

Wireless Sensor Network Market 2013

https://marketpublishers.com/r/WBB32E282DBEN.html Date: November 2013 Pages: 640 Price: US\$ 3,800.00 (Single User License) ID: WBB32E282DBEN

Abstracts

Worldwide markets are poised to achieve significant growth as the Wireless Sensor Network is used to implement the Internet of things. Advanced technologies for wireless sensor networks are associated with energy harvesting and thin film batteries.

Emerging wireless sensor networking is based on leveraging the feasibility of making sensors work independently in groups to accomplish insight not otherwise available. Advanced storage devices are emerging simultaneously with the energy harvesting devices that are economical, making sensor networks feasible. Storage devices can leverage the power captured by energy harvesting when sensors and devices are interconnected as a network.



Contents

1. WIRELESS SENSOR NETWORKING MARKET DESCRIPTION AND MARKET DYNAMICS

- 1.1 Wireless Network Sensing Objectives
- 1.2 Wireless Sensor Network
- 1.1.1 Wireless Sensor Networks Involve Monitoring, Tracking, Or Controlling
- 1.1.2 Vehicle Tracking and Security
- 1.3 Operating Systems for Wireless Sensor Networks
- 1.4 Zigbee Technology
- 1.5 TinyOS
- 1.6 SOS
- 1.7 Embedded Parallel Operating System (EPOS)

2. WIRELESS SENSOR NETWORKING MARKET SHARES AND MARKET FORECASTS

- 2.1 Wireless Sensor Networking Market
- 2.1.1 Wireless Sensor Networking Minimization of Power Consumption
- 2.2 Wireless Sensor Networking Market Shares
 - 2.2.1 Northrop Grumman
 - 2.2.2 EnOcean Equipped Devices
 - 2.2.3 Boeing
 - 2.2.4 Silicon Laboratories
 - 2.2.5 KCF Technologies
 - 2.2.6 Perpetuum
 - 2.2.7 II-IV / Marlow Industries Inc
 - 2.2.8 Arveni
 - 2.2.9 Cymbet
 - 2.2.10 Infinite Power Solutions -
 - 2.2.11 Micropelt Energy Harvesting:
 - 2.2.12 Leading Energy Harvesting Market Participants by Technology
- 2.3 Wireless Sensor Networking Market Forecasts
 - 2.3.1 Wireless Sensor Networks Worldwide
 - 2.3.2 Wireless Sensor Networks Market Unit Forecasts
 - 2.3.3 Thermoelectrics Involves Generating Power From Heat
 - 2.3.4 Smart City Energy Harvesting Shipments Market Forecasts
 - 2.3.5 Transportation Rail and Electric Vehicle Energy Harvesting Market Forecasts



- 2.3.6 Smart Building Energy Harvesting Shipments Market Forecasts
- 2.3.7 Smart Grid Meter and Substation Wireless Sensor Networks Market Forecasts
- 2.3.8 Smart Meter Units Shipped
- 2.3.9 Smart Grid Substation Energy Harvesting Shipments
- 2.3.10 Sensor Nodes
- 2.3.11 Military Use of Wireless Sensor Networks
- 2.3.12 Global Desalination Industry
- 2.3.13 Energy Harvesting Market Industry Segments, Units
- 2.4 Energy Harvesting Pricing
 - 2.4.1 Silicon Labs Energy Harvesting Pricing
 - 2.4.2 EnOcean products
 - 2.4.3 Selected Energy Harvesting Unit Retail Prices
 - 2.4.4 Thermal EH solutions
- 2.5 Smarter Computing Depends on Instrumented Devices
- 2.5.1 IBM The Leader In Smart Computing By A Wide Margin
- 2.5.2 Advantages Offered By SOA
- 2.5.3 SOA As An Architecture
- 2.5.4 Thin Film Battery Market Driving Forces
- 2.5.5 Smarter Computing Market Driving Forces
- 2.5.6 IBM WebSphere Product Set Leverages Thin Film Batteries
- 2.5.7 Thin Film Batteries Market Shares
- 2.6 Nanotechnology Providing Next Generation Systems
 - 2.6.1 Nanotechnology Thin Film Batteries
 - 2.6.2 Silver Nanoplates Silicon Strategy Shows Promise For Batteries
 - 2.6.3 Argonne Scientists Watch Nanoparticles

2.6.4 Thin Film Batteries Use Nanotechnology to Achieve Combining Better Performance With Lower Cost

- 2.7 Wireless Sensor Networks Geographical Region Analysis
- 2.7.1 Geographical Region Analysis

3. WIRELESS SENSOR NETWORKING PRODUCT DESCRIPTION

- 3.1 Wireless Sensor Networking
- 3.2 Northrop Grumman Smart Grid
- 3.3 Boeing Wireless Sensor Applications
- 3.3.1 Boeing Wireless Sensor Network Applications
- 3.4 Silicon Laboratories
- 3.4.1 Silicon Laboratories Energy Harvesting Applications
- 3.4.2 Energy Harvesting Reference Design



3.5 KCF Technologies

3.5.1 KCF Technologies Energy Harvesting for WMD Detection Systems

3.5.2 KCF Technologies Wireless Accelerometer with Ultra-Compact Energy Harvesting for Rotorcraft

3.5.3 KCF Technologies Harvester-Powered Wireless Accelerometers for Extreme Temperature Monitoring in Fossil Fuel Power Plants

3.5.4 KCF Technologies Wireless Vibration Sensors for Shipboard Environments with Broadband Energy Harvesting

3.5.5 KCF Technologies Harvester-Powered Wireless Sensors for Industrial Machine Monitoring and Condition Based Maintenance

