coupled plasma optical emission spectrometer (ICP-OES), has new level of analytical features</p> <p>AMETEK Inc: VXmodel is a post-treatment software that directly integrates into VXelements, Creafom's 3D software platform and application suite, and allows the finalization of 3D scan data to use directly in any 3D printing or CAD software.</p> <p>Deere & Co: w/ Kespri alliance to simplify Drone integration on construction job sites. Enables John Deere customers industrial drone platform to capture topographic data.</p>							
Mobile/Applic	22:	4:	8:	1:				1:

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<p>ations (36)</p>	<p>Parker-Hannifin Corp: Parker's condition monitoring for predictive maintenances solution.SensoNODE Blue sensors monitor the hydraulic systems for pressure changes brought on by sudden gusts of wind,</p> <p>AGCO Corp: Sensor: Massey Ferguson (AGCO)Datatronic 5 puts tablet technology in the cab using a single terminal operators which employs tablet and smartphone technology</p> <p>Stanley Black & Decker: Smart Measure Pro Tool - Smart Tech line of products. This user friendly device allows you to take measurements from images using your smart phone.</p> <p>Stanley Black & Decker: Black+Decker introduced Bluetooth connectivity on its rechargeable tool batteries so a smart phone and mobile app can keep tabs power status</p> <p>Acuity Brands Inc: Building Manager:nLight</p>	<p>Textron/Arctic Cat Inc: Arctic Cat Extreme Snowmobile Racing Mobile Game Lands On iOS, Android Devices (made by Concrete Software)</p> <p>Cummins Inc: Infosys developed a digital marketing platform for Cummins. The web solution amplifies Cummins' branding and corporate marketing strategy</p> <p>Deere & Co: John Deere is helping homeowners keep track of and optimize their lawn care responsibilities with the new MowerPlus™ smartphone application</p> <p>AGCO Corp: Mobile app: Parts Books to Go is an app for Apple and Android devices.</p>	<p>Terex Corp: Enhanced Troubleshooting Capabilities in the Field: New Genie Tech Sight App using online video guidance for real-time visual assistance</p> <p>Lindsay Corporation: Remote Monitoring Apps: designed to give customers enhanced control of Elecsys remote monitors and improved insight into their systems.</p> <p>Regal Beloit Corp: App-based toolset: Features to Browning Toolbox Technician provides motor information to user.</p> <p>Deere & Co: Connect Mobile App helps growers to monitor job quality in real time to better understand their sprayer or planter detail</p> <p>Deere & Co: JDLink™ Dashboard for Customers to Better Understand and Manage Equipment. John Deere is launching a new telematics interface enabling customers to better optimize their</p>	<p>Komatsu-Joy Global: iGear has teamed up [Komatsu] robotics systems integrator Genesis Systems Group, to improve its SQUEAKS mobile-first industrial messaging app.</p>				<p>Harsco Corp: Collaborate w/Vodafone to provide total protection to employees when working in isolated or particularly dangerous locations. Rugged phone w/sensors: detects falls, impacts, and extended lack of movement or loss of vertical position.</p>

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	<p>ECLYPSE™ is the first smart building ready controller that combines digital lighting and HVAC controls onto one platform</p> <p>Caterpillar Inc: Caterpillar's New S60 Is the First Smartphone With FLIR Thermal Imaging Built Right In - thermal imaging sensors</p> <p>Federal Signal Corp: Digital Storefront solution</p> <p>Snap On Inc: ECKO Remote Locking System</p> <p>Parker-Hannifin Corp: HVAC/R (Sporian) Smart Pro/R Service Tools; Wireless, sensors, mobile device monitoring</p> <p>ITT Corporation: i-ALERT2 condition monitor, which is smaller than a credit card, tracks vibration, temperature and run-time hours, and it is the first to combine the latest in Bluetooth low-energy and sensor technologies into an industrial package.</p> <p>Deere & Co: iPad App: Nine mapping layers that track</p>		<p>machines,</p> <p>Cummins Inc: Mobile app: advanced algorithms and cloud computing technology to improve the overall service experience of its customers.</p> <p>Deere & Co: MyMaintenance mobile application takes preventative maintenance and repairs to the next level for construction maintenance managers</p> <p>Xylem Inc: Sensor: The SISMO system which is using Xylem sensors is providing Brazilian pilots with real-time weather and oceanographic data delivered to their smartphones.</p>					

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	<p>what's happening in the field. Users can set, for example, how many seeds are planted per acre, and precisely how far apart they are planted.</p> <p>Rockwell Automation Inc: Mobile app: Rockwell Automation released the FactoryTalk TeamONE app. The new edition adds an alarm module, enabling teams to collaborate with live alarm details.</p> <p>Pentair PLC: Pool automation control ; wearable with the new apple watch app from pentair:</p> <p>Regal Beloit Corp: Predictive Maintenance: Regal Beloit Corporation added two new features to Browning Toolbox Technician, the app includes a mobile motor interchange</p> <p>ITT Corporation: PRO Services® brand has announced that its i-ALERT®2 Bluetooth Equipment Health Monitor is now optimized for iPad and Android devices</p> <p>Pentair PLC: ScreenLogic Skill:</p>							

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	<p>voice control apps of this company. User can access Amazon Echo smart speaker & Alexa</p> <p>Acuity Brands Inc: Smartphone controlled wall switch; nLight AIR rPODB is a battery-powered wall switch</p> <p>Ingersoll-Rand Plc - Industrial Machinery: Trane has recently launched its Interactive SmartAC Web-gateway & Mobile App.</p> <p>PACCAR Inc: Trucks: SmartNav puts valuable tools and technologies a touch away with an in-dash infotainment system.</p> <p>Tyco/Johnson Controls: Tyco Security EntraPass Go Pass support for Apple Watch</p> <p>Caterpillar Inc: Updates to the VisionLink user interface making it faster and easier to use with smartphones and tablets.</p> <p>Toro Co: Web-Enabled Smart Controller Platform: SMRT Logic™ and SMRTscape™ are for mobile landscape</p>							

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	<p>control system, both works to enable mobile wireless control of irrigation systems, outdoor lighting and more using a smart phone, tablet or PC</p>							
<p>Big Data & Analytics (47)</p>	<p>19: Cummins Inc: The DERMS technology platform, Tangent AMP™, predicts and alerts customers ahead of peak demand periods and other economic opportunities on the energy grid.</p> <p>Rockwell Automation Inc: Converged Plantwide Ethernet (CPwE) architectures. Through these new connections, machine data on the plant floor can be analyzed</p> <p>Crane Co: [Merchandising] Crane's Intelligent Store Service: easier for operators to manage machines remotely, including over-the-air software updates, custom messaging and "retail insights" monitoring.</p> <p>Emerson Electric Co: AMS ARES™ Platform, designed to prioritize and deliver</p>	<p>2: Eaton Corp plc: CIO magazine recognized Eaton's advanced analytics capabilities, which deliver rich insights into Eaton customer behavior.</p> <p>Valmont Industries Inc: Collaborating with agronomy companies and equipment vendors, Valmont is helping farmers gather and analyze more data about factors that impact crop yields.</p>	<p>9: Deere & Co: Internet of Things:John Deere is adding Foresight Intelligence - Intelligent Alert Triage Center (IATC) was developed to specifically address the massive amounts of alerts coming from machines (IoT) to increase uptime and service efficiency.</p> <p>Valmont Industries Inc: IoT data also helps Valmont track its products' performance over their life cycles.</p> <p>Komatsu-Joy Global: Joy Global has joined forces with Boston-based software company PTC to equip its operations center with PTC software to monitor maintenance needs, environmental metrics and safety conditions deep underground</p> <p>Cummins Inc: Mobile app:</p>	<p>13: Parker-Hannifin Corp: " Internet of Things" startup Exosite Corp. has raised an undisclosed amount of funding from Parker Hannifin Corp</p> <p>Flowserve Corp: "Ultimately, the IoT will take the collection, dissemination, and analysis of this data to the next level and help generate significant improvements in process uptime and availability, which will in turn help drive profitability and performance".</p> <p>Deere & Co: Acquired Monsanto's high tech planting equipment and, in exchange, it made an exclusive agreement to connect its tractors, harvesters and other equipment to Monsanto's data analytics platform.</p> <p>ITT Corporation:</p>	<p>1: Stanley Black & Decker: inVIEW Platform: 3D RFID Inventory Intelligence</p>	<p>2: Rockwell Automation Inc: Completed about 80% of the planned IoT upgrade of its global plants</p> <p>Stanley Black & Decker: In the newest development for the IoT-forward company, it has invested in the systems of View Technologies and installed them in its own facilities.</p>	<p>1: Emerson Electric Co: Acquire Permasense; non-intrusive corrosion monitoring technologies for the offshore and onshore oil production, refining, chemical, power, pipelines, metals and mining and other industries.sensor technology, wireless data delivery and advanced analytics</p>	

