



Project Olympus Startup Companies

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Funding Source Abbreviations Reference List:

AC: Accelerator	ED: Economic Development	PE: Private Equity
AN: Angel or Angel Group	OFEF: CMU Alumni Fund	VC: Venture Capital

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About CMU and Project Olympus

Carnegie Mellon University fosters innovation and encourages novel technologies to enter the marketplace through enterprise creation. Project Olympus is CMU's startup incubation program created in 2007. Several startups supported by Project Olympus are highlighted below. Most are indirect companies—where CMU does not own or manage the IP. Others are direct companies-- licensing IP owned and managed by CMU through our Technology Transfer office (CTTEC) and have been assisted by some of Project Olympus' resources. Below are highlighted CMU spinout companies that encompass companies that have been acquired, companies that have no CMU IP, companies that have CMU IP, and early stage/emerging student, faculty, and alumni companies.

Acquisitions of Project Olympus/CMU spinout companies

1. **ActivAided:** ActivAided Orthotics has developed a line of Postural Training Apparel to eliminate back pain by training self-corrective habits. By using the body's own natural abilities, this wearable device addresses the root cause of back pain by teaching patients how to correct the harmful behaviors in their everyday activities. ActivAided's first product RecoveryAid was found to decrease back pain in 90% of users, helping them return to their desired active lifestyles. Acquired by elizur, September 2016.
2. **BlackLocus:** BlackLocus is the leading provider of automated and optimized pricing tools for mid-market and large online retailers. By combining competitive pricing data from across the web with customers' online store data, BlackLocus delivers actionable recommendations on competitive pricing and assortment. Powered by top talent and research from CMU, BlackLocus deploys sophisticated machine learning and revenue management techniques in a pricing-as-a-service model, enabling retailers to price to win. Acquired by Home Depot, December 2012.
3. **CareerImp:** CareerImp is a technology firm that developed webware for job seekers. They produced Resunate – the world's first intelligent resume builder. Acquired by Professional Diversity Network, July 2012.
4. **ConnectWith:** ConnectWith is a professional network building tool companies use to connect four unacquainted employees over lunch for purposeful conversation. Using social engineering and social graph analyses to strengthen a company's internal professional network, improve company culture and reduce turnover costs. Acquired by Newton Consulting May, 2016.
5. **FacioMetrics:** FacioMetrics provides software tools that enable automated assessment of facial emotions. The intent is to deploy these tools to assist with determinations of driver alertness, reactions to digital advertising and retail sentiment analysis. They are also developing software tools for face recognition in several platforms such as mobile phone and Google glasses. Acquired by Facebook November 16, 2016.
6. **LearnBop:** LearnBop is an education technology company that enables experts to create educational content with hints and feedback messages that respond to student behaviors, as the experts themselves normally would. They enable experts to achieve this using familiar web technologies that are accessible on personal computers and smartphones. Acquired by K-12 August 4, 2014.



7. **Lightside Labs:** Lightside Labs' software can instantly evaluate student writing and provide real-time feedback to improve their essays. In less than a second, they can grade an essay on multiple rubric scales and highlight the writer's strongest and weakest passages on each dimension. Independent research has repeatedly shown this technology is as accurate as human graders, recognizing features that human graders use such as content mastery, style choices, and genre awareness. Acquired by Turnitin October 7, 2014.
8. **reCaptcha:** reCAPTCHA improves the process of digitizing books while also preventing bots from accessing websites by sending words that cannot be read by computers to the Web in the form of CAPTCHAs for humans to decipher. More specifically, each word that cannot be read correctly by OCR is placed on an image and used as a CAPTCHA. This is possible because most OCR programs alert you when a word cannot be read correctly. Using reCAPTCHA, the entire archives of the New York Times and books from Google Books have been digitized. Acquired by Google September 9, 2009.
9. **Safaba:** Safaba provides enterprise-grade, machine learning-based software to assist with document translation. Clients include major translation firms and companies operating globally. The Company has been awarded a SBIR grant, and investment from Innovation Works and a private investor. Acquired by Amazon, September 2015.
10. **Tunessence:** Tunessence developed software that provides a fun way to learn guitar. Their software listens to the learner play and provides note-by-note feedback, guiding the learner through their favorite songs. Acquired by Hal Leonard May 1, 2015.
11. **Traansmission:** Traansmission is a platform for shippers and truckers that keeps all shipments, customers and driver data in one place to reduce the time to move freight. Acquired by Shiplync 2017.

