

15 Start Ups to watch in 2017!

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15 StartUps to Watch!

2017

The 15 profiles in this report have been selected, according to Memoori's view of "Companies to Watch in 2017". They are based on interviews with senior management and secondary research.

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75F



Founded: 75F was established in November 2012

Locations: Burnsville, Minnesota, USA (HQ) and Bangalore, India (R&D)

Founders: Deepinder Singh and Pankaj Chawla

Management: Deepinder Singh, CEO; Pankaj Chawla, CTO

Number of Employees: 45

Funding Stage: Early stage seed funding

Total Funding: Bootstrapped for the first two years, the venture first raised funding in 2015 and has so far raised \$4 million across three rounds.

Investors: AOL co-founder, Steve Case and Gopher Angels, a network of angel investors based in the Twin Cities.

Category of Business: Connected HVAC

Estimated Sales (2016): 75F are expecting to close 2016 with approximately \$2 million revenues, a majority of this originating from the US.

Offering: Their Dynamic Airflow Balancing system claims to be an innovative approach to HVAC zone controls. Leveraging IoT design philosophy and the power of cloud computing, the 75F solution achieves what was once thought to be only theoretically possible – continuous commissioning or perfect air balancing.

Wireless Zone Controllers sense and collect hundreds of data points from each room every minute and send the data to the Central Control Unit and from there to the servers in the cloud. Each night, cloud computing algorithms analyze thousands of data points, including the weather forecast and daily usage patterns that allow the system to predict future conditions. Subsequently, a new set of instructions are sent to the Central Control Unit and the motorized dampers are modulated a few degrees at a time to achieve the perfect balance every minute of the day. The system also factors in real-time events, such as room occupancy, the position of the sun and weather patterns to make continuous adjustments to the plan as needed.

Differentiation: The installed cost of their equipment is approx 20 - 25% of the cost and less than 25% of the time for a traditional system.

Most Important Achievement to date: 75F's solution offers proactive predictive control/ machine learning, capturing data every 60 seconds.

Customers: Having installed over 1,000 control zones, 75F's clientele includes Taco Bell / Border Foods, Yoga Fit, Magnet 360 and LongHorn Steakhouses.

Target Markets: 75F Dynamic Airflow Balancing is designed for light commercial / industrial buildings with forced air Constant Volume rooftop package units. Aimed at buildings under 50,000 sq. feet - focusing on restaurant, office and retail facilities with no zone controls, which the company estimates accounts for 5 million buildings. Smaller businesses are the focus of 75F's efforts, a market in which Singh believes is a void. "That void represents a \$40 billion opportunity for the right product" he stated in 2014.

The low retrofit cost of \$1.35 to \$3.50 per square foot as a retrofit solution is readily adopted by facilities experiencing the discomfort of large temperature variations.

In new construction, 75F Dynamic Airflow Balancing can be specified in the place of VVT zoning systems, with lower installation costs.

"We see about 20 million potential systems, with about four systems installed in each building. Each system is about \$5,000 installed. It costs an average of \$1.50 to \$3 per square foot.

The expected return on investment for the 75F system is one to three years, according to Singh. It varies widely based on the number of rooms inside a building, as well as the availability of rebates for energy savings.

Geographic markets are USA and India.

Growth Strategies

- Launch of business operations in India in August 2016, with a target of Rs 100 crore revenues by FY 2018-19
- Expansion of offering to Class A buildings (over 100,00 square feet)
- Addition of lighting control and automated energy analysis to their portfolio

Addressing niche markets where the company can differentiate its offering

Asset Mapping



Asset Mapping

Established: Asset Mapping was formed in 2012

Locations: London, UK

Founders: Bill Clee, who worked as the asset manager during the construction of the London Olympic Park, prior to creating the company.

Management: Bill Clee, CEO; Michael Grant, COO; Andy Mulholland, Chairman.

Number of Employees: 18 with an additional 5 planned.

Funding Stage: Grants from Innovate UK, who have been pivotal to the company's success - eg. £95,000 received in May 2013. They have won four projects with Innovate UK, including becoming leaders of the Smart City vertical for Hypercat.

Total Funding: not disclosed. Currently closing further investment to take the company to market.

Investors: not disclosed.

Participation in Accelerators / Incubators

- Level39 Accelerator, Canary Wharf Group plc's technology accelerator space at One Canada Square, in 2014
- IDEA London post-accelerator program in 2015. IDEA London was created as a partnership facility created as a partnership between Cisco Systems, DC Thomson and University College London (UCL).