3.5.6 KCF Technologies Piezoelectric and Smart Material Devices

3.5.7 KCF Technologies Compact Narrowband High-Acoustic Sound Source for Particle Agglomeration

3.5.8 KCF Technologies Low-Cost Liquid Atomization and Dispensing with a Miniature Piezoelectric Device

3.5.9 KCF Technologies Extreme Amplitude Piezoelectric Noise Source for HUMVEE Air Filter Cleaning

3.5.10 KCF Technologies High-Temperature Piezoelectric Alarm for Personnel Safety Devices

3.5.11 KCF Technologies Micro-Robot Swarms for Desktop Manufacturing

3.6 II-IV / Marlow Industries Inc

3.6.1 Marlow Industries Converting Small Degrees Of Temperature Difference Into Milliwatts Of Electrical Power

3.6.2 EverGen Plate Exchanger

3.7 Micropelt Energy Harvesting:

3.7.1 Micropelt Thermogenerator

3.7.2 Micropelt Two Micro Thermogenerators In Series

3.7.3 Micropelt Thermoharvester

3.7.4 Micropelt Products

3.7.5 Micropelt Peltier Coolers and Thermogenerators

3.7.6 Micropelt Small Micropelt Peltier Cooler

3.8 EnOcean

3.8.1 EnOcean Link

- 3.8.2 EnOcean Faster Development
- 3.8.3 EnOcean Link Fully Prepared Data
- 3.8.4 EnOcean Encrypted Decoding Gateway

3.8.5 EnOcean ECO 200 - Motion Energy Harvesting

3.8.6 EnOcean ECT 310 - Thermo Energy Harvesting

3.8.7 EnOcean Energy Harvesting Wireless Sensor Solutions



- 3.8.8 EnOcean Energy Harvesting Wireless Sensor Solutions
- 3.8.9 EnOcean Alliance Energy Harvesting Solutions
- 3.8.10 EnOcean-Enabled Wireless Networks
- 3.8.11 EnOcean Alliance
- 3.9 Arveni
- 3.9.1 Arveni's Microgenerator Transforms Mechanical Energy
- 3.10 Ferro Solutions
 - 3.10.1 Ferro Solutions Energy Harvesters
 - 3.10.2 Ferro Solutions Inductive and PME.
 - 3.10.3 Ferro Solutions Piezo-based PME Energy Harvesters
- 3.10.4 Ferro Solutions
- 3.11 Trophos Energy
- 3.12 Millennial Net Wireless Sensor Network:
- 3.13 BYD-Developed Fe Battery
- 3.14 Researchers at MIT
- 3.15 Linear Technology
- 3.15.1 Linear Technology Corporation
- 3.16 Cymbet Energizing Innovation
 - 3.16.1 Cymbet EnerChip EP Universal Energy Harvesting Eval Kit
 - 3.16.2 Cymbet EnerChip EP Enables New Applications
 - 3.16.3 Cymbet Products
 - 3.16.4 Cymbet Rechargeable EnerChips and Effective Capacity
 - 3.16.5 Energy Harvesting Based Products Enabled By Cymbet EnerChip EP CB915:
 - 3.16.6 Cymbet Development Support
- 3.16.7 Cymbet Solid State Energy Storage for Embedded Energy, Power Back-up and

Energy Harvesting

- 3.16.8 Cymbet Energy Harvesting
- 3.16.9 Cymbet Zero Power Devices
- 3.16.10 ComtexCymbet EnerChip Thin-Film Batteries
- 3.16.11 Cymbet's EnerChip and Energy Harvesting Solutions
- 3.16.12 Cymbet EnerChip Solid State Battery Energy Harvesting (EH) / TI's

LaunchPad Development Kit

3.16.13 Cymbet Corporation

3.16.14 Cymbet's EnerChip EP CBC915, 3.16.15 Cymbet Energy Harvesting vs. Nonrechargeable Batteries

3.17 Infinite Power Solutions (IPS)-

3.17.1 Infinite Power Solutions High-Volume Production Line for TFBs -

3.17.2 Infinite Power Solutions Solid-State, Rechargeable Thin-Film Micro-Energy Storage Devices



3.17.3 Infinite Power Solutions IPS THINERGY® MEC Products

3.17.4 Infinite Power Solutions THINERGY MEC

3.17.5 Infinite Power Solutions, Inc. Recharge From A Regulated 4.10 V Source

3.17.6 Infinite Power Solutions, Inc. SRAM Backup Guidelines

3.17.7 Infinite Power Solutions, Inc. SRAM Backup Power Solution

3.17.8 Infinite Power Solutions Recharging THINERGY Micro-Energy Cells

3.17.9 Infinite Power Solutions Charging Methods

3.17.10 Infinite Power Solutions, Inc. THINERGY MECs

3.18 MicroGen Systems and Infinite Power Solutions Wireless Sensor Network (WSN)

3.19 Maxim Integrated, Infinite Power Solutions IC to Integrate All Of The Power-

Management Functions For Ambient Energy Harvesting

3.19.1 Maxim Integrated Products (Nasdaq:MXIM) MAX17710 IC Integrates Power-Management

3.19.2 Maxim / Infinite Power Solutions, Inc. (IPS) THINERGY(R) Solid-State, Rechargeable MEC Battery Products

3.19.3 Maxim introduces MAX17710 PMIC :: Uniquely enables Energy Harvesting with THINERGY MECs

3.20 IPS iTHINERGY ADP

3.21 IPS and ITT

3.22 Infinite Power Solutions, Inc. (IPS)— Global Leader In Manufacturing Solid-State 3.22.1 Infinite Power Solutions (IPS)

3.23 JonDeTech AB

3.23.1 JonDeTech AB Applications of Infrared Sensing Thermopiles

- 3.23.2 JonDeTech AB Preventive and Predictive Maintenance
- 3.23.3 JonDeTech Thermopile Products
- 3.23.4 JonDeTech Surface Mount Plastic Thermopiles
- 3.23.5 JonDeTech Thermopiles
- 3.23.6 JonDeTech Horizontal Thermocouple
- 3.23.7 JonDeTech Advantage Of Nanotechnology Vertical Thermocouple

