Operations and Mission Support

2021

Clusiv, Technology Driving Inclusion

Clusiv is the creator of the world's first e-learning and accessible onboarding platform built for and by blind and visually impaired people. Clusiv improves employment outcomes for government agencies, enables organizations of all sizes to hire & train blind and visually impaired people for positions they never could have prior, and gives the blind community access to the digital age of technical and remote jobs at scale for the first time in history.

XTRU: Cost Effective Readiness for the DOD

Combat damage is difficult to predict, making in-theater spare parts inventory management difficult and costly. These repair parts also require large and expensive tools or fixtures, making supply chain logistics complex. Field-able XTRU is a digital-thread-driven suite of tool-free forming and machining technologies, packaged as an integrated solution, which enables organic manufacturing of airframe components. This results in increased asset availability and simplified supply chain logistics, enabling cost effective readiness for the DOD.

Shadow Tool Staging Systems

Shadow Tool Staging Systems introduces an ingenious, patented advancement for quick hand tool use and simple tool inventory control vs. the century-old toolbox design. Shadow Systems openly display tools for constant physical and visual access, creating an efficient tool-use environment. Unsurpassed ergonomic mobility allows repair wherever needed. All power and electronic devices are also supported. Shadow's dedicated tool positions aid tool selection and return, while providing simple intuitive tool inventory control. Mechanics instantly see if a tool is missing, eliminate FOD damage to assets, saving millions to our taxpayers, or more importantly saving military personnel injury and/or lives.

2020

The Sustainment Market Research Product and the Sustainment Industrial Base Intelligence Product

Sustainment is an online software platform that efficiently connects manufacturing vendors and heavy industry to enable American manufacturing. We built the Sustainment platform to enable small and medium-sized businesses such as machine shops, metalworking companies, engineering services, and manufacturing companies. Our platform gives these businesses the ability to showcase to, and be discovered by, government and large commercial procurement teams. These procurement teams receive the benefit of a radically streamlined effort for market research and vendor discovery for manufacturing services and the broader manufacturing ecosystem.

Tether Tech Safety Wheel End Safety System

When bearing failure, lug nut failure or lug stud failure occurs on a semi-trailer axle, the TTS WESS will keep wheel assembly from separating from the trailer. In the event of bearing failure, the TTS WESS will reduce or nullify damage to spindle and provide mobility during a combat situation to reach safe haven for repairs. The TTS WESS will reduce injury, property damage, and fatalities by preventing wheel separation from lug nut and lug stud failures, as well as bearing failures.

BattleDeck Trailer Flooring System

We have truly created an innovative solution to a decades-old problem. VertiPrime has developed the BattleDeck® Trailer Floor System. With BattleDeck® we propose not just a replacement of traditional flooring materials; but also, a complete redesign of trailer decking for tactical use. From lighter in weight, flame resistance, complete protection against UV damage to 570% stronger when compared to the current Apitong wood.

Smart Tension Guard

Smart Tension Guard is a product that will be used in logistic applications. It will deliver immediate results to a portable electronic device of any irregularities with the tension of all tie down applications. This will provide efficiency and peace of mind for all private and public consumers, by confirming securement of their load being transported. In a military application it will also provide safety for operators not needing to exit the vehicle to check on load securement.

G-Drobe 360 Utility Lighting Harness

Techrein Public Safety Innovation is a wearable technology startup providing innovative safety solutions to personal protective equipment for government workers who work or engage in high risk/low lighting environments. Techrein's mission is to save lives by integrating wearable technology in everyday activities.

X-VAP Portable Self-Contained Solar Desalination

Katz Water Technologies will use solar desalination to provide sustainable sources of purified water. This water can meet the DOD mission needs for drinking, training, weapons testing, fire suppression, and sanitation. The technology is a patented heat exchanger which can perform the entire water purification process within one small, modular, and inexpensive piece of equipment. Using exclusively solar power, remote forward deployments would have access to freshwater in areas without reliable power or thermal energy source. The system is designed to be easily transported by standard military vehicles and could be deployed anywhere with a previously unusable water source like seawater, contaminated lakes, and streams, or compromised well water.

My Smart Plans

MySmartPlans is transforming Knowledge for all stakeholders, MySmartPlans supports all data entry for all stakeholders, our staff (PIMS) along with our propritery software provides audit ready data information on the project, we eliminate corruption, change orders and support life cycle management. MySmartPlans has supported over 1500 projects, including the NNSA, GSA, Corps of Engineers, and the Air Force.

Autonomous D2D Payload Transfer

Embracing biomimicry, swarm elements must physically interface with one another to aggregate the most efficient, modern warfare solutions. Autonomous drone to drone payload transfer is an elemental platform technology required for intraswarm cohesion; solving mission logistics and enabling significant advances in the swarm's ability to coordinate its efforts for complex and extended tasks.