Category of Business: PropTech & Internet of Things

Estimated Sales (2016): Approx. £1 million annual revenues.

Offering: Asset Mapping provides building owners, facilities managers and operators a single pane of glass view of their buildings. The platform gathers data about systems from separate energy management systems, BMS systems, software packages, spreadsheets, drawings and files, pulling them into a single web application. From this web application, anyone can visualize

the location and health of critical equipment in buildings and infrastructure, both during the construction process and throughout the life of the assets. A rules engine adds business intelligence to the operations and management of assets by sending alerts to operators with all the information they need to fix issues faster. This results in significant operational cost savings, reduced construction project lifecycles and reduced energy consumption in buildings.

Differentiation: Holistic view of building assets with no direct competition at present.

Partnerships: The company has relationships with leading technology providers Cisco and Intel. As a Cisco Solution Partner, Asset Mapping offers a complementary product offering and has started to collaborate with Cisco to meet the needs of joint customers.

Asset Mapping and Cisco work together on CityVerve in 2016 in Manchester, connecting buildings with Cisco's IoT gateways. This £10m Smart Cities project, sponsored by Innovate UK, demonstrates the feasibility of smart cities reducing their operating costs, and adding value to their inhabitants using IoT, scalable technologies across four key areas including energy, environment and transport.

Asset Mapping, Cisco and Johnson Controls are also part of Project aSSURE. The aSSURE project, which stands for Secure Sensor Use in Real-World Environments, involves establishing a lifecycle management process for IoT data security because they recognize that no single security approach will properly address all use cases and IoT end devices. The aSSURE project wants to establish a framework to develop different approaches based on the classes of devices being connected (Jan 2016).

Customers: Not disclosed customers. They range from public sector to product manufacturers and financial institutions.

Most Important Achievement to date: Manchester Smart Cities Project and signing an ongoing commercial agreement with a global equipment manufacturer.

Target Markets: The company are targeting large commercial buildings, such as offices, warehouses and factories and owners with building portfolios, in the UK and US.

Growth Strategies:

- Obtain seed funding as proof of concept
- Address US market as well as UK market
- Focus on commercial real estate and large properties

Camio



Established: Founded in 2011

Locations: San Mateo, California, USA

Founders: Carter Maslan, former Director of Product Management at Google

Management: Carter Maslan, CEO

Number of Employees: in the range of 11-50

Funding Stage: Early stage seed funding

Total Funding: Total seed funding of \$2.20 million in February 2014

Investors: 20 investors in total including Freestyle Capital, Greylock Capital, Floodgate Fund, BoxGroup, Marissa Mayer, Brian McClendon, and John Henke.

Category of Business: Security

Estimated Sales (2016): not disclosed

Offering: Cloud-connected video monitoring service, which combines local/edge and cloud machine learning to make video easily searchable. Camio adapts to each camera to learn what's important and unimportant to optimize usage of bandwidth and storage while enabling fast browsing.

Customers: Manufacturers of NVR firmware and commercial building system integrators

Most Important Achievement to date: Smart video monitoring

Target Markets: Small and midsize companies are a growing segment of their business

Ecorithm

ECORITHM

Founded: Ecorithm was established in 2011

Locations: Santa Barbara, California and New York

Founders: Stephanie Marasciullo, University of California Santa Barbara (UCSB) Professor Dr. Igor Mezić, and Dr. Chris Tagge

Management: Dr Chris Tagge, CEO; Dr Igor Mezic, Chief Scientific and Technical Adviser

Number of Employees: 16 employees (Feb 2016)

Funding Stage: Early stage seed funding

Total Funding: \$20.2 million

Investors: Recent investors are predominately customers and channel partners. Investors include Daniel Tishman of the New York Tishman family, also the Company's Chairman and GenNext Ventures, a venture capital fund backed by Reliance Industries Ltd India.

Category of Business: Enterprise Energy Management

Estimated Sales (2016): Not disclosed

Target Markets: large Class A commercial offices with building automation systems (~ 3 billion square feet in the U.S.) expanding to more than 60 billion square feet in the U.S. of commercial and government offices, data centers, retail, healthcare, education and industrial facilities.

Offering: Ecorithm offers "True Analytics", an advanced analytical software platform to optimize comfort and energy efficiency for commercial buildings worldwide. The company provides "physics-based algorithms, combined with big data technology" to identify energy waste in commercial buildings.