3.24 Schneider Electric Lighting Control Solutions for Comprehensive Facility Energy Management

3.24.1 Schneider Electric Lighting Control Systems

3.25 Planar

- 3.25.1 Planar Energy Devices
- 3.25.2 Planar Energy's Solid State Batteries New Deposition Process
- 3.25.3 Planar Energy Print Guide to Recent Battery Advances
- 3.25.4 Planar Lithium Manganese Dioxide Nanotechnology
- 3.25.5 Planar Energy Devices PowerPlane MXE Module

3.26 IBM Energy Scavenging, Power Scavenging -



3.27 Cubic Global Wireless Sensor Network Tracking Solutions

3.28 Perpetuum

3.28.1 Perpetuum PMG Rail: Transportation / Powering Wireless Rail Monitoring Solutions

3.28.2 Perpetuum Engineering Evaluation and Development

3.28.3 Perpetuum Condition Monitoring

3.28.4 Perpetuum Condition Monitoring Technology To Predict Failure

3.28.5 Perpetuum Holistic View Of Equipment Condition

3.28.6 Perpetuum Need For Greater Accuracy In Condition Assessment Failure Prediction

3.28.7 Perpetuum PMG FSH Free Standing Harvester Integrated Perpetual Power Solutions:

3.28.8 Perpetuum Powering Wireless Rail Monitoring Solutions

3.28.9 Perpetuum Machine Vibration/Motion Energy Harvesting

- 3.28.10 Perpetuum Vibration Energy Harvesting
- 3.28.11 Perpetuum Vibration Source
- 3.28.12 Perpetuum Resonant Frequency: Tuning the Vibration Energy Harvester
- 3.28.13 Perpetuum Vibration Level: Achieving Maximum Power Output
- 3.28.14 Perpetuum Basic Operating Principles Of A Vibration Energy Harvester
- 3.29 Microchip Technology Inc.

3.30 MicroGen Systems

3.30.1 MicroGen Systems BOLT - R MicroPower Generators

3.31 LORD Corporation / MicroStrain

- 3.31.1 MicroStrain Wireless Sensor Networks
- 3.31.2 LORD MicroStrain
- 3.32 Nextreme Thermal Solutions
- 3.33 Patria
- 3.34 University of Michigan ISSCC

3.34.1 University of Michigan intra-ocular pressure monitor (IOPM) device Ultra-Low Power Management

3.34.2 University of Michigan intra-ocular pressure monitor (IOPM) device EH Wireless Sensor Components

3.34.3 University of Michigan Intra-Ocular Pressure Monitor (IOPM) Device Building Millimeter Scale EH-Based Computers

- 3.34.4 Permanent Power Using Cymbet Solid State Rechargeable Batteries
- 3.35 Australian Defence Science & Technology Organization (DSTO) / VigilX

3.36 MacSema

3.37 Omron Corp.

3.37.1 Omron Photovoltaic Inverter Technology



- 3.38 Silicon Labs Solutions For Energy Harvesting Systems
- 3.38.1 Silicon Labs Energy Harvesting Tipping Point for Wireless Sensor Applications
- 3.38.2 Silicon Laboratories Low-Power Optimization
- 3.38.3 Silicon Labs Solutions For Energy Harvesting Systems
- 3.38.4 Silicon Labs Minimizing The Amount Of Time The Radio Is On
- 3.38.5 Silicon Laboratories Managing Harvested Energy
- 3.38.6 Silicon Labs Ability To Power Wireless Sensor Nodes
- 3.38.7 Silicon Labs Powers Wireless Node with Energy Harvesting
- 3.39 Modern Water plc / Cymtox Limited
- 3.39.1 Modern Water plc / Cymtox Limited
- 3.40 ABB
 - 3.40.1 GMZ
- 3.41 Vishay Precision Group / Kelk
- 3.42 Alphabet Energy
- 3.42.1 Alphabet's Technology
- 3.43 Perpetua
- 3.44 Phonomic Devices
- 3.44.1 Phonomic Devices Solid State Cooling, Refrigeration and Air Conditioning
- 3.45 Primus Power
- 3.46 General Motors (GM)
- 3.47 National Instruments
- 3.48 Texas Instruments

4. WIRELESS SENSOR NETWORKING TECHNOLOGY

- 4.1 Millennial Net MeshScape Wireless Sensor Networking Software Platform
- 4.2 Wireless Sensor Network Architecture
- 4.3 Healthcare Wireless Cardiac Networking
- 4.3.1 Flexible Circuit Board
- 4.3.2 Wireless Heart-Monitoring Devices
- 4.4 Global Spectrum Allocation
- 4.4.1 Bandwidth for Wireless Infrastructure
- 4.4.2 Mobile Subscriptions Worldwide Stress Bandwidth Allocations
- 4.5 Patent Issued to Boeing for "Wireless Aircraft Sensor Network
 - 4.5.1 E-Enabled Airplanes
 - 4.5.2 Security Of Wireless Sensor Network Enabled Airplane Health
- 4.6 Wireless Standards
 - 4.6.1 Zigbee Alliance
 - 4.6.2 Bluetooth Low Energy



- 4.6.3 SimpliciTI
- 4.6.4 ANT
- 4.6.5 M2M
- 4.6.6 LXRS® PROTOCOL
- 4.6.7 Mobile Broadband Standards
- 4.6.8 Qualcomm
- 4.6.9 UMTS Forum
- 4.7 Backhaul Network Architecture
- 4.7.1 Ericsson Standardization Work In The 3rd Generation Partnership Project
- (3GPP), 4.8 Regulatory Solutions
- 4.9 Huawei Pipe Strategy
- 4.10 Small-Cell Architectures
- 4.10.1 Small Cells and LTE
- 4.10.2 Smart Antenna Systems