IoE Technology Pivot	Market Facing Product / Service	Marketing & Sales	Post Sales Support/ Maintenance	Research & Development	Distribution & Logistics	Manufacturing & Assembly	Infrastructure - Buildings, Warehouses,	Workforce Optimization (HR, IT,
	<p>asset and device health data</p> <p>Lincoln Electric Hldgs: CheckPoint, lets users obtain performance information on their welders and welding operations located in single or multiple locations from any computer or mobile device via Wi-Fi, without the need for specialized software or IT hardware</p> <p>Cummins Inc: Considering adding a condition monitoring service for the users of its engines; predictive maintenance (PdM) service</p> <p>Flowserve Corp: Customers want DATA & IoT analytics to retool and differentiate its offerings with predictive maintenance capabilities</p> <p>Pentair PLC: eDge software platform, helps customers optimize maintenance cycles, gain control of critical assets, and reduce costs.</p> <p>Tyco/Johnson Controls: Fitting room analytics: Robotic Inventory</p>		<p>advanced algorithms and cloud computing technology to improve the overall service experience of its customers.</p> <p>Rockwell Automation Inc: New diagnostic reliability service: Provides an expert who closely tracks equipment performance to advise on reliability improvements to the production facility.</p> <p>Komatsu-Joy Global: Partnering with IBM, Smart Services allows Joy Global to analyze and compare operating data from its worldwide fleet, helping to identify anomalies in machine performance and continuous improvements in products.</p> <p>Emerson Electric Co: Power Plant: integrated control and simulation platform Ovation gives operators real-time, virtual way to evaluate different operating strategies before implementing them,</p> <p>Stanley Black & Decker: Salesforce Service Cloud in their MAC Tools call</p>	<p>Acquired: YSI; developer and manufacturer of sensors, instruments, software, and data collection platforms for environmental water monitoring,</p> <p>Rockwell Automation Inc: Advanced Regenerative Manufacturing Institute (ARM) selected Rockwell for the Advanced Tissue Biofabrication Initiative (Rockwell contributed \$10 million)</p> <p>Deere & Co: Deere & Co. and DN2K announced the creation of SageInsights, a joint venture to initially serve the agriculture industry with further development of DN2K's existing cloud software platform, MyAgCentral.</p> <p>AGCO Corp: GSI (Grain Systems Inc.), a global brand of AGCO, announced its partnership with mnuob, the Internet of Things (IoT) Data Analytics company, to deliver data insights to swine and poultry operations.</p>				

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	<p>Visibility , Secure Mobile Self-Checkout</p> <p>Xylem Inc: Launched the world's first wastewater pumping system with integrated intelligence at the IFAT 2016 trade show</p> <p>Emerson Electric Co: Oil & Gas: Paine™ 328-12-0010 data logger and digital transmitter that acquires, stores, and transmits critical information to improve downhole oil and gas operation</p> <p>Deere & Co: Outfitting machines with software, in effect turning them into new revenue streams; collect hyper-local data in real-time, on weather, soil type, soil conditions, fertilizer, irrigation, crop history, and so forth.</p> <p>Parker-Hannifin Corp: Parker Energy Solutions system (PES) provides customers with wireless connectivity and device-level energy and system performance details</p> <p>AGCO Corp: Precision planting</p>		<p>center. The new solution immediately boosted service capabilities by supplying teams with a surplus of customer data.</p> <p>Caterpillar Inc: Using Pentaho Predictive Maintenance: By embedding Pentaho Business Analytics into the Cat® Asset Intelligence technology, the company has been able to free up analysts' time to focus on providing RT equipment.</p>	<p>Komatsu-Joy Global: iGear has teamed up [Komatsu] robotics systems integrator Genesis Systems Group, to improve its SQUEAKS mobile-first industrial messaging app.</p> <p>Komatsu-Joy Global: Mining: JoySmart: automated monitoring system that trawls through machine data with the ability to detect any changes in component behavior to predict an onset of failure.</p> <p>Caterpillar Inc: Predictive Analytics: • Caterpillar entered into a technology and predictive analytics agreement with Uptake, provider of a dynamic analytics and insight platform.</p> <p>Dover Corp: SparkCognition collaborate to provide predictive capabilities. Artificial intelligence and Spark's machine learning, cyber security is used in application of industrial IOT.</p> <p>Komatsu-Joy Global: The smart connected products</p>				

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	<p>technology: New options will soon be available to give customers improved performance and the ability to utilize new and emerging technologies. Open architecture</p> <p>Caterpillar Inc: Predictive Maintenance: Marine division serves fleet operators of tugboats and shipping vessels for whom fuel usage often drives the bottom line. Customers use Caterpillar's Asset Intelligence platform - shipboard [CAT Asset Intelligence Tech]</p> <p>Ingersoll-Rand Plc - Industrial Machinery: Remote monitoring of HVAC systems and data analysis through its Trane Intelligent Services.</p> <p>Stanley Black & Decker: STANLEY Insights™ Professional Services and Analytics Solutions Software,</p> <p>Xylem Inc: Wastewater Pumping System With Integrated Intelligence: Xylem'sFlygt Concertor senses the</p>			<p>include predictive technologies aimed at taking people out of harm's way through the use of automation.</p> <p>Xylem Inc: Xylem analytics portfolio expanded with Tideland acquisition</p>				

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	<p>operating conditions of its environment, adapts its performance in real time and provides feedback to pumping station operators.</p> <p>Xylem Inc: YSI's environmental products provide high quality, high resolution data to better understand and manage our water resources.</p>							
<p>Cloud Delivery (54)</p>	<p>27: Parker-Hannifin Corp: Parker's condition monitoring for predictive maintenances solution.SensoNODE Blue sensors monitor the hydraulic systems for pressure changes brought on by sudden gusts of wind,</p> <p>Lindsay Corporation: Remote monitoring and control product: The Elecsys Light Guard Pulse enables streetlight control and fault reporting</p> <p>Donaldson Co: WaveLength™ allows users to remotely view the status of their filter systems, giving customers the opportunity to improve operational efficiencies and</p>		<p>8: Caterpillar Inc: Channel1 is a cloudbased video training and service support tool which allows its subscribers to view, share and author Caterpillar training information from anywhere, at any time and in any language.</p> <p>Flowserve Corp: Flowserve chose the Appian Application Platform to unify the management of data and improve collaboration in the company's pump aftermarket repair business.</p> <p>Stanley Black & Decker: Healthcare launched four new Real-Time Location System (RTLS) services to assist customers</p>	<p>4: Federal Signal Corp: "We've made a very big push over the last 18 months to make sure that every one of our devices, whether its an audible, visual, or warning system, is all connected either by a hard wire connection or a wireless connection to the Internet,"</p> <p>Cummins Inc: Find fuel savings in the cloud. Purdue University. Interconnect trucks, infrastructure.</p> <p>Flowserve Corp: Flowserve, will integrate HP Edgeline systems with some of its products, said Eric van Gemeren, Flowserve's vice president of R&D.</p>	<p>3: Textron/Arctic Cat Inc: Cloud based portal through which their dealers can not only order parts, but also access Arctic Cat technical documentation. (Digabit solution)</p> <p>AGCO Corp: Partnering with 4flow, Fendt implemented smart logistics and has won German Award for Supply Chain Management 2016</p> <p>Stanley Black & Decker: Salesforce.com to connect products</p>			<p>12: Komatsu-Joy Global: Smart Construction- Komatsu introduced smart construction to innovate construction job sites. The company using KomConnect a cloud platform to restore and analyse all information.</p> <p>Komatsu-Joy Global: BT to provide a new global IT infrastructure across 26 sites in 15 countries. BT will construct and manage a hybrid network combining its IP Connect Global cloud platform with its hybrid VPN service for smaller locations,</p> <p>Astec Industries Inc: Centralized management software has opened</p>

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	<p>uptimes. AssetScan is an integrated, battery-powered sensor monitoring system</p> <p>Parker-Hannifin Corp: Asset Monitoring: SensoNODE family, monitoring the condition of assets farther than ever before. Monitor asset health</p> <p>Lincoln Electric Hldgs: CheckPoint, lets users obtain performance information on their welders and welding operations located in single or multiple locations from any computer or mobile device via Wi-Fi, without the need for specialized software or IT hardware</p> <p>Parker-Hannifin Corp: Cloud-Based and High-Strain Sensors</p> <p>AGCO Corp: Connect Agriculture Data Platforms :allows customers to access their AGCO machine data, via AGCO's telemetry product, Connected Farm dashboard</p> <p>Wabtec: Denver Implementation - w/ Nomad Digital - very first WiMax trackside</p>		<p>Deere & Co: Internet of Things: John Deere is adding Foresight Intelligence - Intelligent Alert Triage Center (IATC) was developed to specifically address the massive amounts of alerts coming from machines (IoT) to increase uptime and service efficiency.</p> <p>Deere & Co: MyMaintenance mobile application takes preventative maintenance and repairs to the next level for construction maintenance managers</p> <p>Stanley Black & Decker: Salesforce Service Cloud in their MAC Tools call center. The new solution immediately boosted service capabilities by supplying teams with a surplus of customer data.</p> <p>Snap On Inc: Software Subscription Delivers Continuous Diagnostic Updates</p> <p>Astec Industries Inc: The DASH project displays process performance from multiple plants in a graphical</p>	<p>AGCO Corp: MARS research project: AGCO/Fendt has developed small robot units which, with the assistance of a cloud-based solution, can be controlled independent of location during sowing operations.</p>					<p>the door to allow real-time access to company-wide data – anywhere, anytime. Up-to-the-minute information is available via wide area network or the web</p> <p>AGCO Corp: deployed Cisco Jabber, Cisco WebEx, and Cisco Unified Contact Center Express.</p> <p>Donaldson Co: Donaldson finished implementation of global ERP in 2016</p> <p>AGCO Corp: Implemented Siemens PLM Software</p> <p>Oshkosh Corporation: Oshkosh Corporation is bundling ERP for IT processes and automation in ServiceNow to rapidly mature IT, and enable enterprise service management for other business functions.</p> <p>AGCO Corp: QlikView; Allows AGCO to integrate and unify 20+ data sources</p> <p>Crane Co: Upcoming: Webinar: How Crane</p>