Indirect CMU Companies – Without CMU IP

Cleantech/energy

1. **Hillside Hydro:** Hillside Hydro has developed a micro hydroelectric generator to recharge electronic devices from moving water. Their design harnesses the kinetic energy of moving water to spin a turbine. The energy generated is stored in an internal battery while the device is in the water. Once removed, the energy can be used to charge any devices via USB.
2. **Hyllion:** Hyllion has developed an add-on hybrid suspension system for long haul, over-the-road delivery fleets. Fuel accounts for nearly 40 percent of operating costs in the trucking industry. Use of the Hyllion hybrid system reduces energy consumption by over 30 percent with a return on investment in less than one year. The system uses regenerative braking to capture power when the vehicle is slowing down and reuses it to accelerate — reducing fuel consumption. AN, VC
3. **KOPO:** KOPO creates culturally appropriate, sustainable solutions to developing-world problems. Using passive solar energy, the KOPO can make river water safe to drink, and the KOPO roller significantly reduces the time and effort required to transport water. ED
4. **RoBotany:** RoBotany is an indoor vertical farming business that uses automated robotics and software analytics. Their patent-pending technology improves labor efficiency and crop output



while also providing an unprecedented level of data analysis for optimization from seed to harvest. AN, VC

5. **SolePower:** SolePower is an innovative technology company striving to power small mobile electronic devices through the use of a person's everyday movement. First, a cut-to-fit SolePower insole is placed in any shoe. As an individual walks, the power generated is stored in an external Power Pack. This Power Pack is waterproof and can be placed inside a fabric holster that integrates with the shoelaces to create a secure and comfortable attachment. Mobile devices are then charged at the same rate as via a computer by connecting the device to the Power Pack's USB port. This invention, developed while the researchers were students at CMU, has won several awards including a Popular Science 2014 invention award, an Africa Energy Award for Innovator of the Year, and AOL co-founder Steve Case's Rise of the Rest's Innovation Award. AC, AN, ED
6. **SparkMeter:** SparkMeter provides electricity meters for low-income households throughout the world. Central grid utilities, local initiatives, social entrepreneurs and global institutions around the world are striving to expand electricity access, yet sustainable business models to deliver grid-level electricity to these populations remain rare. The SparkMeter system enables grid operators to implement pre-payment as well as real-time monitoring and control to improve their ability to deliver electricity to low-income customers. By improving cost recovery, these electric grids become more reliable — a better outcome for customers whose only alternatives are expensive, inefficient and dangerous fuels like kerosene and candles. ED

Robotics

1. **Choitek:** Choitek builds advanced human-size robots for students, educators, hobbyists, and researchers. Choitek's first product is the Megamark, a multipurpose mobile manipulator.

Consumer Products

1. **BeatBots:** BeatBots is a robot design studio that creates interactive characters for research, entertainment, therapy, education, art, and toys. The studio designs and fabricates mechanisms, exteriors, electronics, and software. It partners with toy companies and advertising firms on licensed projects, performs contract services for clients in the media and entertainment sector, and collaborates with institutions on research involving its robots. Its first products were My Keepon and Keepon Pro. (My Keepon rights licensed).
2. **Brew Gentlemen:** The Brew Gentlemen Beer Co. is a craft brewery located in the historic steel town of Braddock, PA. They create exceptional craft beer for Pittsburgh and beyond by merging tradition and exploration - a curious take on classic style. AN
3. **Digital Dream Labs:** DDL develops toy-to-tablet STEM enrichment products for the K-5 schools and individual consumer. They have a series of products sold in stores and online. AC, AN, ED
4. **Midnight Madness Distilling:** Midnight Madness Distilling (MMD) is the creator of the Faber brand of vodka, rum and gin. To generate revenue during brand development, MMD sells craft spirits under the brand Fortis, as well as numerous private label spirits across Pennsylvania. OFEF