Differentiation: Differentiated by its highly accurate automated fault detection and predictive analysis. Ecorithm claims to offer the only software available today capable of holistic energy optimization for the "system of systems" that constitute a whole building. Their software works with existing building automation systems to dramatically increase the granularity of energy analytics by analyzing the massive and unstructured data flows from all of the building energy systems – temperatures, air flows, set points, etc. By mapping these energy inputs to the thermal physics and configuration of the building, Ecorithm's proprietary spectral and spatial

algorithms allow Ecorithm to show owners how the various systems in their buildings are operating on a stand-alone basis as well as interacting with each other to rapidly identify inefficient energy use far more effectively than currently available solutions.

They deliver detailed individual floor visualizations with actionable intelligence at the level of individual devices to optimize energy performance and comfort.

Business Model: Their business model is software-as-a-service and their primary distribution is through selected channel partners - controls contractors, ESCO (energy service companies) and energy consultants.

Core Technology: Ecorithm's underlying patent-pending technology was developed over a ten year period in association with US DOD / DARPA by co-founder Igor Mezić, PhD, Professor of Mechanical Engineering and Mathematics at University of California, Santa Barbara. Ecorithm holds exclusive, global rights to the intellectual property from the university, covering:

- Spectral analysis to rapidly analyze extremely large data sets by removing the inherent noise of typical building operations.
- Rapid identification of performance faults based on a whole systems analysis, including interactions between internal and external spaces and equipment.
- Clear visualization of historical and real-time operational performance.

Customers: UCSB's Education & Social Sciences Building (ESSB) is currently the only building in Santa Barbara using Ecorithm's technology, but the company continues servicing 5.5 million square feet of commercial building space, primarily in its New York market. Marascuillo said Santa Barbara-based Citrix Systems, Inc. is a progressive "early adopter" of the technology, using Ecorithm for its buildings in North Carolina.

Future Plans: As the company grows, Marascuillo and Mezić hope to expand their sales team with Series A funding — venture capital investments — to become more proactive with their customers.

Enlighted



Established: Enlighted was founded in 2009

Locations: Headquarters in Sunnyvale, California, USA

Founder: Tanuj Mohan

Management: Chairman & CEO: Joe Costello; Tanuj Mohan, Chief Technology Officer; Mike Martini, Chief Financial Officer

Number of Employees: in the range of 51-200 employees

Funding Stage: Series D / Feb 2016

Total Funding: \$85.6 million

Investors: The company has received venture funding from Draper Nexus Ventures, Kleiner Perkins Caufield & Byers, RockPort Capital Partners, Draper Fisher Jurvetson, Intel Capital, Electranova Capital and Tao Capital Partners

Category of Business: Building Internet of Things

Estimated Sales (2016): in the range of \$50 - \$100 million

Offering: Enlighted offers a "built-in" IoT solution for buildings, which differentiates the company from other bolt-on solutions, in terms of granularity and sensor density. The company offering includes connected lighting, smart HVAC and space optimization apps for commercial real estate and enterprise applications.

"This is no longer about just providing lighting controls," said Costello. "Installing the Enlighted IoT platform is like giving your building a brain. We can provide software solutions for energy savings, asset tracking, real time information about building utilization, and security for buildings and people, to name a few. The game really has changed."

Competitors: One of Enlighted's strongest competitors is considered to be Acuity Brands.

Customers: Enlighted's IoT system is installed in more than 100 million square-feet nationwide in Fortune 500 companies including Google, AT&T and HP. They have deployed over 1 million sensors.

Partnerships: The company announced a five-year, global integrated technology and services partnership with JLL in April 2016. This agreement formalizes and strengthens JLL's ongoing

collaboration with Enlighted, in which JLL delivers smart building applications through a platform of integrated services and technologies. Under the expanded partnership, this platform will combine Enlighted's advanced sensor technology and Web applications with JLL's project management, workplace strategy, and energy and sustainability services as part of JLL's comprehensive Smart Building program.

Target Markets: Vertical market penetration established in communications, banking, healthcare, and next generation service providers.

Business Development: The company is currently expanding international distribution to France, Germany and the United Kingdom.

Foghorn Systems



Founded: Foghorn Systems was established in 2014

Locations: Mountain View, California, USA

Founders: T. M. Ravi, also Managing Director and Co-founder of The Hive, and Mohan Reddy

Management: David C. King, CEO

Number of Employees: in the range of 11-50

Funding Stage: Series A, July 2016

Total Funding: \$14.5 million

Investors: Series A funding led by March Capital and GE Ventures. Additional funding was provided by Robert Bosch Venture Capital GmbH, Yokogawa Electric Corporation and Darling Ventures.