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	<p>system to support critical rail signalling communications</p> <p>AGCO Corp: Farm Facts "Next Farming".platform from BayWa (Germany) integrated with AGCO machine data</p> <p>Federal Signal Corp: Federal Signal's customers can connect audible and visual devices to the Everbridge platform to deliver real-time contextual communications during critical events</p> <p>AGCO Corp: Go-Task™ will be one of AGCO's solutions for wireless transfer of task data to and from select AGCO machines and supported Farm Management Information Software (FMIS) programs.</p> <p>Graco Inc: Graco Inc. announces the new LineSite™ remote monitoring system designed for use with Graco's InvisiPac® Tank-Free™ Hot Melt Systems, which are suitable for reducing adhesive costs and boosting production in packaging applications</p>		<p>interface that looks like an automotive dashboard, making it easy to spot stoppages or production bottlenecks.</p>					<p>Aerospace & Electronics leveraged Oracle Global Trade Management (GTM) Cloud</p> <p>Regal Beloit Corp: Uses DvSum's dataPARCcloud platform for for data quality and data governance to validate, reconcile & fix data across business and system processes</p> <p>Oshkosh Corporation: Using ServiceNow. IT service management tools enabling organizations to modernize service delivery on a robust enterprise cloud.</p> <p>Rockwell Automation Inc: w/Sunset Learning Institute (SLI) are teaming up to improve and increase access to continuing education and certifications surrounding the Industrial Internet of Things (IoT).</p>

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	<p>Stanley Black & Decker: Healthcare offering cloud-based analytics for its AeroScout Monitoring and Asset Management Solutions</p> <p>Lindsay Corporation: IRZ Engineering Consultants, a Lindsay Company, is using satellite technology to help clients in rural areas maximize their resource efficiency, sustainability and profitability</p> <p>Deere & Co: John Deere Introduces More Precision with the StarFire™ 6000 Receiver. Track up to three StarFire satellite signals at once, automatically switch to an alternate signal</p> <p>AGCO Corp: MF 6700 S Series: New tractor is featured with powerful C3000 large colour, touch-screen terminal</p> <p>Parker-Hannifin Corp: New monitoring: Gold sensors: Cloud-based wireless condition monitoring solution. Sensor: a stretchable polymer that takes accurate measurements and</p>							

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	<p>readings</p> <p>Eaton Corp plc: New software tool designed to help utilities of all sizes efficiently and accurately integrate distributed energy resources without adversely impacting reliability and power quality.</p> <p>Rockwell Automation Inc: Pavilion 8 Model Predictive Control (MPC): engineers execute step tests faster, safer and more accurately.</p> <p>Oshkosh Corporation: Pierce® Command Zone™ advanced electronics system at the Fire Departments Instructors Conference (FDIC</p> <p>AGCO Corp: Precision planting technology: New options will soon be available to give customers improved performance and the ability to utilize new and emerging technologies. Open architecture</p> <p>Stanley Black & Decker: Real-Time Location of Patients (Helathcare)</p> <p>Federal Signal</p>							

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	<p>Corp: Release of a Warning System that is fully compliant with APCO Project 25 (P25) two-way communications systems.</p> <p>Rockwell Automation Inc: w/ Clarity: packaged security offerings.</p> <p>Federal Signal Corp: Warning Lights & Siren : Energy-efficient air-handling. Systems,Wireless/serial integration of sensors & devices,Data analysis & analytics. Light generation & optical efficiency</p> <p>Lindsay Corporation: Water Harvesting: Cloud-Based Telemetry Takes Pumping System Monitoring to the Next Level: watervision cloud</p> <p>Xylem Inc: WaterLOG® Storm Central is a cloud hosted solution that allows you to view and download data from any computer or mobile device with an Internet connection.</p>							
IOT Sensors in Things (69)	47: Graco Inc: Dyna-Star with low-level sensor and mechanical auto-fill shut off help to		2: Stanley Black & Decker: Healthcare launched four new Real-Time Location System (RTLS)	18: Acuity Brands Inc: "Demand for IoT; increases market potential 2-3x than its previous		2: Donaldson Co: Donaldson Company, Inc., announced that it has acquired		

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	<p>reduces downtime and minimizes grease contamination risks.</p> <p>Graco Inc: Graco's G3 pipe line is improved by adding an Auto-Fill Shutoff (ASFO) function. Automatic shutts of lubricant flow.</p> <p>Xylem Inc: HYDROVAR, an intelligent control system that accurately adapts to system demand (upto 8 pumps)</p> <p>AMETEK Inc: PTC-425 Calibrator to JOFRA PTC Series of Temperature Calibrators. The sensor in the product compensates the temperature differences.</p> <p>Ingersoll-Rand Plc - Industrial Machinery: [IngersollRand] Nexia Home Intelligence: announce d it is now compatible with a range of powerful new multi-sensors giving users even more flexible control over the protection and efficiency of their homes</p> <p>Parker-Hannifin Corp: Aerospace; Custom Modular Cooling Pumps w/</p>		<p>services to assist customers</p> <p>Cummins Inc: Sensors in its equipment to monitor operations and manage maintenance.</p>	<p>estimates.</p> <p>Xylem Inc: Acquired Sensus, is a provider of smart meters, network technologies, and advanced data analytics services for the water, electric and gas industries.</p> <p>Snap On Inc: Acquired Sturtevant Richmont: electronic torque wrenches as well as wireless torque error proofing systems for a variety of industrial applications.</p> <p>ITT Corporation: Acquired: YSI; developer and manufacturer of sensors, instruments, software, and data collection platforms for environmental water monitoring,</p> <p>Pentair PLC: Acquires Nuheat to expand its floor heating portfolio:</p> <p>Pentair PLC: Automation: Pentair acquired the business of Zenius SAS. connected pool automation systems.</p> <p>Valmont Industries Inc: Data garnered from IoT sensors to gain insight into how</p>		<p>100 percent of the shares of Engineered Products Company, a leading designer and manufacturer of indicators, gauges, switches and sensors for engine air filtration and liquid filtration systems.</p> <p>Lincoln Electric Hldgs: Plants with sensor-embedded machinery connected wirelessly to HQ</p>		

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	<p>sensor nodes.</p> <p>Donaldson Co: Airbus H125 is equipped with an Inlet Barrier Filtration (IBF): specially equipped with an array of environmental sensors. One-of-a-kind Flying Laboratory</p> <p>Rockwell Automation Inc: Allen-Bradley Stratix security appliance: to help protect plant-floor systems</p> <p>Deere & Co: Another IoT add-on for a row unit (which puts the seed in the ground) is a sensor that measures the pressure being exerted on each seed as it's planted. Farmers want to change this pressure depending on how soft the soil is that they're planting.</p> <p>Crane Co: Banknote recycler: Participated at EuroShop 2017 and displayed Automated Cash Management Products: SCR Advance™ Banknote Recycler (Sensing technology), CLS Coin Recycler, T-Flex Coin Dispenser</p> <p>Stanley Black &</p>			<p>its products perform, how to enhance them, and how to better understand customers' needs.</p> <p>Eaton Corp plc: Eaton acquired Ephesus Lighting, a Syracuse, N.Y.-based manufacturer of connected light-emitting diode (LED) lighting solutions for sporting venues. Featuring embedded fixture-level sensors and wireless platform controls</p> <p>Nordson Corp: EPE Corporation Partners with Nordson - IoT</p> <p>IDEX Corp: Fingerprint sensor for payments cards - 2015 announcement. No update</p> <p>AGCO Corp: GSI (Grain Systems Inc.), a global brand of AGCO, announced its partnership with mnubo, the Internet of Things (IoT) Data Analytics company, to deliver data insights to swine and poultry operations.</p> <p>Tyco/Johnson Controls: IoT R&D: combining proven technology and innovations with the</p>				