5. WIRELESS SENSOR NETWORKS COMPANY PROFILES

- 5.1 ABB
- 5.1.1 ABB and IO Deliver Direct Current-Powered Data Center Module
- 5.1.2 ABB / Validus DC Systems DC power infrastructure equipment
- 5.2 Adaptive Materials Technology Adaptamat Ltd
- 5.3 Alphabet Energy
- 5.3.1 Alphabet Energy Inexpensive Waste Heat Recovery Technology
- 5.3.2 Alphabet Thermoelectrics
- 5.4 Arrow Electronics
- 5.5 American Elements, USA
- 5.6 Australian Defence Science & Technology Organisation (DSTO)
- 5.7 Arveni
- 5.8 Avnet
- 5.9 BAE Systems
 - 5.9.1 BAE Key Facts
 - 5.9.2 BAE Strategy
 - 5.9.3 BAE Operational Framework
 - 5.9.4 BAE Key Performance Indicators (KPIs)
 - 5.9.5 BAE Systems Ant Size Robot
 - 5.9.6 BAE Project Management
 - 5.9.7 BAE Engineering
 - 5.9.8 BAE Personal Robots
 - 5.9.9 BAE Systems Large UGV



5.9.10 BAE Systems Plc (BAES.L) Hired Advisors To Sell Part Of Its North American Commercial Aerospace Business

5.10 Boeing

- 5.10.1 Boeing Automated Identification Technology (AIT)
- 5.10.2 Boeing Structural Health Monitoring
- 5.10.3 Boeing Aircraft Health Monitoring
- 5.10.4 Boeing
- 5.10.5 Boeing 787 Dreamliner
- 5.10.6 Boeing 787 Dreamliner Performance
- 5.10.7 Boeing Advanced Technology
- 5.10.8 Boeing Participation In Commercial Jet Aircraft Market
- 5.10.9 Boeing Participation In Defense Industry Jet Aircraft Market
- 5.10.10 Boeing Defense, Space & Security
- 5.10.11 Boeing Advanced Military Aircraft:
- 5.10.12 Boeing Military Aircraft
- 5.10.13 Boeing-iRobot Team Receives New SUGV Task Order From US Army

5.11 BYD

- 5.11.1 BYD Cell Phone Batteries
- 5.11.2 BYD Auto Co
- 5.11.3 BYD Commitment Green Energy
- 5.12 CST
- 5.13 Cymbet
 - 5.13.1 Cymbet Team:
 - 5.13.2 Cymbet Investors:
 - 5.13.3 Cymbet Partners, Sales and Distribution:
 - 5.13.4 Cymbet Manufacturing:
 - 5.13.5 Cymbet to Open World's Highest Volume Solid-State Battery Manufacturing

Facility

- 5.13.6 Cymbet Partnering with X-FAB
- 5.13.7 Cymbet / X-FAB, Inc.
- 5.13.8 Cymbet Expanding in Minnesota
- 5.13.9 Cymbet / LEDA
- 5.13.10 Smart Solid-State Batteries for Embedded Energy, Power Back-up and Energy

Harvesting

- 5.13.11 Cymbet EVAL-09 Utilizes Harnessing Ambient Energy
- 5.13.12 Cymbet Secures \$31 Million in Private Financing
- 5.14 Digi International
 - 5.14.1 Digi International Business Highlights:
 - 5.14.2 Digi International/MaxStream



- 5.14.3 Digi International Revenue
- 5.15 Dust Networks
- 5.15.1 Dust Networks Self-Powered IPV6 Wireless Sensor Network
- 5.16 EnOcean GmbH
 - 5.16.1 EnOcean Technology
 - 5.16.2 EnOcean Alliances
 - 5.16.3 EnOcean Self-Powered Wireless Technology
- 5.17 Finmeccanica
 - 5.17.1 Finmeccanica / SELEX Galileo
 - 5.17.2 SELEX Galileo Inc.
 - 5.17.3 SELEX Galileo Technologies
- 5.18 Flexible Electronics Concepts
- 5.19 Ferro Solutions
- 5.19.1 Ferro Solutions
- 5.20 Fraunhofer Institute for Integrated Circuits IIS
- 5.21 General Electric Company

5.21.1 GE Energy Wireless Condition Monitoring System / Perpetuum Electromagnetic Vibration Energy Harvesting Device

5.21.2 GE HabiTEQ Systems and EnOcean Energy-Harvesting Technology Joint Venture

5.21.3 General Electric / EnOcean Equipped Devices Sensors Fit In Ultra-Thin Switches On Glass Panels

5.21.4 GE Smart Energy Technologies

5.22 GMZ

5.23 Honeywell

5.23.1 Honeywell Energy-Harvesting Sensing and Control

5.24 Infinite Power Solutions

5.24.1 Infinite Power Solutions Solid-State, Thin-Film Batteries

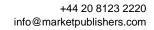
5.24.2 Infinite Power Solutions Micro-Energy Storage Devices

- 5.24.3 Infinite Power Solutions Battery Applications
- 5.24.4 Infinite Power Solutions And Tokyo Electron Device Global Distribution

Agreement

- 5.24.5 Infinite Power Solutions Financing
- 5.25 Inventec
- 5.26 IO
- 5.27 ITN Lithium Technology
- 5.27.1 ITN's Lithium EC sub-Division Focused On Development And
- Commercialization of EC

5.27.2 ITN's SSLB Division Thin-Film Battery Technology





- 5.27.3 ITN Lithium Air Battery
- 5.27.4 ITN Fuel Cell
- 5.27.5 ITN Thin-film Deposition Systems
- 5.27.6 ITN Real Time Process Control
- 5.27.7 ITN Plasmonics
- 5.28 II-VI incorporated / Marlow Industries
- 5.28.1 II-VI Incorporated (NASDAQ: IIVI)
- 5.28.2 II-VI Incorporated / Marlow Infrared And Near-Infrared Laser Optical Elements
- 5.28.3 II-VI incorporated / Marlow Markets
- 5.29 JonDeTech
- 5.30 KCF Technologies Inc
- 5.31 Kelk
- 5.32 Levant Power
- 5.33 LORD Corporation, MicroStrain® Sensing Systems
- 5.34 MacSema
- 5.35 Microchip Technology
- 5.36 MicroGen Systems
- 5.37 Micropelt
- 5.37.1 Micropelt Thin Film Thermogenerators
- 5.37.2 Micropelt Systems
- 5.37.3 Micropelt Thermogenerators
- 5.38 Millennial Net
- 5.38.1 Millennial Net Wireless Sensor Network:
- 5.38.2 Millennial Net's MeshScape GO WSN Technology
- 5.39 Modern Water
- 5.40 National Instruments
- 5.41 Nature Technology
- 5.42 Nextreme
- 5.43 Northrop Grumman
 - 5.43.1 Northrop Grumman Smart Grid
 - 5.43.2 Northrop Grumman