Autonomous operators within the swarm will be specially designed to facilitate the needs of the whole, by possessing the ability to mechanically exchange payloads. This unique ability affords warfighting capabilities currently unattainable:

- Scalable and modular logistics solution with the ability to integrate services across a range of environments without mission interruption
- Indefinite mission range and duration
- Secure communication strategies, multi-dimensional and multi-modal ● Real time responsive tactics for a dynamic and continuously evolving theatre
- Discriminately target and neutralize individual micro targets
- Reduce unwanted collateral damage to persons or property

Facility Management Hardware & Software System

Qwik Response Systems is a customizable Facilities Management Hardware and Software System that connects every worker in the workplace with our standard universal military grade QRS IOT device. Qwik Response incorporates cutting edge 21st century technology into the QRS IOT Device... such as asset tracking, drone deployment, push to talk, real time reporting, text, talk, email, barometric/altitude reading and more all in one device eliminating the need for multiple devices being carried around. The QRS IOT device brings the "Internet of Things" into the battlefield, field hospital or military base increasing communication, accountability, productivity and safety for all military personnel.

Direct Digital Manufacturing of Aircraft Components in Combat Theatre XTRU is a suite of manufacturing technologies, for making airframe components from metal sheets, bars and extrusions. Developed to produce structural components in aircraft grade aluminum without tooling. It combines two well understood forming technologies in a unique manner. An industrial prototype (TRL 7) has been developed to form extrusions that make up the structural parts of airframes. High-value Combat Asset repair parts often require expedited shipping, with a resulting large fossil fuel foot-print. In-theater asset readiness is increased by local manufacturing capacity, while supply chain logistics are simplified for a range of common repairs.

Nomad Security Fence System

The Nomad Security Fence System is a portable protection fence that does not penetrate the ground or use external weights. The patented post assembly uses steel picket fence panels that can be installed on multiple terrains without the use of equipment and is easily transported. The modular components allow for added security and technology accessories. The Nomad system is a force multiplier that can fit into any technology category that would benefit from higher security but is restrained by ground conditions.

Drone hosted wireless sniffer

A drone hosted long range fully secure, undetectable wireless sniffer

Secure cellular network in a backpack

Multi frequency, undetectable complete cellular network with in backpack

SECURE HUMAN SIM

DNA linked human SIM for secure biometric identity

HEMPIRE NANOTHERM CASING

Hemp based light weight nanomaterial thermal case

Nov8tive Air Products

Our product line consist of the MP2 Multi-Port Shutoff Valve and the Eco-Reveal Brand of Heating, Air-conditioning, and Refrigeration Equipment and related HVACR Products. (A) The Patented MP2 Multi-Port Shutoff Valve is a simple device, which provides isolation control of the four main components of the refrigeration circuit, ie; Evaporator, Condenser, Liquid Line, and Suction Line for refrigerant leak detection.

      (B) The Eco-Reveal Brand of Air-conditioning and Refrigeration Equipment features the MP2 Multi-Port Shutoff Valve, which allows our brand to have in place an accurate and timesaving means of refrigerant leak detection. Our brand is the only brand on the market that features this eco-friendly capability.

2019

Turbo Pure Water

Protect the warfighter and the aircraft on which they rely. Our customizable high purity water turbine rinse systems mitigate corrosion, improve operational readiness and reduce maintenance costs by millions. Turbo Pure Water™ systems are an essential piece of GSE, trusted by the U.S. Coast Guard and Army Reserve National Guard. These systems also support the health of the warfighter by providing high purity water for medical applications and biologically-secure drinking water anywhere in the world.

Aerial Vehicle Autonomous Anchoring System (AVAAS)

The Aerial Vehicle Autonomous Anchoring System (AVAAS) technology automatically and autonomously anchors Vertical-Take-off-and-Landing (VTOL) Aerial Vehicles (AVs) to helipads/vertiports just after landing, and automatically and autonomously un-anchors the said AVs just prior to take-off. It also automatically and autonomously connects grid power to AVs upon landing, and automatically and autonomously disconnects grid power upon take-off. The AVAAS technology facilitates safe and reliable loading/unloading of cargo and passengers, keeps AVs from moving or blowing off elevated helipads/vertiports in high winds, provides grid power when parked, reduces manual tasks, and reduces risk of injury/death to personnel and damage to property/equipment.

Full Length Overhead Cargo Rack System for UTV's

This heavy-duty full-length overhead cargo rack provides additional space on a UTV to carry long or bulky items such as posts, shovels, ladders, saws, lumber and pipe. This rack also provides the driver and passenger with heavy duty overhead protection from falling objects. Available accessories: 1) side cargo baskets to haul items such as buckets, supplies and smaller hand tools.

2) Wire spooling adapter. 3) Manual strap winch that can be used to lift heavy items into the bed of the vehicle and secure overhead loads.