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	<p>Decker: Black+Decker introduced Bluetooth connectivity on its rechargeable tool batteries so a smart phone and mobile app can keep tabs power status</p> <p>Parker-Hannifin Corp: Cloud-Based and High-Strain Sensors</p> <p>Acuity Brands Inc: Connected IoT Lighting: Indoor Positioning System (IPS) solution: The IPS employs both Visible Light Communications (VLC) and Bluetooth low energy (BLE) technology</p> <p>ITT Corporation: Connected Mine: i-ALERT@2 Equipment Health Monitor with Bluetooth Smart technology. ProCast@ Reengineered Replacement Parts service: offrs parts solution combined with 3D printing technology (Marketing n Sales)</p> <p>Cummins Inc: Cummins Connected Diagnostics application is available to industrial and power-generation</p>			<p>expertise of its Installation and Services groups and the more than one billion fire, security and retail sensors and devices</p> <p>ITT Corporation: ITT Inc. Motion Technologies business has joined Stop the Crash (STC), a global partnership promoting automotive crash-avoidance technologies and working to reduce road traffic fatalities worldwide.</p> <p>Komatsu-Joy Global: JoySmart IoT Platform; [Longwall for Kapuria coal mine in India to increase coal production in India by 2020</p> <p>Cummins Inc: Real-time measurement of NOx content in the exhaust gas can provide the needed control parameter for the diesel-engine combustion management system. Such a NOx sensor must be sensitive (ppm), fast response (ms), robust, and low cost.</p> <p>Valmont Industries Inc: Testing use of moisture sensors on</p>				

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	<p>customers using Pacific Controls' IOT Galaxy 2021 Managed Service</p> <p>Cummins Inc: Cummins launched H-Series wheel loaders is equipped with intelligent cooling system that only activates on demand based on what the temperature sensors indicate.</p> <p>Acuity Brands Inc: Dignity Health, U.S. hospital uses Acuity's automated LED that is equipped by motion sensor.</p> <p>Eaton Corp plc: Eaton Corp., licensed Krutz's technology for its LifeSense sensing product. Monitors hydraulic hoses to identify the wear and tear of a hose that could lead to a failure.</p> <p>Parker-Hannifin Corp: Electroactive Polymer Sensors : a thin, soft and flexible material that outputs a voltage signal proportional to a change in mechanical deformation</p> <p>Emerson Electric Co: Emerson's new flame detectors help</p>			<p>communications and utilities towers. Provide information about the structural integrity of metal so that human inspectors can make less frequent in-person examinations of these infrastructure components.</p> <p>Stanley Black & Decker: View Technologies, a joint venture between Stanley Black & Decker, Inc. and RF Controls, announced the team launching its real-time, location-based RFID services to the retail, logistics and manufacturing sectors.</p> <p>Acuity Brands Inc: w/ Rensselaer Polytechnic Institute: Automated efficient plant growth with specialized LED lighting.</p>				

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	<p>in keeping personnel and facilities safe. Multi-spectrum infrared sensor technology detects hydrocarbon fuel and gas fires as well as "invisible" hydrogen fires with wide area coverage and strong false alarm immunity</p> <p>Xylem Inc: Handheld Multiparameter Instrument with Digital Sensors: The ProDSS uses smart, user-replaceable sensor technology that can be connected in any port and automatically recognized by the handheld while retaining the calibration data.</p> <p>ITT Corporation: i-ALERT2 condition monitor, which is smaller than a credit card, tracks vibration, temperature and run-time hours, and it is the first to combine the latest in Bluetooth low-energy and sensor technologies into an industrial package.</p> <p>Acuity Brands Inc: IOT: Acuity Brands Inc launched new brand: Atrius. Consolidates the portfolio of IoT solutions and Atrius</p>							

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	<p>software platform</p> <p>Deere & Co: John Deere 9009A TerrainCut™ Rotary Rough Mower: sense load & slow the traction speed to properly cut the mowing pass</p> <p>Deere & Co: John Deere Mobile RTK Signal. This latest innovation in machine guidance and telematics from John Deere delivers repeatable RTK accuracy to a machine via a cellular connection to accurately and reliably guide precise field operations</p> <p>Acuity Brands Inc: Light Control: RES7 Sensor,digital sensor providing embedded wireless lighting control</p> <p>AMETEK Inc: Miniature Optical Position sensor for high-precision motion sensing and positioning applications</p> <p>Flowserve Corp: Monitoring Valves: PMV D3 wireless positioner; improves operational efficiency by allowing communication to, and monitoring of, process control /</p>							

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	<p>sensor equipment [dated]</p> <p>ITT Corporation: Motion control solutions Packaging solution. Compact Automation and Turn-Act brands demonstrated their for packaging applications</p> <p>Emerson Electric Co: New Enardo 850/950 Series with Smart Wireless technology provides immediate information to help prevent safety and emissions problems</p> <p>Parker-Hannifin Corp: New monitoring: Gold sensors: Cloud-based wireless condition monitoring solution. Sensor: a stretchable polymer that takes accurate measurements and readings</p> <p>Regal Beloit Corp: Pool pump motor shows off end-to-end implementation with IoT platform</p> <p>Emerson Electric Co: Proximity Indicator Sensing: Enardo 2000 emergency pressure relief vents safety control managing storage tank pressures in the oil</p>							

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	<p>and gas, chemical, petrochemical and pharmaceutical industries.</p> <p>Ingersoll-Rand Plc - Industrial Machinery: Remote Monitoring Modem (RMM+) is a remote communication device for Thermo King refrigerated containers.</p> <p>Harsco Corp: Safe Turn Alert (STA) pedestrian warning system. LED strobe lights on the bus that are automatically activated by the operator's turn signal and by proximity sensors adjacent to the vehicle's steering gear.</p> <p>Donaldson Co: SELECT system gives OEMs the opportunity to choose from a modular set of low-pressure fuel filtration components that can be combined together to create highly effective fuel filtration and water separation systems</p> <p>AMETEK Inc: Sensor, Infrared remote: products can be controlled by infrared remote - All the images and videos can be transferred through</p>							

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	<p>USB drive from ClearChart 4X and ClearChart 4P</p> <p>AGCO Corp: Sensor, Smart Touch: helping farmers who want to take advantage of precision farming technology and take farming to a completely new level.</p> <p>Stanley Black & Decker: Sensor: Dewalt expands the FLEXVOLT System with Outdoor Power Equipment. Featuring the world's first batteries that automatically change voltage when the user changes tools</p> <p>Acuity Brands Inc: SENSOR: new type of strip light called the DanaLite FlexConnect™, which has embedded connectors that can be cut in six-inch increments and re-connected to any length and shape.</p> <p>Terex Corp: Sensor: Terex's Genie ZX-135/70 articulating boom. platform load sensing system</p> <p>AMETEK Inc: Sensor: XP2i digital pressure gauges was launched in Jan-2017</p>							

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	<p>by Crystal Engineering (part of Ametek). Recently the company have included a new feature that notifies users when the gauge's calibration is set to expire.</p> <p>Emerson Electric Co: Smart Wireless Gateway: The Smart Wireless Gateway powers PlantWeb. Auto-sensed as they are added to the network</p> <p>Ingersoll-Rand Plc - Industrial Machinery: Trane has recently launched its Interactive SmartAC Web-gateway & Mobile App.</p> <p>Acuity Brands Inc: Undercabinet Lights: The UCEL Undercabinet can be paired with the UC PIR accessory motion sensor for additional energy savings and functionality.</p> <p>Dover Corp: Warn Industries, a part of Dover Corporation, has released a new addition to their line of Ascent bumpers. It includes dual ports for auxiliary lights or bumper sensors</p> <p>Pentair PLC: Water Treatment System:</p>							

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	twin sensor reads varying shifts in hardness and adjusts valve settings for optimal performance and saving							
Sensor Networks (Connected Environment) (102)	<p>61: PACCAR Inc: Adaptive cruise control/Sensor Network: Truck maker Paccar is making automated safety systems standard on some of its Peterbilt and Kenworth big rigs,</p> <p>Cummins Inc: AUTOMATION/Sensor: Cummins introduces the new QuietConnect series of home standby generators that will come on automatically as soon as there's an outage</p> <p>Xylem Inc: HYDROVAR, an intelligent control system that accurately adapts to system demand (upto 8 pumps)</p> <p>Pentair PLC: iCHLOR: salt chlorine generator. IntelliFlo Software detects pump activity, preventing the generation of chlorine while the pump is not activate</p> <p>Parker-Hannifin</p>		<p>5: AMETEK Inc: Advanced measurement and inspection technology for automotive camshafts and crankshafts</p> <p>AMETEK Inc: Brand-new calibration, repair and technical support center in Tokyo</p> <p>Komatsu-Joy Global: Joy Global has joined forces with Boston-based software company PTC to equip its operations center with PTC software to monitor maintenance needs, environmental metrics and safety conditions deep underground</p> <p>Toro Co: The Internet of Turf: Data collection & management system consolidates five of Toro's key technological products and services under one umbrella. Remote control, asset mgmt,</p>	<p>30: Acuity Brands Inc: Distech Control and DGLogik showcased building automation controls IOT tools at 2017 AHR Expo. [Eclypse connected]</p> <p>Eaton Corp plc: IoT Collaboration: Eaton has formed a collaboration with Internet of Things (IoT) leader Enlighted to accelerate the deployment of advanced sensory networks in commercial and industrial buildings</p> <p>Acuity Brands Inc: "Demand for IoT; increases market potential 2-3x than its previous estimates.</p> <p>Flowserve Corp: "Ultimately, the IoT will take the collection, dissemination, and analysis of this data to the next level and help generate significant improvements in process uptime and availability, which will</p>	<p>1: Parker-Hannifin Corp: Acquired Clarcor, is a distributor of industrial, mobile and consumer filter products and services, for \$4.3bn - sensor based products</p>	<p>3: Rockwell Automation Inc: Completed about 80% of the planned IoT upgrade of its global plants</p> <p>Rockwell Automation Inc: FactoryTalk software aggregates data from IoT sensors</p> <p>Lincoln Electric Hldgs: Plants with sensor-embedded machinery connected wirelessly to HQ</p>	<p>2: Emerson Electric Co: Acquire Permasense; non-intrusive corrosion monitoring technologies for the offshore and onshore oil production, refining, chemical, power, pipelines, metals and mining and other industries.sensor technology, wireless data delivery and advanced analytics</p> <p>Graco Inc: Alco Valves officially open a new headquarter at U.K. on 6th Feb 2017. Headquarters has brought together the machine shop, production and the management team all into one unit. The machine room is fully equipped by latest technology.</p>	