5. **ZenRez:** ZenRez provides a yield management pricing technology and suite of software tools to help fitness studios increase the effectiveness of their acquisition and retention efforts. In addition, ZenRez marketplace provides consumers the best experience for discovering and booking the highest quality classes at the best prices with no monthly membership or fees. From yoga to cycling, boot camp to barre, ZenRez is the perfect way to book same-day. VC

Hardware

1. **Skycision:** Skycision provides a crop management Software-as-a Service solution to farmers and vintners that deploys an off the shelf DJI drone to effectively and efficiently scout the farmers' fields or vines. Skycision leverages remote sensing techniques in analyzing the imagery collected to feed the farmer actionable insights so they can identify and remediate any potential threats to their crops. AC, AN
2. **Wise Telemetry:** In the \$33 billion global compressed gas market, no technology exists for intelligently monitoring gas supply levels. Wise Telemetry solves this problem with patent-pending smart regulators that help industrial and specialty gas providers see real-time customer demand to optimize their delivery network for cost efficiency. AC, AN

Software

1. **101:** 101 is an educational technology company that produces a series of laptop and mobile applications that provides active learning and real-time access to students work. Their first product is Chem101 where students receive answer-specific feedback on every built-in problem and identifies missed concepts when creating Lewis molecules. The instructors receive class performance in real time for every assigned problem with the three most common mistakes highlighted. AC
2. **Aero Laboratories:** Aero Laboratories makes large scale inspections and surveys simple and practical by maximizing UAV capabilities and artificial intelligence to identify and extract what is important. They provide services to utilities for surveying the status of power lines, environment and coastal organizations, agriculture, and first responders.
3. **Antecea:** Antecea provides a series of apps that enables users to access their files, and control their computers using iPhones, iTouch or iPads from any location.
4. **Baloonr:** Baloonr removes bias from group work and decision-making - across teams, both internal and external. Their platform (web, iOS app, and Slack integration) levels the playing field and makes it possible to anonymously surface and prioritize information, feedback, and insights that companies can't get any other way. Several Fortune 500 companies are currently using their platform. AC, AN, VC
5. **BlastPoint:** BlastPoint makes big, expensive data research accessible to small and medium enterprises and non-profits that otherwise would not be able to afford it. Using Blast point's simple interface, users can learn detailed information about a place, benchmark results, and use scoring to discover hidden opportunities. AC
6. **Bridge for Billions:** Bridge for Billions is an online incubator that helps early-stage entrepreneurs globally to structure, develop and refine their businesses with a mentor. The collaborative platform provides guided tasks, deadlines to obtain 8 interactive infographics. As of 2017, the



program has incubated over 120 entrepreneurs from 22 countries with help from 146 volunteer mentors. CF

7. **Dynamics:** Dynamics produces next-generation interactive payment cards that utilize programmable magnetic stripes to communicate dynamic information to the 60 million 1970's era magnetic stripe readers that are used in their day to day payment card transactions. Their Wallet Card product, a connected, secure payment card won the Best of Innovation Award at CES 2018 VC, Mastercard
8. **Evolute:** Evolute makes the datacenter simpler by providing a software ecosystem optimized for IT administrators. By integrating server, storage and network resources into a turnkey hyper-converged platform, their datacenter control panel makes it easy to be production-ready from day one. AC
9. **Inventory Connection:** Inventory Connection provides a platform allowing vendors to receive real-time product data empowering Sales Representatives to spend more time selling and less time counting. AC
10. **Kermdinger Studios:** Kermdinger Studios is an independent video game development studio that offers BOONDOGL, the world's first platform agnostic video game marketplace. Their next product is Jump, the world's first multiplatform video game subscription service. Think: Netflix for Digital Games. AC, VC
11. **Solvvy:** An intelligent, web-powered problem-solving assistant. Solvvy immediately gives you the best solutions on the Web when you simply describe your problem in plain English, saving you a ton of valuable time that you would have spent refining keyword searches and combing through hundreds of discussion forum posts. AN, VC
12. **Stitchbridge:** Stitchbridge is a service platform and tools to help creators make interactive virtual reality films. AC
13. **Viazi:** Viazi creates customizable solutions to complex scheduling problems. Their initial product allows universities to quickly assign rooms for classes in a matter of minutes, a task that traditionally takes several man-days to accomplish.
14. **VIT:** VIT is a health and safety company using smart technology to track, evaluate and improve physical wellness. By identifying patterns and behaviors that cause illness and injury, our products prevent incidents from occurring and save healthcare costs. Arc, their first product identifies high-risk factors for warehouse employees, helping to prevent behavior that leads to injury. AC