Participation in Accelerators / Incubators: The Hive, seed fund and startup accelerator in Palo Alto, CA

Category of Business: Building Internet of Things

Estimated Sales (2016): undisclosed

Offering: FogHorn is a leading developer of “edge intelligence” software for industrial and commercial IoT applications., including smart buildings and smart cities.

FogHorn’s software platform brings the power of machine learning and advanced analytics to the on-premise edge environment enabling a new class of applications for advanced monitoring and diagnostics, asset performance optimization, operational intelligence and predictive maintenance use cases.

Partnerships: Collaborating with Microsoft Corp. to make its software available to developers and end users via Microsoft Azure (April 2016).

Promoted to Associate Partner in Dell Internet of Things Solutions Partner Program (June 2016).

Growing Energy Labs Inc (GELI)



Established: Growing Energy Labs Inc (GELI) was founded in early 2010

Locations: San Francisco, California, USA (HQ); New office in Melbourne, Australia

Founders: Founded by Dr. Ryan Wartena and Crispell Wagner

Management: Dan Loflin, CEO; Ryan Wartena, President; Crispell Wagner, CTO

Number of Employees: 38

Funding Stage: \$500k Series Seed Financing June 2013, \$10 million Series A Funding Round completed December 2016

Total Funding: around \$11 million

Investors:

- Series A; Shell Technology Ventures
- Series A; Southern Cross Renewable Energy Venture Capital Fund (REVC)
- Series A; Siemens Ventures
- Series A; unnamed clean energy family investment office
- Seed; Invested Development and seven angel investors

Participation in Accelerators / Incubators: The company has been accepted to participate in the Wells Fargo Innovation Incubator in 2017. The company is currently participating in the Energy Exceleator in Hawaii.

Category of Business: Energy Storage Software

Estimated Sales (2016): not disclosed

Offering: Geli is building the software infrastructure that will enable the emerging Internet of Energy, an intelligent network of distributed assets.

They offer tools to design, connect, and operate energy storage and microgrid systems, which reduce demand through predictive forecasting

- Design is handled by Geli's ESyst tool. This allows the developer to right-size and

integrate the appropriate components. It also yields performance projections which help developers secure financing.

- System automation is covered by Geli's EOS, which facilitates the integrated and automated operation of disparate elements of the microgrid ecosystem. It also ensure optimization of the various parts.
- Ongoing monitoring is performed by GENI, which delivers reports and constantly analyzes the system for anomalies.

Differentiation:

- Geli's business model is B2B, operating as an enabler for large solar developers, engineering firms and construction partners. They license their software solutions.
- Their analytics platform is their key differentiator, with its ability to easily integrate new hardware and energy applications.

Competitors: Stem, Green Charge Networks, Greensmith Energy

Partnerships: Over 500 partners use the Esyst platform.

Customers: large solar developers, energy storage system integrators, EPC's and finance institutions.

Most Important Achievement to date: Participation in strong solar markets such as Australia and Hawaii which have grid compensation (or feed in tariff) policies that favour the use of Geli's platform.

Target Markets: 75% of the business is targeted at the commercial and industrial sector; 25% targeted at the residential sector

Growth Strategies: Expansion of operations in the Asia-Pacific region

Levaux



Founded: Levaux was founded in June 2013 in Australia, although the idea for the company was born on the shores of Lake Geneva in 1998.

Locations: Gold Coast, Queensland, Australia

Founders: Dr. Simon Benson

Management: Dr. Simon Benson, CEO

Number of Employees: 14

Funding Stage: Pre-Series A

Total Funding: Self-funded to date

Participation in Accelerators / Incubators: City of Gold Coast Business Accelerator Program 2014

Category of Business: Building Internet of Things

Estimated Sales (2016): Pre-revenue

Offering: Levaux IoT connects embedded smart objects to the cloud using proprietary high speed middleware and custom wireless mesh stack. The company offers SenseAgent, an enterprise, cloud based, building asset management system using wireless autonomous sensor agents embedded in and interacting within commercial spaces to provide a wealth of data used for lighting control, safety compliance, climate control and security tracking to optimise building use, reduce energy consumption and operational expenses across geographically distributed assets.

Partnerships: The company is aiming to partner with Facilities Management companies as a route to market

Most Important Achievement to date: Development of proprietary middleware communications platform to deliver unparalleled speed and security for critical infrastructure and high value assets for enterprise Internet of Things applications.