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	<p>Corp: Parker's condition monitoring for predictive maintenances solution. SensoNODE Blue sensors monitor the hydraulic systems for pressure changes brought on by sudden gusts of wind,</p> <p>Lindsay Corporation: Remote monitoring and control product: The Elecsys Light Guard Pulse enables streetlight control and fault reporting</p> <p>Ingersoll-Rand Plc - Industrial Machinery: Smart Home System: Nexia is providing the electronic brain power to the Z-Wave Alliance home, demonstrated at the Consumer Electronics Show (CES). Trane XL1050 climate control.w/Samsung</p> <p>Donaldson Co: WaveLength™ allows users to remotely view the status of their filter systems, giving customers the opportunity to improve operational efficiencies and uptimes. AssetScan is an integrated, battery-powered sensor monitoring system</p>		<p>soil monitor</p> <p>Flowserve Corp: w/ ANSYS provider of engineering simulation software, announced partnership with Flowserve. By combining the power of ANSYS simulation technology with the Internet of Things (IoT) capabilities; digital twins. Complete system virtual physical prototypes</p>	<p>in turn help drive profitability and performance".</p> <p>Xylem Inc: Acquired Sensus, is a provider of smart meters, network technologies, and advanced data analytics services for the water, electric and gas industries.</p> <p>Xylem Inc: Acquired Visenti Pte Ltd, a Singapore-based smart water analytics company that provides a suite of advanced products and services to enable smart management of water networks.</p> <p>Nordson Corp: Acquisitions: Vention Medical, InterSelect, ACE.</p> <p>Acuity Brands Inc: Acuity Brands, Inc. reported that it acquired 100 percent of the equity interest of DGLogik, Inc., a San Francisco Bay Area-based provider of software solutions that can both enable and help visualize the Internet of Things (IoT).</p> <p>Xylem Inc: At White House Water Summit, Xylem announced its intention to invest at</p>				

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	<p>Ingersoll-Rand Plc - Industrial Machinery:)Trane, a leading global provider of indoor comfort systems and services and a brand of Ingersoll Rand, is advancing connected building technology</p> <p>Ingersoll-Rand Plc - Industrial Machinery: [IngersollRand] Nexia Home Intelligence: announced it is now compatible with a range of powerful new multi-sensors giving users even more flexible control over the protection and efficiency of their homes</p> <p>Emerson Electric Co: 'Operational Certainty' program in India to help industrial companies achieve top performance in safety, reliability, production and energy management.</p> <p>AGCO Corp: Automation, Sensor: HayBoss G2 600 Series Automatic Applicator system. Automatic Applicator sensing moisture and tonnage on the go, and adjusts the preservative application rate</p>			<p>least \$300 million in water-focused research and development activities through 2018</p> <p>Caterpillar Inc: Canadian venture capital firm McRock Capital has reopened McRock iNFund LP, which raised \$65 million in April 2015, to admit a new strategic investor. Caterpillar Ventures, the venture arm of Caterpillar Inc, committed undisclosed capital to the fund.</p> <p>Stanley Black & Decker: Center for the Development and Application of Internet-of-Things Technologies (CDAIT) at the Georgia Institute of Technology announces that Flex, IBM, Stanley Black & Decker, and Wipro Limited have become founding members</p> <p>Cummins Inc: Cummins is part of a research project led by Purdue University that wants to significantly reduce fuel consumption through automated systems that interconnect trucks</p>				

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	<p>based on the condition of the hay.</p> <p>Acuity Brands Inc: Building Manager:nLight ECLYPSE™ is the first smart building ready controller that combines digital lighting and HVAC controls onto one platform</p> <p>Tyco/Johnson Controls: Building security: iotega. Wireless security and automation platform designed to provide safer, smarter living for homes and businesses</p> <p>Tyco/Johnson Controls: Connected Home Solutions: Tyco Security product announced it is expanding the Connected Partner Program for third-party solutions to integrate to its Software House, American Dynamics, Kantech and Illustra brands.</p> <p>Acuity Brands Inc: Connected IoT Lighting: Indoor Positioning System (IPS) solution: The IPS employs both Visible Light Communications (VLC) and Bluetooth low energy (BLE)</p>			<p>and transportation infrastructure using sensors and online cloud technology.</p> <p>Eaton Corp plc: Eaton acquired Ephesus Lighting, a Syracuse, N.Y.-based manufacturer of connected light-emitting diode (LED) lighting solutions for sporting venues. Featuring embedded fixture-level sensors and wireless platform controls</p> <p>Emerson Electric Co: Ecovent, which uses a network of sensors and adjustable vents to control room-level temperature, has received a large investment from Emerson's Climate Technologies</p> <p>Cummins Inc: Find fuel savings in the cloud. Purdue University. Interconnect trucks, infrastructure.</p> <p>Flowserve Corp: Honeywell and Flowserve announced they will collaborate to provide Industrial Internet of Things (IIoT) solutions to help industrial customers make their operations, safer, more efficient</p>				

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	<p>technology</p> <p>Komatsu-Joy Global: Connected Mine: Blasthole drill. Geo fencing, auto navigation, obstacle detection and mitigation, Hawkeye 360 camera system, and more.</p> <p>Komatsu-Joy Global: Connected Mine: CPA 295 which can be mounted on any excavator. Due to Intelsense controller system it automatically detects and analyzes various rock layouts.</p> <p>PACCAR Inc: Connected Truck: Kenworth and Peterbilt [Paccar] launched new vehicle technologies that provide customers real-time diagnostic information to enhance their vehicles' operating performance</p> <p>Cummins Inc: Cummins launched H-Series wheel loaders is equipped with intelligent cooling system that only activates on demand based on what the temperature sensors indicate.</p> <p>Lindsay Corporation: Elecsys</p>			<p>and more reliable.</p> <p>Tyco/Johnson Controls: Innovation Centers to Promote Breakthrough Solutions: Tel Aviv center</p> <p>Xylem Inc: Internet of Things: Xylem plans to use their "innovation center" to develop, test and validate Internet of Things (IoT) technologies – connecting pump components through IoT to turn traditional pumps into smart pumps -</p> <p>Emerson Electric Co: Invested in two food monitoring companies: - Locus Traxx, - PakSense</p> <p>Acuity Brands Inc: Qualcomm and Acuity Brands Collaborate to Commercially Deploy Qualcomm Lumicast Technology for Precise Indoor Location Services</p> <p>Pentair PLC: R&D initiatives: centers to develop tools to help cities as well as industrial and commercial companies conserve water.</p> <p>Cummins Inc: Real- time measurement of</p>				

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	<p>SentraLink DR remote monitoring solution: new SentraLink DR remote monitoring solution. Oil and gas well sites, storage tanks, valve sites, leak detection, city gates, regulator stations, pump stations, and many other industrial sites</p> <p>Harsco Corp: Equip - Denver - regional railway fleet with enhanced safety systems. Collision Avoidance System(CAS) on the district's on-track equipment</p> <p>Rockwell Automation Inc: FactoryTalk AssetCentre software: unattended installation. Remote software installation is available for difficult-to-reach locations, reducing labor and transportation costs</p> <p>Parker-Hannifin Corp: HVAC/R (Sporian) Smart Pro/R Service Tools; Wireless, sensors, mobile device monitoring</p> <p>PACCAR Inc: In the special 'Silent Mode', which can be activated by a simple</p>			<p>NOx content in the exhaust gas can provide the needed control parameter for the diesel-engine combustion management system. Such a NOx sensor must be sensitive (ppm), fast response (ms), robust, and low cost.</p> <p>Harsco Corp: Research Agreement - Sensor: The National Robotics Engineering Center (NREC) signed a research agreement with Harsco Corporation to develop ruggedized sensors to measure steel maker</p> <p>Acuity Brands Inc: SENSOR: Acuity Brands announced a sponsored research agreement with Rensselaer Polytechnic Institute's Centre for Lighting Enabled Systems and Applications (LESA)</p> <p>Rockwell Automation Inc: Smart Motion System: Rockwell showcased Smart Packaging Solutions at interpack 2017. MagneMotion developed smart</p>				