Medical Devices/Biotech

1. **AbiliLife:** AbiliLife is a company dedicated to designing and developing products to improve the quality of life for patients with Parkinson's and other neurodegenerative diseases. Their first product is Calibrace, designed specifically for Parkinson's patients. AC
2. **Chiropraktor:** Chiropraktor is a training device for chiropractor students to practice manipulations. Their first product is a "CPR Like Dummy" that will predominately mimic misalignments involving rotation of the vertebrae and posterior/anterior translation.



- 3. PHRQL:** PHRQL Provides e-wellness management systems that deliver medical nutrition therapy, diabetes management education, and wellness counseling. PHRQL is operating in over 17 states. AC, AN, ED, VC
- 4. Qualaris:** Qualaris Healthcare Solutions, Inc. develops a patient safety platform to monitor the completion of clinical practices for patient safety. Its platform is used to improve clinical practices, such as hand hygiene through information delivery; provide patient insights to healthcare professionals; and deliver information and reminders for patient care in hospitals. OFEF, ED
- 5. REBIScan:** REBIScan is a medical device and data analytics firm developing pediatric vision scanners to detect serious eye conditions. SBIR, OFEF
- 6. RistCall:** RistCall helps hospitals & senior care communities to improve patient safety (reduce falls) & satisfaction (HCAHPS) scores through wearable technology, updating the traditional call bell system. AC
- 7. SemanticMD:** SemanticMD provides a SaaS-based platform that enables the rapid training of medical image analysis applications and classifiers. Its platform can be deployed either over the cloud or on-premises and supports 2D and 3D medical images in addition to ultrasound videos.
- 8. Treatspace:** Treatspace is a SaaS healthcare platform that enables high-performance referral management, powers online patient engagement, and facilitates clinical collaboration. Treatspace changes the way primary care, specialty care, and hospital-based systems collaborate in closed-loop, HIPPA compliant referral management and care coordination. AC, AN, VC

Chemistry and Materials Science

Direct CMU Companies – With CMU IP

Cleantech/energy

- 1. Platypus, LLC:** Platypus LLC, a CMU spin-off company, manufactures small, low-cost autonomous robotic boats with the ability to sense environmental contaminants in large areas of calm water along with other critical data such as water depth, dissolved oxygen and pH. The boats can work cooperatively, potentially in large groups, for environmental monitoring needs associated with the petrochemical industry (such as hydraulic fracturing), fish farming, plus waterway and dam management. Such tasks using the boats can be done more cheaply, efficiently and quickly than by existing autonomous or manned boats. Each robotic boat uses a base station that can communicate using wireless, 3G or EDGE within a 1.5-mile range. SBIR, STTR
- 2. Rapid Flow Technologies:** Rapid Flow Technologies, a CMU spin-off, is an innovative approach to traffic signal control, combining research from artificial intelligence and traffic theory to optimize the performance of signals for the traffic that is actually on the road. As a result, this technology improves traffic flow for both urban grids and corridors, leading to less waiting, reduced congestion, shorter trips, less pollution and happier drivers. A Pittsburgh demonstration project on nine intersections reduced travel time by 26 percent. The demonstration project is being expanded to 31 intersections. SBIR



Robotics

1. **Hebi Robotics:** CMU researchers have developed a family of core modular robotic components enabling a plug-and-play approach to assembling robotic arms that will reduce the cost of assembly and programming. The modular architecture and data collection system can apply to virtually every data acquisition and controller system present in any complex system like an industrial setting, remote data network, etc. Funded by Innovation Works. Investment made by strategic corporate partner 2016.