5.43.3 Northrop Grumman Corp (NOC.N) Spinning Off Or Selling Its Shipbuilding Business

- 5.43.4 Northrop Grumman Remotec Robots
- 5.43.5 Northrop Grumman Opens New Facilities for Design and Manufacture of
- Unmanned Ground Vehicles in Coventry
 - 5.43.6 Northrop Grumman Business Sectors:
- 5.43.7 Northrop Grumman Aerospace Systems
- 5.44 OMRON



- 5.44.1 Omron Revenue
- 5.45 Planar Energy Devices -
- 5.45.1 Planar Energy Devices Deposition Process
- 5.45.2 DOE Planar Energy for Oak Ridge National Laboratory Collaborative Battery

Development

- 5.46 Perpetua
- 5.47 Perpetuum
- 5.47.1 Perpetuum Alliances
- 5.47.2 Perpetuum Venture Capital Investors
- 5.48 Phononic Devices
- 5.49 Polatis Photonics
- 5.49.1 Polatis Technology and Products
- 5.50 Primus Power
- 5.51 PS
- 5.52 Schneider Electric
- 5.52.1 Schneider Electric
- 5.52.2 Schneider Electric Vision Smart Grid:
- 5.52.3 Schneider Electric Triggers of the Smart Grid
- 5.52.4 Schneider Electric Revenue
- 5.52.5 Smart Grid: Schneider Electric Vision
- 5.52.6 Schneider Electric Triggers of the Smart Grid
- 5.53 Severn Water / Modern Water / Cymtox Limited
- 5.54 Silicon Labs
- 5.54.1 Silicon Laboratories Energy Harvesting Applications
- 5.54.2 Silicon Laboratories Products
- 5.55 Syngenta Sensors UIC
- 5.56 Teledyne / Rockwell Scientific
- 5.57 Texas Instruments (TXN:NYSE)
- 5.57.1 Texas Instruments
- 5.58 Trophos Energy
- 5.59 University of California, Berkeley
- 5.60 University of Michigan
- 5.60.1 University of Michigan's Department of Electrical Engineering and Computer
- Science Nano-Thin Sheets Of Metal
- 5.61 Vishay Precision Group
 - 5.61.1 KELK integration
 - 5.61.2 Vishay Precision Group Revenue
- 5.61.3 Vishay Precision Group Segments
- 5.62 Zarlink Semiconductor AB



5.63 US Department of Energy's Advanced Research Projects Agency-Energy (ARPA-

- E) Seed Funding
- 5.64 Selected Energy Harvesting Market Participants
 - 5.64.1 Leading Wireless Sensor Networks Market Participants by Technology



List Of Tables

LIST OF TABLES AND FIGURES

Table ES-1 Wireless Sensor Networking Technology Uses

Table ES-2 Energy Harvesting And Energy Storage Market Factors

Table ES-3 Wireless Sensor Networking Market Driving Forces

Figure ES-4 Wireless Sensor Networking Market Shares, Dollars, 2012

Figure ES-5 Wireless Sensor Networking Shipments Market Forecasts, Dollars,

Worldwide, 2013-2019

Table 1-1 Wireless Network Sensing Objectives

 Table 1-2 Wireless Network Sensing Objectives

Table 2-1 Wireless Sensor Networking Technology Uses

Table 2-2 Energy Harvesting And Energy Storage Market Factors

Table 2-3 Wireless Sensor Networking Market Driving Forces

Figure 2-4 Wireless Sensor Networking Market Shares, Dollars, 2012

Table 2-5 Wireless Sensor Networking Market Shares, Vibration, Piezoelectric,

Thermoelectric, Magnetic, Dollars, Worldwide, 2012

Figure 2-6 Perpetuum Markets Served By Industry

Figure 2-7 Perpetuum ROI Addresses The Hidden Costs Of Under Monitored Assets

Figure 2-8 Perpetuum Estimates Number of BOP Machine Assets Under Monitored Exceeds 70%

Table 2-9 Leading Energy Harvesting Market Participants by Technology

Figure 2-10 Wireless Sensor Networking Shipments Market Forecasts, Dollars, Worldwide, 2013-2019

Table 2-11 Wireless Sensor Networks Market Forecasts, Worldwide, 2013-2019

Figure 2-12 Wireless Sensor Network Units, Worldwide, Forecasts, 2013-2019

Figure 2-13 Wireless Sensor Networks Smarter City Shipments Market Forecasts, Dollars, Worldwide, 2013-2019

Figure 2-14 Smarter Computing Depends on Instrumented Devices

Figure 2-15 Transportation Rail and Electric Vehicle Wireless Sensor Networks Market Forecasts Dollars, Worldwide, 2013-2019

Figure 2-16 Number and Floor Space of US Commercial Buildings

Figure 2-17 Energy Use Intensity for LEED Certified Buildings (kBtu per Square Foot)

Figure 2-18 Smart Building Wireless Sensor Networks Shipments Market Forecasts, Worldwide, Dollars, 2013-2019

Figure 2-19 Contractors And Construction Wireless Sensor Networks Shipments Market Forecasts, Worldwide, Dollars, 2013-2019

Figure 2-20 Smart Grid Meter Wireless Sensor Networks Market Forecasts Dollars,



Worldwide, 2013-2019

Figure 2-21 Smart Grid Substation Wireless Sensor Networks Shipments, Market Forecasts, Worldwide, 2013-2019