Target Markets: High density commercial office buildings in Asia

Growth Strategies:

- Series A funding round planned for early in 2017
- Addressing the Asian market, which has 47% high rise buildings

Origami Energy



Founded: Origami Energy was founded in 2013

Locations: Cambridge, UK (technology team) and London, UK (commercial team)

Founders: Peter Bance, who was previously an Entrepreneur in Residence at Octopus Ventures.

Management: Peter Bance, CEO, Oliver Burstall, CTO and Amanda King, CFO.

Number of Employees: 30+

Funding Stage: Series A funding, April 2016

Total Funding: Origami Energy secured initial funding of £4m in summer of 2014 to develop the concept and fund field trials. These started in September 2015 and they have successfully demonstrated they can use their technology solution to safely control assets and deliver valuable commercial services. Their vision for the energy market was further endorsed in 2016 when the company secured a Series A funding of £13.7m to develop the business model. Total funding: \$25.4 million

Investors: Cambridge Innovation Capital, Octopus Ventures, two private individuals, and investment from Fred. Olsen related companies.

Category of Business: Distributed Energy Resource Management Systems

Estimated Sales (2016): undisclosed

Offering: Origami Energy is developing the technology and marketplace that are required to connect, control and actively manage a large network of existing energy generating, energy using and energy storing assets connected to the electricity grid.

Technology and Differentiation: Nearly all assets that generate or consume electricity have some inherent flexibility to change how and when they work. Flexibility is how much you can increase or decrease the power level of an asset without affecting its function. At Origami, they call this a Flexi-Watt.

Origami's technology allows Flexi-Watts to be accessed, so that they can be sold to customers such as National Grid and network operators. With the growth in intermittent renewable

generation and the prospect of more electric vehicles and heating, the number of customers who are interested in this flexibility is increasing.

Origami 'Energy Routers' combine high accuracy measurement, secure communication and smart processing capability to monitor the asset's state and work within agreed parameters to unlock valuable Flexi-Watts without affecting the core process. Control can be through a simple on/off command via a relay, or full integration with an existing sophisticated control system.

Energy Routers are in continual communication with their optimisation platform, providing real-time knowledge of the state and flexibility of all assets. The optimisation platform matches asset flexibility with the evolving requirements of the electricity system at a local and national level. The platform plans ahead to ensure assets are in the right state ahead of likely requirements and avoid any effects of communications lag. The goal of the platform is to maximise the value from the assets.

At Origami they focus on the energy system of the future, developing a solution that allows many different assets to work together to deliver value to many different counterparties. This is not a typical approach for the energy industry.

Customers: The new £13.7 million of funding will allow Origami Energy to move from pilot field trials to multi-site commercial deployments with a wide range of customers, focusing initially on industrial and commercial sites.

Growth Strategies : The company is transitioning from current customer field trials to scalable deployment of their solution on a commercial basis.

PointGrab



Founded: PointGrab was established in May 2008

Locations: Hod Hasharon, Israel

Founders: The company was founded by Saar Wilf, Haim Perski and Amir Kaplan.

Management: Haim Perski, CEO; Itamar Roth, Chief Business Officer

Number of Employees: in the range of 51 - 200

Funding Stage: Series B, October 2016

Total Funding: \$12 million

Investors:

- Series A, Dec 2015: investment totaling \$5 million from ABB Technology Ventures, EcoMachines Ventures and Flex Lab IX. Saar Wilf, PointGrab's Chairman and first investor, also participated in this funding round.
- Series B, Oct 2016: Investors include Philips Lighting, Mitsubishi UFJ Capital Co. Ltd and existing investor ABB Technology Ventures

Participation in Accelerators / Incubators: Participant in Tyco's Innovation program.

Category of Business: Building Internet of Things

Estimated Sales (2016): undisclosed

Offering: Uses deep learning to provide occupant analytics and insights about energy saving in IoT-based building automation systems. Their solution, CogniPoint, is a miniature network-connected computer vision sensor, running embedded analytics on a low-cost processor. This ceiling-mounted device comes in two form factors: incorporated into lighting fixtures or installed as a stand-alone node connected within a building network. The sensor leverages the advantages of the vision modality to capture fine object and occupant data, but because all analytics are performed at the sensor level, images are never transmitted from the sensor, only the processed data or actionable information is delivered as the output. The sensors adhere to

all communication standards and have powerful security mechanisms built directly into the design.