Social Networking/Mobile Computing

1. **Classroom Salon:** Classroom Salon is an online platform to create active and dynamic communities around texts. Salon permits annotation of and collaboration around texts among large groups, and provides visualization tools that display “hot spots”, similarities and difference, and scales. Salon has already been used as a learning platform, and has enormous potential as a social media tool to rationalize and monetize the vast quantities of comments generated around online text.

Software

1. **DataSquid:** DataSquid leverages cutting edge data visualization technology to help users gain new insights on their data while providing details of the data not typically available in a graphical tool. AC
2. **Duolingo:** Duolingo provides a free system to learn a new language, while your online work functions to translate documents. The Company was launched by the founder of ReCaptcha with backing from Union Square Ventures. Duolingo was named as Apple’s App of the Year in 2013. The Company raised Series C round from NEA, Union Square, Kleiner Perkins and others in 2014; and \$45M in 2015 in a round led by Google Ventures.
3. **LeanFM Technologies:** Lean FM Technologies is a lifecycle software solution for economic, proactive and intelligent Facilities Management. Every year, operating the 5 million commercial buildings in the U.S. costs \$700 billion. The efficiency of facilities management (FM) is low due to the complexity of buildings and limited access to information. By leveraging Building Information Modeling (BIM) and cloud computing technology, Lean FM addresses this challenge by integrating the heterogeneous building information that is recorded in design drawings, equipment manuals, building automation systems and computerized maintenance management systems. SBIR
4. **RoadBotics:** RoadBotics, an upcoming CMU spinoff company, is developing a computer program to detect potholes, cracks and other irregularities as well as snow conditions on roads; and road signage conditions and visibility. Mounted on the windshield of a car or plow, a camera captures images of the street and measures the severity of potholes, cracks and weather. Utilizing computer vision and machine learning, the irregularities/conditions are analyzed and mapped as a tool for decision makers.

Social Ventures

1. **Marinus Analytics:** Researchers at CMU have developed methods to detect patterns of activity on the internet that are indicative of human trafficking activity. Prototypes are in use by a variety of federal and local law enforcement agencies. ED, NSF, SBIR

Medical Devices/Biotech

1. **Accel Diagnostics:** Accel Diagnostics has developed a lab-on-chip protein diagnostic platform that enables inexpensive, disposable, credit-card sized devices to be used for the rapid diagnosis of infectious and chronic diseases at the point-of-care. Enzium: Enzium develops and markets the world's most advanced and highly specific Protease Activity Sensors, with applications in the diagnostic and Life Science industries. Enzium's proprietary reagent platform unleashes the power of protease biomarkers and fingerprints to diagnose disease. AC, SBIR, OFEF
2. **Peca Labs:** Peca Labs is a medical device product development company specializing in finding solutions for diseases with small patient populations. Peca Labs has focused initially on those diseases that affect the pediatric cardiovascular system. The Masa Valve, a patient-specific heart valve for pediatric RVOT reconstruction, has been implanted successfully in patients with superior results to its only market competitor. AN, VC
3. **PNA Innovations:** CDF Therapeutics has developed a synthetic DNA analogue called "gammaPNA" which shows superior properties in numerous biotechnology applications. These molecules are used for targeting of natural DNA and RNA as the basis for laboratory research, clinical, forensics and environmental diagnostics assays, and therapeutics. PNA Innovations raised an A Round in April 2016.
4. **QuantMD:** QuantMD is a SaaS healthcare medical image analytics disease diagnostics company that provides technology and consulting solutions to augment efficiency of existing healthcare infrastructures. QuantMD's technology can detect coronary heart disease at the earliest stage through a proprietary imaging service. OFEF,
5. **Rubitection:** Rubitection developed specific technology, the Rubitect, to help healthcare institutions manage pressure ulcers (PUs) more effectively by improving the accuracy of early pressure ulcer diagnosis. The Rubitect addresses the clinical problems associated with the subjective manual blanch test, the clinical standard, by providing a reliable and quantitative method for diagnosing PUs. Funded by Innovation Works. SBIR, OFEF, ED