Figure 2-22 Airline / Space / Defense Industry Wireless Sensor Networks Market Forecasts, Dollars, Worldwide, 2013-2019

Figure 2-23 Border and Perimeter Security Energy Harvesting Shipments Market Forecasts, Dollars, Worldwide, 2013-2019

Table 2-24 Wireless Sensor Networks Market Industry Segments, Dollars, Worldwide, 2013 -2019

Table 2-25 Wireless Sensor Networks Market Industry Segments, Percent, Worldwide, 2013 -2019

Figure 2-26 Energy Harvesting Market Industry Segments, Units, Worldwide, 2013-2019

Table 2-27 Energy Harvesting Market Industry Segments, Units, Worldwide, 2013-2019 Figure 2-28 Marlow Energy Harvesting Device Price

Figure 2-29 Nextreme Energy Harvesting Modules WPG-1 WRLES PWR GEN 1mW 3.3, 4.1 OR 5V

Figure 2-30 MicroPelt Energy Harvester

Figure 2-31 Smarter Computing Depends on Instrumented Devices

Figure 2-32 Smarter Planet Impact on IT

Table 2-33 Advantages Offered by SOA

Table 2-34 Thin Film Battery Market Driving Forces

Table 2-35 Smarter Computing Market Driving Forces

Table 2-36 Thin Film Battery Benefits

Table 2-37 Comparison Of Battery Performance

Figure 2-38 Thin Film Battery Energy Density

Figure 2-39 Silver Nanoplates

Table 2-40 Wireless Sensor Networking Regional Market Segments, Dollars, 2012

 Table 2-41 Wireless Sensor Networking Regional Market Segments, 2012

Table 3-1 Boeing Energy Harvesting Development Programs Functions

Figure 3-2 Boeing Wireless Sensor Aircraft Applications

Figure 3-3 Broadband Energy Harvester (Boeing)

Figure 3-4 Broadband Wireless Sensor Network (Boeing)

Figure 3-5 Silicon Laboratories Energy Harvesting Components

Figure 3-6 Silicon Laboratories

Table 3-7 KCF Technologies Energy Harvesting Wireless Sensors Offered

Figure 3-8 KCF Technologies Smart Rod End for Wireless Monitoring of Helicopter Rotor Components

Figure 3-9 KCF Technologies Rotor Energy Harvesting Devices

Figure 3-10 KCF Technologies Harvester-Powered Wireless Accelerometers



Table 3-11 KCF Technologies Wireless Vibration Sensors for Shipboard Environments Figure 3-12 KCF Technologies Harvester-Powered Wireless Sensors for Industrial Machine Monitoring Table 3-13 KCF Technologies Energy Harvesting Devices Table 3-14 KCF Technologies Piezoelectric Devices Figure 3-15 KCF Technologies Compact Narrowband High-Acoustic Sound Source Figure 3-16 KCF Technologies Liquid Atomization and Dispensing Figure 3-17 KCF Technologies Extreme Amplitude Piezoelectric Noise Source for HUMVEE Air Filter Cleaning Figure 3-18 Marlow Industries Evergen Figure 3-19 Marlow Industries Evergen Figure 3-19 Marlow Industries Product Specifications Table 3-20 Marlow Industries EverGen Plate Exchanger Advantages: Table 3-21 Marlow Industries EverGen Plate Exchanger Target Markets: Figure 3-22 Marlow Industries Evergen Plate Exchanger Table 3-23 Marlow Industries Evergen Energy Harvesting Solutions Figure 3-24 Micropelt Energy Harvester Figure 3-25 Micropelt Energy Thermogenerator Figure 3-26 Micropelt Energy Thermogenerator Figure 3-27 Micropelt Thermoharvester Figure 3-28 Micropelt Peltier Coolers and Thermogenerators Figure 3-29 Small Micropelt Peltier Cooler Figure 3-30 Micropelt Peltier Cooler Figure 3-31 Micropelt Small Peltier Cooler Specifications Figure 3-32 EnOcean Middleware For Energy Harvesting Figure 3-33 EnOcean ECO 200 - Motion Energy Harvesting Table 3-34 EnOcean ECO 200 - Motion Energy Harvesting Figure 3-35 EnOcean ECO 100 - Motion Energy Harvesting Table 3-36 EnOcean Energy Harvesting Motion Converter Table 3-37 EnOcean ECT 310 Perpetuum Table 3-38 EnOcean Thermo Converter Table 3-39 EnOcean Energy Converters For Energy Harvesting Wireless Applications Figure 3-40 EnOcean-Enabled Wireless Sensor Networks Table 3-41 EnOcean Alliance Energy Harvesting Solutions Advantages Table 3-42 EnOcean Energy Harvesting Sources Figure 3-43 EnOcean Energy Harvesting Wireless Sensor Technology Figure 3-44 EnOcean Energy Harvesting Wireless Sensor Devices Figure 3-45 Arveni Core Business In Energy Harvesting Using Piezo Electricity Figure 3-46 Arveni Wireless Network Sensor