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	<p>push at a button on the dashboard, the extra-quiet LF has a noise level of no more than 72 dB(A), meeting the conditions for certification as a 'Quiet Truck'.</p> <p>Eaton Corp plc: Intelligent Power Manager: remote monitoring that can manage multiple devices across a network from a single user interface. [dated]</p> <p>Emerson Electric Co: IoT Platform: Plantweb digital ecosystem, a scalable portfolio of standards-based hardware, software, intelligent devices and services for securely IIoT</p> <p>Emerson Electric Co: IoT-related technologies for product manufacturing, including Emerson's Pervasive Sensing strategies.</p> <p>Harsco Corp: Jupiter II Control System - a laser profile measurement system that provides accurate and reliable measurement of rail profiles in real time.</p> <p>Eaton Corp plc:</p>			<p>motion systems</p> <p>Astec Industries Inc: 'Smart Plant' Patents: Sensors, automation, data - moisture, etc.</p> <p>Xylem Inc: Smart Water pumping: w/DC Water: first intelligent wastewater pumping system</p> <p>Tyco/Johnson Controls: Tyco Working with Nest Labs on Connected Home Solutions</p> <p>Emerson Electric Co: Under Emerson's Helix initiative they are opening Helix innovation centre and \$35M hub dedicated to advancing research and education for the global heating, ventilation, air conditioning and refrigeration (HVACR) industry.</p> <p>Flowserve Corp: Using HPE Edgeline IoT Systems, PTC software, and National Instruments' sensors, Flowserve will soon receive a level of compute not possible before</p>				

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	<p>LED/Automation: Eaton announced that its advanced Ephesus LED sports lighting and controls system</p> <p>Xylem Inc: Lowara Q-SMART, a fixed speed electronic control panel for pressure boosting and sewage systems in various residential applications.</p> <p>AGCO Corp: Massey Ferguson 8700: Integrated with new Datatronic 5 Control Center Display (a touch screen system), a wireless data transfer to pull AgCommand data off the tractor</p> <p>Tyco/Johnson Controls: Metasys 8.0- Johnson controls introduced Metasys that will lead the way with advanced BAS (Building automation system) technology</p> <p>AGCO Corp: New S394: Tractor is integrated with Valtra SmartTouch with a multifunction drive-lever, valve switches, rear-linkage and PTO control</p> <p>Ingersoll-Rand Plc - Industrial Machinery: Nexia I Indoor and Outdoor HD camera</p>							

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	<p>with Smart technology. Outdoor camera has doorbell Sensor.+ IFTTT</p> <p>Ingersoll-Rand Plc - Industrial Machinery: Nexia Now Integrates with Amazon Echo For Hands-Free Home Automation</p> <p>Nordson Corp: Nordson ASYMTEK's Select Coat® Conformal Coating System with a DispenseJet® applicator to apply thin coatings of Parker's new CHO-SHIELD-604</p> <p>Deere & Co: Outfitting machines with software, in effect turning them into new revenue streams; collect hyper-local data in real-time, on weather, soil type, soil conditions, fertilizer, irrigation, crop history, and so forth.</p> <p>Parker-Hannifin Corp: Parker Energy Solutions system (PES) provides customers with wireless connectivity and device-level energy and system performance details</p> <p>Caterpillar Inc: Remote Monitoring and IoT: Caterpillar</p>							

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	<p>announced to launch new Cat® Connect hardware and software to enable equipment managers to connect all of their assets</p> <p>Graco Inc: Remote Monitoring/Sensor: Graco utilizes Brushless DC electric pumps in their intelligent paint kitchen (IPK) solution, which is a network of smart sensors and control devices</p> <p>AMETEK Inc: Rugged Thermocouple Measurement: advanced cold junction compensation (CJC) circuit, Sensor, network connector</p> <p>Donaldson Co: SELECT system gives OEMs the opportunity to choose from a modular set of low-pressure fuel filtration components that can be combined together to create highly effective fuel filtration and water separation systems</p> <p>Federal Signal Corp: Sensor Interface Unit: Up to 16 sense points to detect status changes</p>							

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	<p>Xylem Inc: Sensor Network: developed IQ Sensor Net system 2020 is a multi-parameter system for up to 20 sensors (wastewater)</p> <p>IDEX Corp: SENSOR/AUTOMATION: IDEX Health & Science, a subsidiary of IDEX Corp., announces the release of their new QuickStart Sensor product</p> <p>Emerson Electric Co: Sensor: Emerson introduces Rosemount X-well Technology surface sensing temperature measurement solution.</p> <p>Xylem Inc: Sensor: has developed a FDO sensors which are the perfect solution for measuring dissolved oxygen</p> <p>Nordson Corp: SENSOR: Nordson Corporation introduces a new adhesive tracking system (ATS) retrofit kit to make it easy to add flow measurement capabilities to any Nordson packaging machine</p>							

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	<p>Illinois Tool Works Inc: Sensor: Sensor Evaluation Kits provide customers to learn about the capabilities of sensors, allowing for faster, more informed, and more efficient component decisions and a speedier product development process.</p> <p>Toro Co: SENSOR:Toro high-efficiency drip irrigation products, including an EVOLUTION® Series controller with wireless weather sensor,</p> <p>Parker-Hannifin Corp: Sensors/ Remote Control: Parker's Ferrous Proximity Sensors deliver non-contacting proximity sensing to detect nearby ferrous metal.</p> <p>Parker-Hannifin Corp: Smart Oil Aging & Contamination: Parker will present a network of smart solutions.* FCS sensor</p> <p>Caterpillar Inc: The Driver Safety System (DSS™), developed by Seeing Machines, an alliance partner of</p>							

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	<p>Caterpillar, includes an in-cab camera and alert system to notify the operator the moment a fatigue or distraction event occurs.</p> <p>Toro Co: Toro introduced a new product called 22" Recycler® Personal Pace® mower with PoweReverse™ and mower with a self-propel drive system that works in both forward and reverse</p> <p>Tyco/Johnson Controls: Tyco Partners with ADT to Provide Home Interactive Solution in the UK & South Africa</p> <p>Tyco/Johnson Controls: Verasys- The first plug-and-play controls system that integrates heating, ventilation, air-conditioning and refrigeration (HVACR) equipment and controls</p> <p>Xylem Inc: Wastewater Pumping System With Integrated Intelligence: Xylem's Flygt Concertor senses the operating conditions of its environment, adapts its performance in real time and provides</p>							

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	<p>feedback to pumping station operators.</p> <p>Federal Signal Corp: Wireless emergency shut-off wrist strap as an added safety feature for all new Vactor HXX vacuum excavators manufactured after January 2017.</p> <p>Emerson Electric Co: WirelessHART is a wireless mesh network communications protocol for process automation applications.[Cisco]</p> <p>Tyco/Johnson Controls: YORK Eco Advance module : Built-in electronics and software, including networking for Internet-of-Things (IoT) connectivity</p>							
Analytics (23)	<p>13: PACCAR Inc: Data Analytics/Remote Monitoring: PACCAR and Eaton have collaborated to exclusively deliver a fully-integrated powertrain.</p> <p>Rockwell Automation Inc: FactoryTalk Analytics for Machines: Microsoft Azure cloud-enabled capability that empowers equipment</p>		<p>7: AGCO Corp: AGCO partnering with Aglytix and Farmobile. The Aglytix will offer their SolverPod analytics platform and Farmobile will help to collect fleet and field data.</p> <p>Caterpillar Inc: Age of Smart Iron – IoT program: Cat Connect Technology, designed to help customers achieve</p>	<p>3: Xylem Inc: Acquired Visenti Pte Ltd, a Singapore-based smart water analytics company that provides a suite of advanced products and services to enable smart management of water networks.</p> <p>Valmont Industries Inc: Data garnered from IoT sensors to gain insight into how its products perform,</p>				

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	<p>builders with information.</p> <p>Stanley Black & Decker: Healthcare offering cloud-based analytics for its AeroScout Monitoring and Asset Management Solutions</p> <p>Parker-Hannifin Corp: Internet of Things/Predictive Maintenance: ServiceJunior CONNECT was introduced by Parker</p> <p>AGCO Corp: Massey Ferguson 8700: Integrated with new Datatronic 5 Control Center Display (a touch screen system), a wireless data transfer to pull AgCommand data off the tractor</p> <p>Eaton Corp plc: New software tool designed to help utilities of all sizes efficiently and accurately integrate distributed energy resources without adversely impacting reliability and power quality.</p> <p>Rockwell Automation Inc: PlantPAx distributed control system real-time production information from the</p>		<p>greater visibility (through data) into their machines to better anticipate maintenance needs and drive performance improvement.</p> <p>Rockwell Automation Inc: Expanded analytics offerings; customers gain insight from automation</p> <p>Deere & Co: Partnering w/ Telogis to derive key data and insights from connected equipments.</p> <p>Rockwell Automation Inc: Professional services, powerful machine-learning algorithms and predictive analytics software to offer predictive and prescriptive maintenance</p> <p>Deere & Co: Software for its cloud-based platform. More tools & features; producers to easily collect and access more farm information and collaborate with partners to gain insights</p> <p>Flowserve Corp: w/ National Instruments (NI),</p>	<p>how to enhance them, and how to better understand customers' needs.</p> <p>Flowserve Corp: Using HPE Edgeline IoT Systems, PTC software, and National Instruments' sensors, Flowserve will soon receive a level of compute not possible before</p>					