Differentiation: PointGrab's edge-analytics IoT sensor has been identified by Tyco and others as disruptive technology for smart buildings. By embedding deep learning technology into optical sensing devices, PointGrab's CogniPoint sensor provides indoor occupant analytics and energy savings in commercial buildings, enabling unprecedented precision in the detection of occupants' locations, count, and movements, as well as precise readings of ambient lighting and motion sensing. CogniPoint, leverages deep learning algorithms, enabling a detailed richness of the data provided, without ever compromising the occupants' privacy.

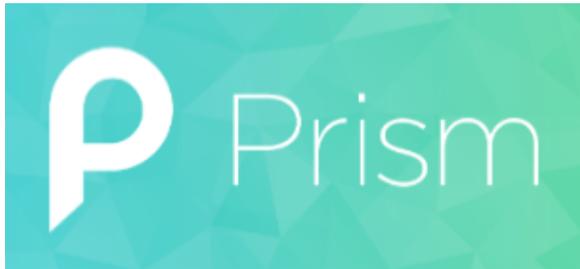
Partnerships: The company is collaborating with both large integrators and leading lighting OEMs, such as ABB Low Voltage Products, Philips Lighting, Tyco and Gooee. In June 2016, PointGrab announced that it had joined the Cisco Digital Ceiling framework as a partner for developing building automation solutions over one IP network. As a member of the Cisco Digital Ceiling framework, PointGrab will collaborate with leading organizations to drive toward smarter, connected, and more secure buildings.

Customers: The company has installed smart sensors in numerous customer sites as part of ongoing collaboration projects while the commercial release will be available in early 2017.

Target Markets: The company's focus is on office buildings They are also pursuing opportunities in the retail space, together with solution providers, and see healthcare as a particularly interesting and rapidly developing vertical.

Growth Strategies: Joint development and market approach with global leading lighting and engineering companies.

Prism Skylabs



Established: Prism Skylabs was founded in July 2011

Locations: San Francisco, California, USA (HQ); London and New York offices

Founders: Founded by video surveillance expert Steve Russell, founder of 3VR and Silicon Valley investor Ron Palmeri.

Management: Steve Russell, CEO

Number of Employees: in the range of 50-60

Funding Stage: \$15 million Series B Funding Round in October 2013; Currently considering Series C round.

Total Funding: \$24 million

Investors:

- Series B; Intel Capital, Presidio Ventures, Triangle Peak, Data Collective and Expa
- Series A; Triangle Peak Partners, Pacific Partners, Andreessen Horowitz, IDG Ventures, Anthem Venture Partners, Eagle, MkII Ventures, SeriesG, and Data Collective
- Seed; the SV Angel, Yuri Milner, Eric Schmidt, Aaron Patzer, Brad Garlinghouse, the CrunchFund and others

Category of Business: Security

Estimated Sales (2016): \$20- \$200 million range

Offering: Cloud service transforming any video camera into a business intelligence tool that can be accessed from any device. Installs cameras with heat mapping software and provides analytical services.

Differentiation: Data privacy is a very important feature of the software, which has enabled the company to gain competitive advantage.

Partnerships: Prism Connect is a program that provides camera manufacturers with the resources to embed Prism directly onto their devices. Current partners include Axis Communications, Point Grey, Hikvision and FLIR.

Customers: 300+ customers in the retail sector

Most Important Achievement to date: Over five years, Prism has attracted more than 400 retail store deployments in 77 countries.

Target Markets: Focused on analytics for the retail sector.

Growth Strategies: Leveraging new capabilities built from Artificial Intelligence, computer vision and machine learning to fully tap the hidden value within video.

Riptide



Founded: Riptide IO was established in late 2012

Locations: Santa Barbara, California, USA (HQ); development offices in Bangalore, India

Founders: Mike Franco, Dave Leimbrock, Marti Ogram and Shawn Leimbrock, all previously at Cisco Systems Smart+Connected Buildings Group.

Management: CEO: Mike Franco

Number of Employees: 25

Funding Stage: Series A funding, December 2015

Total Funding: \$3 million

Investors: Daikin acquired a minority stake in the company in 2015

Category of Business: Building Internet of Things

Estimated Sales (2016): under \$5 million revenues

Offering: The company is aiming to move beyond IoT in the HVAC arena into mid-market total building automation with "the first affordable turn-key cloud-based monitoring and control system for small to mid-sized multi-site retail operations". Riptide launched its cloud based solution for small to medium-sized commercial buildings in March 2016.

Riptide also offers an enterprise application platform with built-in analytics, which can be integrated with existing building management systems from suppliers such as Johnson Controls, Siemens and Trane.