Chemistry and Materials Science

1. **LumiShield Technologies:** LumiShield has developed a novel process for coating aluminum on steel for corrosion resistance. This technology simplifies the process without a volatile and flammable medium, and the aluminum deposition is superior to competing methods. SBIR, ED

Early Stage/Emerging CMU Companies

Cleantech/energy

1. **D-Power Net:** D-Power Net is developing software that will enable dynamic, distributed, parallel management of load balancing in electric power distribution networks. Potential applications include management of micro grids; integration of intermittent power sources; communication/control for demand response programs at the utility and larger-user levels; and parallelization of computing in centrally-controlled utilities to increase the speed of decision-making, reduce vulnerabilities and reduce reserve capacity requirements. This company is a participant in NSF's I-Corps Program. D-Power Net was approved as a Department of Energy



SHINES project to demonstrate “Sustainable and Holistic Integration of Energy Storage and Solar Photovoltaics.” For their project, they will dynamically link solar production, storage and a utility grid. ED

2. **Teratonix:** Teratonix, an upcoming CMU spin-off, is developing high-speed diodes that have extremely high cut-off frequencies, in the hundreds of terahertz range. Other technologies can work in the high gigahertz and single digit terahertz range. The ability to operate in frequency ranges at that scale could lead to a variety of applications including medical imaging without radiation, aerial surveillance through clouds, airport security screening, pharmaceutical product inspection and energy harvesting (the capturing and storage of energy from an external power device like a solar panel) with potential efficiencies of 80 percent. Teratonix is focused on the development of energy harvesting devices that could initially power sensors, phones and computers. In the future, it could provide room air conditioning while generating power. Funded by Innovation Works.

Robotics

1. **Nabla Ascent:** Researchers at CMU are developing a suite of software for autonomous navigation of unmanned aerial vehicles, to enable obstacle avoidance, scene analysis, object detection and data collection.
2. **Four Growers:** Four Growers is developing a robotic platform to harvest indoor farm produce. Their first robot will harvest tomatoes.

Consumer Products

1. **Nimbus:** Nimbus is a robotic shoe accessory company. Their first product are smart motorized shoes that “will easily double your walking speed” and know when to slow down, stop, and lock. PE
2. **Rise and Grind:** Rise and Grind produces a hangover prevention product using a unique blend of vitamins, antioxidants, and neuro-enhancing ingredients.

Hardware

1. **InvenTower:** InvenTower is a modular inventory system for makers spaces and retailers with a large inventory of products contained in multiple bins. Using its easy to install indexing system, and LED lights, a customer or user can simply click a tablet or app on the item desired. The location of the specific bin will light up.

Software

1. **Comyoot:** App platform that allows users to share services, skills and jobs with others in public or private communities.
2. **Evize:** Coaching and team management system for eSports with features such as a unique coach interface, team playbook overlay, player attendance tracker, player teammate rating and practice scheduling.
3. **iCareerPaths:** CMU researchers are developing a career counseling system that mines resume data to enable people to understand career trajectories, and the skills that need to be developed to achieve mid and long term career goals. The system uses data mining and machine intelligence

to extract information and provide recommendations. Existing career services technologies only support targeted career searches, requiring seekers to know position titles, likely employers, and appropriate posting locations. This system will help job seekers at any level of their careers and students that have limited awareness of their future career, and will provide a systematic data-driven tool that will help them identify alternatives and visualize their career future and paths. Compared to other technologies this approach uses a more user-centered analytic tool based on their own needs and skills.