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	<p>turbine to the transformer helps enable faster, more reliable decision-making.</p> <p>Rockwell Automation Inc: Predictive and Prescriptive Analytics: Rockwell combined professional services, powerful machine-learning algorithms and predictive analytics software to offer predictive and prescriptive maintenance</p> <p>PACCAR Inc: Predictive cruise control is the next step. Using a GPS locator function and programmed-in terrain mapping, it knows exactly where the vehicle is and what geographical conditions it will encounter</p> <p>Rockwell Automation Inc: Safety Automation Builder software tools</p> <p>Stanley Black & Decker: Senior Living Management Dashboard for its Arial Emergency Call Platform</p> <p>Eaton Corp plc: Visual Power</p>		<p>Hewlett Packard, and PTC created Flowserve pump. Using CompactRIO, this pump is a complete intelligent IIoT solution for predictive maintenance with the use of augmented reality.</p>					

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	<p>Manager software provides data center and information technology (IT) professionals with the tools to monitor and manage rack power distribution units</p> <p>Rockwell Automation Inc: Will launch FactoryTalk Batch V13 in the first quarter of 2017</p>							
3D (other) (7)	<p>5: Komatsu-Joy Global: Connected Mine: P&H 77XD blasthole drill. It has an augmented reality table highlighting smart material handling options; and a Joy longwall visualization system w/3-D graphics</p> <p>Komatsu-Joy Global: Connected Mining: PC360LCi-11 hydraulic excavator. It is the first 3D semi-automatic excavator with Intelligent Machine Control features. The machine utilizes 3D design data loaded into the machine's monitor to accurately display machine position.</p> <p>Graco Inc: Dynamic contour laser scanner; automated powder coating technique. 3D</p>			<p>1: AMETEK Inc: Creaform Engineering announces major expansion which provides portable 3D measurement solutions and engineering services</p>				<p>1: Komatsu-Joy Global: Smart Construction- Komatsu introduced smart construction to innovate construction job sites. The company using KomConnect a cloud platform to restore and analyse all information.</p>

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	processing software Nordson Corp: Inspection:Electronics . FX-942 Dual Sided Optical Inspection System. AMETEK Inc: ZYGO introduces innovative, portable 3D surface metrology solution for precision manufacturing and quality control of large-scale optics and industrial parts							
Telemedicine (1)	1: ITT Corporation: BIW Connector Systems brand has launched a unique seven- contact wellhead outlet to connect safely and reliably to monitoring equipment in oil and gas production wells							
Video (1)			1: Terex Corp: Enhanced Troubleshooting Capabilities in the Field: New Genie Tech Sight App using online video guidance for real- time visual assistance					
Laser 2 (1)	1: AMETEK Inc: Laser, 3D metrology: Zygo Corporation introduces Verifire HDX laser interferometer with ultrahigh-resolution and imaging for precise 3D metrology							

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	of optical components and systems							
Video Sensing (2)	1: Federal Signal Corp: CueCam body camera' GPS, video location tracking.CueClassify. w/Edesix. RFID based dynamic camera allocation, in-built Wi-Fi.			1: Federal Signal Corp: CueCam body camera' GPS, video location tracking.CueClassify. w/Edesix. RFID based dynamic camera allocation, in-built Wi-Fi.				
Digitization (3)		1: Astec Industries Inc: ASTEC, INC., an Astec Industries company, has launched an updatedAstecUsed.com website.		1: Crane Co: Acquisition – Payment Connectivity Platform: Crane acquired Microtronic AG, a leading manufacturer of closed-site and mobile payment solutions for the European vending market.				1: Cummins Inc: Saritasa announced its development on an intelligent software platform for Cummins Pacific to increase organization and company management
Platform (IoT, etc) (13)	6: Rockwell Automation Inc: IoT Engagement: Metso has selected Rockwell Automation to deliver a global industrial Internet of Things (IoT) platform that connects, monitors and performs analytics for Metso Emerson Electric Co: IOT Platform: IIoT-enabled the Dynamic Lift Optimization (DLO) software for production engineers	1: Rockwell Automation Inc: Connected Enterprise: Rockwell opened its first Customer Center for The Connected Enterprise in Karlsruhe, Germany	1: Caterpillar Inc: Caterpillar is using VR and AR solutions from PTC, Inc., delivering technology that enables industrial customers to aggregate, analyse, and deploy product information to support their decision making.	5: Dover Corp: Collaborate as part of the Honeywell Inspire program on an Industrial Internet of Things ecosystem (IIoT ecosystem) Xylem Inc: Internet of Things: Xylem plans to use their "innovation center" to develop, test and validate Internet of Things (IoT) technologies – connecting pump components through IoT to turn traditional pumps into smart pumps -				

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	<p>Stanley Black & Decker: Connected Network: DEWALT announces: fully connected system, including WiFi mesh network and, later, an Internet of Things platform, to enhance productivity,</p> <p>Caterpillar Inc: IoT Platform: Caterpillar is leveraging Leonardo, SAP's IoT platform in its smart tractors.</p> <p>Emerson Electric Co: IOT, Mobile Platform: DeltaV Mobile, a new platform that leverages Industrial Internet of Things (IoT) technologies to empower the manufacturing engineer of the future</p> <p>ITT Corporation: IOT/AI/sensors: ITT's PRO Services brand unveiled the i-ALERT Ai platform, a web interface allowing customers to take advantage of the Industrial Internet of Things to monitor all their i-ALERT2 enabled rotating equipment in one place.</p>			<p>Emerson Electric Co: IOT Award: Emerson's AMS ARES Asset Management Platform received a Connected World IoT Innovations award,</p> <p>Timken Co: IoT:Timken India, a subsidiary of Timken Company, is scaling up its R&D efforts towards advanced bearing technology, beginning by leveraging 3D printing, IoT, cloud, big data, predictive maintenance</p> <p>Cummins Inc: SUPER COMPUTERS: The Clessie 2.0 supercomputer is a critical asset to the CUMMINS engineering function, accelerating innovation,</p>				
Laser (5)	4: Graco Inc: Dynamic contour laser					1: Oshkosh Corporation: Laser:		

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	<p>scanner; automated powder coating technique. 3D processing software</p> <p>Harsco Corp: Jupiter II Control System - a laser profile measurement system that provides accurate and reliable measurement of rail profiles in real time.</p> <p>IDEX Corp: LASER: Semrock, a division of IDEX Health & Science (a subsidiary of IDEX CORP.) introduces their new Multiphoton LaserMUX beam</p> <p>Harsco Corp: Laser: The Callisto: Hy-Rail system Harsco's division contains a number of measurement devices working in unison to produce concise track geometry</p>					<p>The quality-control methods currently use Laser Powder Bed Fusion Additive Manufacturing</p>		
Unmanned / Remote Operated (1)	<p>1: Textron/Arctic Cat Inc: V-247 Vigilant tiltrotor: Unmanned aerial system. Marine Corps are also capable of operating from ships at sea.</p>							
Camera Sensing (7)	<p>5: Caterpillar Inc: Caterpillar's New S60 Is the First Smartphone With FLIR Thermal Imaging Built Right In - thermal imaging</p>			<p>2: Dover Corp: Dover Energy Automation and MOBOTIX AG signed a partnership to develop the "Sight Optimization" solution for oil and</p>				

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	<p>sensors</p> <p>AMETEK Inc: Phantom Flex4K-GS: high-speed camera with a 35mm, 9.4- megapixel sensor and global shutter can use in the scientific research, defense and aerospace industries.</p> <p>AMETEK Inc: Phantom Miro N- Series camera that instantly captures and transfer data in the base, even if the camera head or cable are damaged.</p> <p>Deere & Co: Sprayers: AutoTrac RowSense uses a row sensor similar to that used on combines to detect crop rows and steer the sprayer to the center of the row for later season post applications.</p> <p>Caterpillar Inc: The Driver Safety System (DSS™), developed by Seeing Machines, an alliance partner of Caterpillar, includes an in-cab camera and alert system to notify the operator the moment a fatigue or distraction event occurs.</p>			<p>gas well sites.3D motion detection, high-quality image capabilities smart IP and autonomous camera</p> <p>Harsco Corp: Harsco Corp. is partnering with the Johns Hopkins University Applied Physics Laboratory to introduce unmanned vehicle technology to railway safety and security operations.</p>				
Connectivity (Broadband,	6: Parker-Hannifin			2: Komatsu-Joy Global:				

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satellite, etc) (8)	<p>Corp:)Bluetooth Connectivity/Remote Access/IOT: Bluetooth Connectivity Solutions Brings IoT-like Connectivity to the Machine Control World.</p> <p>ITT Corporation: ARINC 801 Fiber Optic Connector Series, a high-bandwidth interconnect solution that provides maximum performance and reliability for commercial and military aviation, and shipboard systems</p> <p>ITT Corporation: Connector devices (military applications) e.g HSC Connector: light, flat, small signal carrying interfaces for soldier worn applications such as hand-held radios, night vision goggles, GPS devices and computers</p> <p>AGCO Corp: GPS, Automatic Guidance, Real Time Tracking: Partnering with NovAtel, AGCO expanded its automatic guidance product offering. A</p> <p>Toro Co: Lynx® Smart Satellite: all-new golf course</p>			<p>Iridium Communications Inc signed a deal with Komatsu to provide global asset tracking and monitoring for KOMTRAX system, with over KOMTRAX-equipped vehicles</p> <p>Wabtec: Signed a \$97 million contract to provide signaling and communication services including a control and command center, for the line for TEX Rail. Its expects to open the 27-mile, double-track line in 2018.</p>				