Customers: Major U.S. retailer has 8,000 stores across the US, and Riptide has sensors embedded in about half of them, as it monitors HVAC, lighting, irrigation control, fire and safety controls, and more. Each building system has a programmable controller that monitors or turns the sensors off and on, dims them, and sets their temperatures.

According to an [article on the Riptide web site](#), "in those stores, there are something like 1 million sensors. Riptide CEO Mike Franco said that the data coming out of them runs the gamut. Some of the sensors sample data once a minute, some every 5 minutes, and others sample at 15-minute intervals. Some change values. There are no consistent time stamps, no consistent time zones, and no consistent names of data points. "It's very, very unstructured," Franco said.

What is consistent, then? It's all time series data—a lot of time series data. For the past three years, retailers sensor data output has equaled about 5 terabytes."

Riptide is also developing cloud-based building management tools, and connecting sensors on rooftop machines in commercial buildings that house retailers, including Nordstrom, and other national chain retailers.

Partnerships: The company has been a strategic partner of Daikin Applied Americas, providing the IoT back engine for their cloud-based Intelligent Rooftop equipment and in November 2015, Daikin acquired a minority stake in the company. Riptide's technology partners include Google Cloud, Intel, Dell and Datastax.

Most Important Achievement to Date: Completing one of the largest sensor networks for building data. Helping their customer root out waste and inefficiency that has led to better customer experiences and less spend.

Target Markets: The company is initially targeting the seven million business establishments who operate in 4.4 million small to medium-sized buildings across the United States and lack a traditional building automation system. Riptide is focusing its launch on the retail and retail food markets. Their solution is also suitable for schools, healthcare facilities and other commercial buildings.

Strategies for Growth: In the long-term, Riptide is aiming to increase its distribution channels, by partnering with HVAC service companies who want to move toward trigger-based maintenance and repairs. They also want to expand beyond the retail sector to other vertical markets.

Stem



Founded: Stem was established in March 2009 as Powergenetics Inc. The company pivoted its business model from hardware to software in 2012.

Locations: Millbrae, California, USA (headquarters) with operations in Hawaii and New York.

Founders: Brian Thompson

Management: John Carrington, CEO; Karen Butterfield, Chief Commercial officer; Larsh Johnson, Chief Technology Officer; Bill Bush, Chief Financial Officer

Number of Employees: in the range of 51 - 200

Funding Stage: Series C, May 2016

Total Funding: \$212.20 million, including \$100 million in private equity funding from Starwood Energy Group in August 2016

Investors: Angeleno Group, GE Ventures, Constellation Technology Ventures, Total Energy Ventures, Mitsui, RWE, Mithril Capital Management and Starwood Energy Group

Category of Business: Energy Storage

Estimated Sales (2016): undisclosed

Offering: Stem, a leading provider of intelligent energy storage, combines big data, predictive analytics and advanced energy storage to simultaneously reduce electricity costs for businesses and in aggregate, deliver services to the grid.

Partnerships: The company's commercial relationships underscore the growing overlap between storage and renewables. It has a partnership with SunPower targeting C&I customers interested in pairing solar and storage.

The company also has partnerships with a growing number of utilities and grid operators and there is also interest in the technology from the utility investors (RWE and Constellation).

Customers: Companies such as Safeway, Wells Fargo, Reliance Steel, Whole Foods and Adobe subscribe to Stem's storage- as-a-service solution.

Target Markets: Energy storage for commercial and industrial facilities with more than 75 MWh of projects deployed or under contract across more than 480 locations across the United States.

Switch Automation



Founded: Switch Automation was established in 2005, but has undergone significant changes since then. In 2010, the startup pivoted from a hardware-based platform targeting high-end individual apartments to a cloud-based platform targeting enterprise IoT applications.

Locations: San Francisco, Calif. (headquarters) and offices in Denver, Colo. and Sydney, Australia.

Founders: Deborah Noller and John Darlington

Management: Deborah Noller, CEO; John Darlington, CTO

Number of Employees: 38

Funding Stage: Pre-Series A. Self-funded until seed funding round in 2015

Total Funding: Received funding for the first time in 2015 in two tranches, totaling \$2.2m USD; currently raising \$3-5m USD on the convertible note.

Investors: Australian angel investor network, Scale Investors, Pearle Investors.