4. **Music Everywhere:** Music Everywhere is a creative studio that designs Augmented Reality (AR) musical experiences and musical education applications. They were the 1st Prize Worldwide Winner of the Microsoft HoloLens Developer Contest. AC
5. **NoRILLA:** "NoRILLA" (Novel Research-based intelligent Lifelong Learning Apparatus) is a mixed-reality (patent-pending) technology set-up that bridges physical and virtual worlds to teach a variety of subjects. The system includes software and hardware components, including a computer depth camera (Microsoft's Kinect for Windows) to provide personalized feedback while experimenting in the real world. AC, NSF
6. **Processly:** Processly is a digital whiteboard for the modern classroom. It allows students to showcase their process as there are creating their products, or organizing their thoughts. It also allows for real-time discussion and reflection between team mates and instructors.
7. **Shine Registry:** Shine Registry is a wedding registry style platform for female entrepreneurs to ask for substantive support from their community.
8. **Zensors:** The promise of "smart" homes, workplaces, schools, and other environments has long been championed. Unattractive, however, has been the cost to run wires and install sensors. More critically, raw sensor data tends not to align with the types of questions humans wish to ask, e.g., "do I need to restock my pantry?" Zensors is a new sensing approach that fuses real-time human intelligence from online crowd workers with automatic approaches to provide robust, adaptive, and readily deployable intelligent sensors. With Zensors, users can go from a natural language question to live sensor feed in less than 60 seconds. Through a standard sensing API, Zensors can enable a variety of rich end-user applications and moves us closer to the vision of responsive, intelligent environments.

Medical Devices/Biotech

1. **BehAlvior:** BehAlvior leverages machine learning to predict and prevent opioid relapse and overdose through wearables. This provides intervention before the addict relapses. They are one of the finalists in the \$5 million IBM Watson AI XPRIZE challenge. AC
2. **Biohybrid Solutions:** Biohybrid Solutions is commercializing multiple applications of polymer-based protein engineering technology, based on the controlled radical polymerization. This technology allows the targeted and predicted modification of proteins with polymers, which results in protein-polymer conjugates that have magnitude higher efficacy, and are stable in environments hostile to unmodified proteins, such as low or high pH, high temperatures and organic solvents. Such technology is aimed to extend protein applications in such areas as pharmaceuticals, biocatalysts and energy. SBIR
3. **CurvyQ (formerly Palpaid):** Researchers at CMU have developed an inexpensive, sensitive, easy-to-use handheld device that allows doctors and patients to literally see breast lumps – in real



time. The platform technology is an ingenious, elastic lens that, when applied against the breast, reveals underlying stiff tissues, such as cysts or cancerous lesions. The PalpAid™ system combined with an inexpensive camera and light source to record and/or transmit images to a smartphone.

- 4. Glu10:** Researchers at CMU have developed an accurate sensor that detects gluten proteins of all sizes and forms that can create an allergic or inflammatory response. The portable electrically responsive sensor for gluten proteins can be integrated into mobile devices like smartphones, leading to point-of-care sensors that are more user-friendly and cost-effective compared to immunoassays. The sensor materials are highly scalable and the electrical response signals can be easily processed enabling integration of these sensors into everyday devices like cutlery and mobile phones, improving user-friendliness, lowering equipment costs.
- 5. HuMoTech:** HuMoTech (Human Motion Technologies) is commercializing several CMU technologies related to prosthetics for lower-limb amputees, including systems to mimic available prosthetic devices as an aid in prescribing an appropriate prosthetic device, as well as new power-assisted prosthetic devices.
- 6. Impact Proteomics:** Extraction of proteins for analysis from samples that contain heterogeneous mixtures of varying concentrations, is a crucial but challenging activity in research and clinical diagnostics. CMU researchers are developing hardware and reagent systems that would significantly reduce the time, complexity and cost of isolating proteins and preparing them for mass spec analysis.

Chemistry and Materials Science

- 1. Arieca:** CMU researchers are developing soft and stretchable materials with enhanced electrical and thermal properties. These materials can be used as circuit wiring, sensors, and passive heat exchangers for wearable electronics.
- 2. ZeroSuit:** CMU researchers are developing materials and methods to manufacture rolls of low-cost wearable patches with embedded sensing and wireless transmission. Material will sense biological data like heart rate, temperature, blood oxygenation, etc., and will likely be sold to military and hospital agencies.



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