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	<p>irrigation controller designed for enhanced performance and greater reliability. It has enhanced wireless communications, sensor input kit compatibility, remote diagnostic tools</p> <p>Emerson Electric Co: Wireless Network: Emerson launched a new dual-mode wireless gateway which supports both IEC 62951 WirelessHART and ISA100.11a industrial wireless communications standards.</p>							
IoE Cloud Services - SaaS (9)	<p>5: Cummins Inc: Considering adding a condition monitoring service for the users of its engines; predictive maintenance (PdM) service</p> <p>AGCO Corp: Fuse Connected Services combines the right machines, technology, parts, service and support to help customers optimize their operation and maximize uptime through preventative maintenance, machine condition monitoring and year-</p>		<p>3: Emerson Electric Co: Emerson , a pilot customer of the Internet of things cloud, is exploring the use of the service to contact customers who may have problems with their connected thermostats [dated/look for update]</p> <p>AGCO Corp: Fuse Connected Services combines the right machines, technology, parts, service and support to help customers optimize their operation and</p>	<p>1: Ingersoll-Rand Plc - Industrial Machinery: Uses PTC software for product innovation and Creating Customer Value through Software</p>				

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	<p>round consultation.</p> <p>Emerson Electric Co: IoT Platform: Plantweb digital ecosystem, a scalable portfolio of standards-based hardware, software, intelligent devices and services for securely IIoT</p> <p>Deere & Co: John Deere Golf and OnGolf introduced OnLink, a cloud-based golf course management platform to collect data and manage equipment, labor, water, chemicals and nutrients, and playing conditions</p> <p>Caterpillar Inc: Sensor: Caterpillar (CAT) will offer subscription data services aimed at increasing building and mining project profitability by attaching sensors to 500,000 machines - monetize data (m2m?)</p>		<p>maximize uptime through preventative maintenance, machine condition monitoring and year-round consultation.</p> <p>AGCO Corp: Valtra Smart revolutionizes remote telematics for tractors, both in terms of cost effectiveness and ease of use.</p>					
Autonomous Vehicle (10)	<p>6: Komatsu-Joy Global: Autonomous Trucks: Innovative Autonomous Haulage Vehicle"(IAHV) ,230-mt-payload truck designed specifically for autonomous haulage operations</p>			<p>3: ITT Corporation: (C)Automation : ITT Inc.'s Motion Technologies business has joined Stop the Crash (STC), a global partnership promoting automotive crash-</p>		<p>1: Caterpillar Inc: Factory: Clearpath Robotics, a Canadian tech start-up that's looking to develop a range of autonomous vehicles for factories.</p>		

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	<p>will release in 2nd half of 2017</p> <p>AGCO Corp: Automation, Sensor: HayBoss G2 600 Series Automatic Applicator system. Automatic Applicator sensing moisture and tonnage on the go, and adjusts the preservative application rate based on the condition of the hay.</p> <p>Komatsu-Joy Global: Connected Mining/Autonomous Trucks: Innovative Autonomous Haulage Vehicle"(IAHV) ,230-mt-payload truck designed specifically for autonomous haulage operations will release in 2nd half of 2017</p> <p>Komatsu-Joy Global: Connected Mining/Autonomous Trucks: 980E-4 haul truck. Unmanned.</p> <p>Harsco Corp: Drone Tamper is Not a drone. Utilizes continuous action technology. Remote controlled - autonomous rail.</p> <p>AGCO Corp: GPS, Automatic Guidance, Real Time Tracking: Partnering with</p>			<p>avoidance technologies</p> <p>PACCAR Inc: Autonomous vehicle/ connected device/ sensors & Artificial Intelligence: PACCAR, NVIDIA and Bosch partnered to launch autonomous trucks.</p> <p>ITT Corporation: ITT Inc. Motion Technologies business has joined Stop the Crash (STC), a global partnership promoting automotive crash-avoidance technologies and working to reduce road traffic fatalities worldwide.</p>				

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	NovAtel, AGCO expanded its automatic guidance product offering. A							
Drones (11)	<p>4: AGCO Corp: Drone: AGCO's Crop Tour will fly drones over fields to collect imagery, using reports and analytics from ag insight company Aglytix to "provide head-to-head evaluation"</p> <p>Komatsu-Joy Global: Smart construction advisory service: February 2015, the advisory service uses drones and other equipment to conduct surveys and generate 3D data for uploading to construction machinery for semi-automatic operation.</p> <p>AGCO Corp: SOLO™ AGCO EDITION Unmanned Aerial Vehicle (UAV). Mission planning, cloud-based, high-resolution mapping software. w/#3DRobotics</p> <p>Deere & Co: w/ Kespry alliance to simplify Drone integration on construction job sites. Enables John Deere customers industrial drone</p>	<p>1: Oshkosh Corporation: Drone: EAA AirVenture Oshkosh welcomes the Drone Cage Obstacle and Speed Course for those who wanted to test their joystick skills</p>	<p>1: Komatsu-Joy Global: Mine monitoring: Drones to survey construction sites with highly precise data-capture and without GCPs (ground control points). Komatsu uses Skycatch EVO3x tablet flight app and the drone takes off, flies and lands completely autonomously.</p>	<p>2: Graco Inc: "Pilot Event' April 2017. Demonstrate the advances capabilities of Drone racer.</p> <p>Caterpillar Inc: Drone "The venture arm of Caterpillar Inc., invested in San Francisco drone tech startup Airware</p>	<p>1: PACCAR Inc: Drones: Paccar Inc., has ultimately believed in the concept of sending an arial drones with the part to the scene without delay</p>	<p>1: Textron/Arctic Cat Inc: Control system: Computer processing power and cyber-hardening technology to the current inventory of ground control stations that operate drones</p>	<p>1: Caterpillar Inc: "The venture arm of Caterpillar Inc., invested in San Francisco drone tech startup Airware. Airware provides software and services that help large enterprises use drones throughout their operations.</p>	

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	platform to capture topographic data.							
Machine Learning (M2M) (11)	<p>3: Xylem Inc: HYDROVAR, an intelligent control system that accurately adapts to system demand (upto 8 pumps)</p> <p>Caterpillar Inc: Acquired M2M Corp: Enabling customers to monitor their assets, perform remote diagnostics and streamline maintenance and dispatch to achieve operational excellence.</p> <p>Xylem Inc: ResiBoost: intelligent variable frequency drive (VFD) that matches system demand to maximize pump efficiency and minimize wear and tear.</p>		<p>3: Caterpillar Inc: Age of Smart Iron – IoT program: Cat Connect Technology, designed to help customers achieve greater visibility (through data) into their machines to better anticipate maintenance needs and drive performance improvement.</p> <p>Deere & Co: Internet of Things:John Deere is adding Foresight Intelligence - Intelligent Alert Triage Center (IATC) was developed to specifically address the massive amounts of alerts coming from machines (IoT) to increase uptime and service efficiency.</p> <p>Rockwell Automation Inc: Professional services, powerful machine-learning algorithms and predictive analytics software to offer predictive and prescriptive maintenance</p>	<p>5: Deere & Co: Partnering with Designworks, a BMW Group subsidiary, John Deere will showcase Fixstern; machine intelligence and connectivity with integrated augmented interfaces.(Backhoe of the future)</p> <p>Harsco Corp: Harsco Rail and ENSCO Rail are working on research and development projects based on machine learning.deep neural network architecture. Predict gauge wear.</p> <p>Komatsu-Joy Global: iGear has teamed up [Komatsu] robotics systems integrator Genesis Systems Group, to improve its SQUEAKS mobile-first industrial messaging app.</p> <p>Lindsay Corporation: Lindsay acquired Elecsys Corporation, a provider of machine-to-machine (M2M) technology solutions and custom electronic solutions.</p>				

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				<p>Flowserve Corp: Using HPE Edgeline IoT Systems, PTC software, and National Instruments' sensors, Flowserve will soon receive a level of compute not possible before</p>				
<p>IOT Wearable (5)</p>	<p>3: Pentair PLC: Pool automation control ; wearable with the new apple watch app from pentair:</p> <p>ITT Corporation: Universal Contacts for Smart Wearable Applications - multiple applications</p> <p>Federal Signal Corp: Wireless emergency shut-off wrist strap as an added safety feature for all new Vactor HXX vacuum excavators manufactured after January 2017.</p>		<p>1: AGCO Corp: Field support team: Google Glass in field to support farmer and communicate with contact center</p>			<p>1: AGCO Corp: Augmented Reality: AGCO is increasing the efficiency, quality and safety of its manufacturing programs by doubling the number of Glass, an assisted reality, wearable headset device at six additional factories</p>		