Participation in Accelerators / Incubators:

- Alchemist Accelerator, November 2015
- Dell for Entrepreneurs Founders 50 initiative, September 2014
- Springboard Enterprises, 2013

Category of Business: Building Internet of Things

Estimated Sales (2016): undisclosed

Offering: Switch Automation delivers Enterprise Operations and Portfolio Management via the cloud. The Switch Platform is used by its customers for data acquisition, visualization, monitoring and control of large portfolios of buildings spread across the globe. The Platform provides superior visualization into building performance for identification and action on

efficiency improvements and cost saving. A market-leading provider of building automation and energy management software for commercial, industrial and residential properties, with projects in the USA, Australia, Asia and Europe, Switch leads the field in delivering its “software-as-a-service” (SaaS) platform through a flexible and scalable cloud-based global framework, powered by the Microsoft Azure infrastructure.

Competitors: Tridium's Niagara framework is a strong competitor.

Partnerships: Collaboration with NHP, to deliver InfoSyte energy management software solution tailored for the Australian and New Zealand markets, powered by Switch Automation (October 2016). Also partner with Microsoft for Azure and with Intel and Dell for gateways.

Most Important Achievements to date:

- The Switch platform was 6 years in the making and they have spent close to \$7.5mil USD on it.
- Building the team, hiring the right people at the right time.
- Built a scalable solution that disrupted the building-by-building management approach like never before. This model allows the enterprise to manage their entire portfolio; regardless of geographic market or sector.
- Proved the model and solution by securing enterprise customers who now have their entire portfolio on the Switch Platform and are using the data to identify and solve costly problems and proactively manage occupant comfort.

Customers: Switch customers include the world’s leading banks, technology companies, REITs, universities, telcos and retail stores. 8,000 buildings use the Switch platform.

Target Markets: Focused on Commercial Real Estate, REITs and Corporate Real Estate in Australia and USA.

Growth Strategies:

- Series A funding round planned for early 2017
- Expansion in US market and beyond
- Expand the channel partner ecosystem.

Verdigris Technologies



Established: Verdigris Technologies was established in 2011

Location: Verdigris is located in Silicon Valley at the NASA Ames Research Park at Mountain View, California.

Founders: Mark Chung and Jonathan Chu.

Management: Mark Chung, CEO

Number of Employees: 20 / Oct 2016

Funding Stage: Series A extension / Oct 2016

Total Funding: \$16.56 million

Investors: Jabil Circuit, Verizon Ventures

Category of Business: Building Internet of Things

Estimated Sales (2016): Revenues in single digit \$ millions.

Target Markets: Geographic focus is on domestic U.S. companies in hospitality, manufacturing, and healthcare facilities. The company does have a presence in 10 countries.

In the past six months since Mar 2016, Verdigris has achieved increased traction in hospitality, manufacturing and commercial property verticals, with 5x growth in the number of subscribing customers, and 75% of budget-qualified pilot customers converting to paying contracts.

Building stock focus is on large industrial and commercial buildings, with and without a BMS.

Offering: Verdigris Building.AI is cloud analytics software for enterprise facilities managers and large commercial buildings. It allows them to optimize operations, increase facility uptime, and save on energy costs.

In Aug 2016, Verdigris launched Einstein, their latest IoT energy management platform. It is designed to be the easiest most-scalable connected sensor for complex enterprise facilities. By analyzing Einstein's continuous stream of energy data, Verdigris drives smarter and more responsive building operation, saving customers tens of thousands to millions of dollars annually on energy costs. Verdigris CEO Mark Chung says: "Einstein makes it unbelievably easy to know what's happening inside your building in real time, down to a single appliance.

“We put hard-earned money back into our customers’ pockets each month by predicting the most accurate forecasts of utility, weather and energy data, and automating the reduction of their most inefficient energy operations.”

Customers : Verdigris customers include Starwood Hotels Group, Hyatt Hotels Corporation, Flextronics, Autodesk, Honeywell, Intercontinental Hotels, Jabil, Marriott, Megabess and NRG.

Differentiation: Verdigris offers an integrated cloud-based software platform (SaaS) and proprietary sensors attached to the electric panel in buildings. It has a high level of granularity in data analysis and advanced machine learning algorithms. Their offering is not reliant on a BMS, they offer the latest generation of products and a lower cost solution.

Competition: Competing with established incumbents, such as Siemens, Honeywell and Schneider Electric.

Most Important Achievement to date: In 2016, Einstein platform was the first UL certified system for retrofit in commercial buildings

Growth Strategy / Business Development: The company is still at an early stage in development. They are moving towards commercialization and have three major approaches for growth:

- Direct customer acquisition, which will take some time to establish
- Partnering with energy service companies
- Partnering with telecoms / IT players who are moving into this sector. Verdigris regards this channel as potentially disruptive to the incumbent players.