Table 3-47 Arveni Wireless Network Sensors Used Table 3-48 Arveni Wireless Network Sensors Range & Link Budget Table 3-49 Arveni Micro Generator Features Figure 3-50 Ferro Solutions Wireless Sensor Network Table 3-51 Trophos Energy Marine Applications Table 3-52 Trophos Energy Land Applications Figure 3-53 Trophos Energy innovative Marine, Land, and Electrocics Power Generation Products Figure 3-54 MIT Energy Harvesting Device Converts Low-Frequency Vibrations Into Electricity Table 3-55 Linear Technology Micropower Voltage Devices Table 3-56 Linear Technology Comprehensive Line Of High Performance Battery Figure 3-57 Cymbet Energy Harvesting Transducers Figure 3-58 Cymbet EnerChip Energy Processor CBC915-ACA and Universal Energy Harvesting Eval Kit Table 3-59 Cymbet Solid State Energy Storage Energizing Innovation Target Markets Table 3-60 Cymbet Solid State Energy Storage products Table 3-61 Cymbet EnerChip Solid-State Product Line Table 3-62 Cymbet's EnerChip Benefits Table 3-63 Cymbet Energy Harvesting (EH) Features Figure 3-64 Cymbet EnerChip CBC3105-BDC: Table 3-65 Cymbet EnerChip CBC001-BDC: Target Markets Table 3-66 Cymbet Energy Harvesting Applications Figure 3-67 Infinite Power Solutions Thinergy Component Table 3-68 Infinite Power Solutions THINERGY® Product Family Table 3-69 Infinite Power Solutions, Inc. Maxim Energy Management Chips Table 3-70 Infinite Power Solutions, Inc. Applications For Energy Harvester Table 3-71 Infinite Power Solutions Charging Methods Table 3-72 Wireless Sensor Network Applications Figure 3-73 JonDeTech Thermopile SMDs Table 3-74 JonDeTech AB Thermopile Features Figure 3-75 JonDeTech AB Low-Cost, Surface Mount Thermopiles Table 3-76 JonDeTech AB Consumer Electronics Mid IR Sensors Table 3-77 JonDeTech AB Residential Control Systems Mid IR Sensors Table 3-78 JonDeTech's Technology Competitive Advantages Figure 3-79 JonDeTech AB JIRS3 Sensor Table 3-80 JonDeTech AB Key Features of the Thermopile Figure 3-81 JonDeTech AB JIRS5 Sensor Figure 3-82 JonDeTech AB Close-up of JIRS5 Sensor



Figure 3-83 JonDeTech AB Nanowire Sensors Figure 3-84 JonDeTech AB Linear Array of IR Sensorson Polyimide Foil Table 3-85 JonDeTech Thermopile Applications Figure 3-86 JonDeTech AB Vertical Heat Flow Model Of Jondetech Thermopiles Figure 3-87 JonDeTech AB Vertical Heat Flow Model Figure 3-88 Jondetech Thermopile Infrared Radiation Tetectors Generation Flex Figure 3-89 Schneider Electric Energy Harvesting Figure 3-90 Planar Energy's Solid State Batteries Spraying Materials Onto A Metal Substrate Figure 3-91 Perpetuum Rail Based Vibration Energy-Harvesting Figure 3-92 Perpetuum Industrial Based Vibration Energy-Harvesting Table 3-93 Applications Powered By PMG Rail Table 3-94 Perpetuum Condition Monitoring Technologies Table 3-95 Perpetuum Business Benefit To Dominate The Industrial Maintenance Scene Figure 3-96 Perpetuum Vibration Energy-Harvesting Wireless Sensor Node **Components And Structure** Figure 3-97 Perpetuum Switch Mode Efficiency Figure 3-98 Perpetuum Condition Assessment Need Figure 3-99 Perpetuum Condition Assessment Principle of Operation Figure 3-100 Perpetuum Vibration Energy Harvesting for Rail Cars Figure 3-101 Perpetuum Vibration Energy Harvesting for Rail Wheels and Bearings Figure 3-102 Perpetuum Temperature Variation Energy Harvesting for Rail Wheels and **Bearings** Figure 3-103 Perpetuum Temperature Variation and Vibration Energy Harvesting Wireless Network Solution Figure 3-104 Perpetuum Vibration Energy Harvesting Solution Benefits Figure 3-105 Perpetuum Energy Harvesting ROI for Ten Years Figure 3-106 Perpetuum Energy Harvesting Current Produced Figure 3-107 Perpetuum Energy Harvesting Power Measurement Figure 3-108 Perpetuum Energy Harvesting Wireless Monitoring Figure 3-109 Perpetuum Energy Harvesting Installation Figure 3-110 Perpetuum Energy Harvesting Innovation Solutions Figure 3-111 Perpetuum Energy Free Standing Harvesting Development Kit Figure 3-112 Perpetuum Energy Harvesting Wireless Monitoring and Automation Figure 3-113 Perpetuum Energy Harvesting of Under Monitored BOP Assets Figure 3-114 Perpetuum Power Output Spectrum Figure 3-115 Perpetuum Vibration Energy Harvester powering the Wireless Sensor

Node



Figure 3-116 Perpetuum Vibration Energy Harvesters Figure 3-117 Perpetuum Power Solutions for Wireless Monitoring and Automation Table 3-118 Perpetuum Vibration Energy Harvester (VEH) Functions Figure 3-119 Perpetuum Vibration Energy Harvester Table 3-120 Perpetuum Industrial Markets Served Figure 3-121 Perpetuum Markets Served By Industry Figure 3-122 Perpetuum ROI Addresses The Hidden Costs Of Under Monitored Assets Figure 3-123 Perpetuum Estimates Number of BOP Machine Assets Under Monitored Exceeds 70% Figure 3-124 Perpetuum Assessment of Machine Assets Under Monitored Figure 3-125 Microchip Technology Energy Harvesting Kit Figure 3-126 Microchip Technology Energy Harvesting Kit Features Table 3-127 MicroGen Systems Leveraging of Factors Converging To Open Up **Opportunity In Energy Harvesting** Table 3-128 MicroGen Systems Energy Harvesting For Battlefield Table 3-129 MicroGen Systems BOLTTM family of Micro Power Generator Features Table 3-130 MicroGen Systems BOLT Industrial Product Figure 3-131 University of Michigan Intra-Ocular Pressure Monitor (IOPM) Device Wireless Sensor Basic Elements Table 3-132 Silicon Labs Solutions For Energy Harvesting Applications Table 3-133 Silicon Labs Solutions For Energy Harvesting Solutions Table 3-134 Silicon Labs Solutions For Energy Harvesting Systems Figure 3-135 Silicon Laboratories Wireless Sensor Node Power Cycle Figure 3-136 Silicon Labs Solutions For Energy Harvesting Systems Figure 3-137 Perpetua Renewable Energy Source for Wireless Sensors Figure 3-138 Perpetua Renewable Energy Source Applications Figure 3-139 Perpetua Energy Harvesting Device Table 3-140 Perpetua Thermoelectric Technology Key Differentiating Features Figure 3-141 Perpetua Technology Table 4-1 Wireless Sensor Networking Technology Benefits Table 4-2 Millennial Net Wireless Sensor Networking Protocol Responsive Functions Table 4-3 Millennial Net Wireless Sensor Networking Protocol Reliability Functions Table 4-4 Millennial Net Wireless Sensor Networking Protocol Power Efficient Functions Table 4-5 Millennial Net Wireless Sensor Networking Protocol Functions Figure 4-6 Wireless Sensor Network Architecture Figure 4-7 Wireless Autonomous Transducer electrocardiogram Solution Figure 4-8 Global Spectrum Allocation Figure 4-9 Bandwidth for Wireless Infrastructure Table 4-10 Network Traffic Units



Table 4-11 Wireless Sensor Networking Technology Uses Table 4-12 Wireless Sensor Networking E-Enabled Airplane Benefits Table 4-13 Wireless Sensor Networking E-Enabled Airplane Functions Figure 4-14 Security Of Wireless Sensor Network Enabled Airplane Health Monitoring Table 4-15 Texas Instruments SimpliciTI Key Features: Table 4-16 Texas Instruments SimpliciTI Key Applications: Table 4-17 Texas Instruments SimpliciTI Key Low-Power RF Devices And Tools Supported Figure 4-18 ANT Extended Messaging Figure 4-19 ANT Layers in Standard Host and System on A Chip (SOC) Figure 4-20 LXRS® Wireless Protocol Figure 4-21 Smart Phone CDMA, LTE, and WiFi Roadmap Evolution Path Figure 4-22 LTE Interoperability Positioning Figure 4-23 LTE Frequency Band Assignments Figure 4-24 Projected LTE Global Spectrum Usage Figure 4-25 Challenge to Support 3GPP and 3GPP2 Frequency Assignments Figure 4-26 Bandwidth Spectrum Economies of Scale Figure 4-27 LTE Device Availability by Frequency Figure 4-28 Backhaul Network Architecture, Flow Delay, Jitter, Packet Loss, Continuity, Avaliability, Throughput, and Trafic Stats Figure 4-29 Wireless Infrastructure Traffic Model Table 5-1 ABB Product Launches Figure 5-2 Alphabet Energy Heat To Electricity Examples Figure 5-3 Arveni Harvesting Energy Target Markets Figure 5-4 Arveni Wireless Sensor Block Diagram Table 5-5 ARVENI's Microgenerators Systems Functions Table 5-6 ARVENI Growth Positioning Figure 5-7 Arveni Strategic Focus Figure 5-8 BAE Military Robot in Development Figure 5-9 Boeing Vulture technology Table 5-10 Boeing Military Aircraft Key programs Table 5-11 Boeing Unmanned Airborne Systems: Table 5-12 Boeing Weapons: Table 5-13 CST Target Markets Table 5-14 Selected Enocean Shareholders: Figure 5-15 Ferro Solutions Energy Harvesters And Sensors Figure 5-16 Ferro Solutions Energy Harvesters And Sensors Target Markets Table 5-17 Ferro Solutions Selected Clients

Table 5-18 Ferro Solutions Energy Harvester Uses



Table 5-19 Ferro Solutions FS Energy Harvester Industrial & Process Automation and Utilities

Table 5-20 Honeywell Energy-Harvesting Sensing and Control

Table 5-21 ITN Technologies

Figure 5-22 ITN Thin Film Battery Technology

Figure 5-23 ITN Battery

Figure 5-24 ITN Thin-Film Deposition Systems

Figure 5-25 ITN's Thin-Film Deposition Systems

Table 5-26 ITN Thin-Film Deposition Systems Products and Services Offered

Table 5-27 ITN Thin-Film Deposition Systems

Figure 5-28 ITNIYN Fuel Cells

Table 5-29 KCF Technologies Core Technical Focus Areas

Table 5-30 Kelk Recent Orders

Table 5-31 Micropelt Thin Film Thermogenerator Functions

Table 5-32 Micropelt Product Functions

Table 5-33 Millennial Net's MeshScape System Functions

Table 5-34 MeshScape GO Deployment Components:

Figure 5-35 National Instruments Accellerating Innovation and Discovery Omron Revenue

Figure 5-36 Perpetua Renewable Energy Solutions For Wireless Sensors

Figure 5-37 Perpetua Energy Harvesting Product Set

Table 5-38 Perpetua's Thermoelectric Technology Features

Figure 5-39 Schneider Energy Value Chain:

Table 5-40 Schneider Electric Triggers Innovation For the Smart Grid

Figure 5-41 Schneider Electric Revenue

Figure 5-42 Schneider Energy Value Chain

Table 5-43 Schneider Electric Triggers of the Smart Grid

Figure 5-44 Silicon Laboratories Revenue

Table 5-45 Silicon Laboratories Product Functions

Table 5-46 Silicon Laboratories Product Areas and Description

Table 5-47 Trophos Energy Harvesting Power Solutions Applications

Table 5-48 Leading Wireless Sensor Networks Market Participants by Technology



I would like to order

Product name: Wireless Sensor Network Market 2013

Product link: https://marketpublishers.com/r/WBB32E282DBEN.html

Price: US\$ 3,800.00 (Single User License / Electronic Delivery) If you want to order Corporate License or Hard Copy, please, contact our Customer Service: <u>info@marketpublishers.com</u>

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <u>https://marketpublishers.com/r/WBB32E282DBEN.html</u>

To pay by Wire Transfer, please, fill in your contact details in the form below:

First name: Last name: Email: Company: Address: City: Zip code: Country: Tel: Fax: Your message:

**All fields are required

Custumer signature _____

Please, note that by ordering from marketpublishers.com you are agreeing to our Terms & Conditions at <u>https://marketpublishers.com/docs/terms.html</u>

To place an order via fax simply print this form, fill in the information below and fax the completed form to +44 20 7900 3970