Handheld, Near Real Time, 105+ Language, Standalone Translation Device TRANSL8-lite provides a handheld device capable of real-time translations of audio, powered by our patented

Global Awareness (GA) Artificial Intelligence (AI) platform. GA conducts Automatic Language Detection & Translation (ALD&T), Natural Language Processing (NLP), and Neural Machine Translation (NMT) for 105 languages currently. The current output for translated audio streams is in text format. Able to also conduct voice extraction, indexing, and matching as well as machine analytics of translated audio streams to alert users to intercepts of interest based in user input criteria, as well as meta data exploitation and analysis.

Shard Is a Vertical Take Off High Altitude Unmanned Aerial System

Shard is a new Vertical take-off UAS currently in development, Our VTO UAS is deployable at high altitudes without the need for a runway, Shard is a bullet resistant UAS available in 2 sizes 4ft and 9ft. The 4ft UAS is suitable for aid to personnel on tactical missions. The 9ft UAS is designed for long range reconnaissance and support. It is capable of transporting goods up to 40lbs and delivering goods to assigned locations.

Project Odysseus: Aerospace Manufacturing Supply Chain Modernization Technology Project Odysseus is a technology solution addressing DOD's replacement part issues. These supply chain issues are numerous and have existed for years. They include alternate sourcing needs, part obsolescence, cybersecurity risks, and obsolete technical data. By layering emerging technologies of distributed ledger, Internet-of-Things, and A.I., Odysseus inverts the process and radically alters the way a supply chain operates. Initially focusing on the Air Force's aging fleet of fighter jets and bombers, our solution could save DOD upwards of $1 Billion annually; eliminate cyber threats; expand the vendor base; and accelerate supply chain throughput.

Minimum Risk, Non-Lethal Liquid Feral Hog Deterrent

All natural, non-lethal feral hog deterrent developed as a liquid spray that can be applied as a barrier along desired property boundaries to repel feral swine from an area with additional utilization as a seed treatment to protect crop emergence. The product is designed for use on residential, commercial, governmental, tribal, recreational, and agricultural properties to protect valuable assets and reduce the financial loss created by feral hog damage. With an estimated nationwide economic impact from damage of $2 billion annually this product can protect airports, cemeteries, parks, waterways, green spaces, and other sensitive areas from feral hog impact.

Autonomous Giant Vertical Takeoff and Landing Robotic Platforms

Aerial Vehicle Automation builds giant vertical takeoff and landing robotic drone platforms that make 1500 lbs+ of thrust. These autonomous flying robots are designed to carry anything 200+ lbs over 300 miles. They can reach remote areas without the need for road or runway. Operating costs are 1/10th that of traditional helicopters. Transformative applications include

transport of supplies, reconnaissance, remote medivac, defense and several other exciting applications that are under wraps for now.

Compact Multi-Sensor Tracking System

Allosense Incorporated provides tagging, tracking and locating technologies. The company currently designs and manufactures a compact sensor platform used for monitoring assets and targets in remote areas. The platform enables a robust, "always connected", suite of wireless communication radios along with sensing capabilities to report and fuse location, movement, magnetic, and acoustic information.

Building Autonomous Flight Platforms for use in The NAS (National Air Space) American Space Industries (ASI) has entered a Technology Partnership under a Space Act Agreement (SAA) with the National Aeronautics and Space Administration (NASA) to manufacture the SIERRA UAS Platform (Unmanned Aerial System). The ASI partnership with the Airborne Science Division of The Ames Research Center will provide engineering support to ASI along with mission support, as ASI builds a fleet of 10 aircraft to be deployed for Statewide and U.S Earth Resources missions (flights). The ASI-NASA Partnership will also provide a STEM and AERONAUTICS Curriculum to the State Colleges that will allow students to interact with and create Earth Resource Missions in Conjunction with ASI, NASA and State Colleges, learning valuable Earth Sciences Mission and Flight skills.

Cellular Network in a Backpack

How could you communicate with others if there is no infrastructure available? What would happen if there is a disaster and everything is wiped out? Arukona Self Surviving Cell Network, E-Cell, can provide wireless communication regardless of carriers in a matter of minutes. Behind the enemy lines E-Cell can create a fully encrypted communication to carry the mission without interruption or the need of a carrier. E-Cell is so light it can fit into a backpack. Yet it is so powerful it can provide coverage for several miles.

Secure Human Subscriber Identity Module (SIM)

Security is the most important item in everyone's lives. Unfortunately, nothing is as secure as we would like it to be. In the battle-field importance of a secure line is a life and death issue. HUMAN SIM is a DNA based encryption that is more secure than any other encryption technology. Humans have about 3 billion base pairs, for a total of about $4^{3,000,000,000}$ different DNA strands of human size. To get a repeat you'd need around $2^{3,000,000,000}$ people. In all time there will never be nearly this many people. Human SIM is THAT secure!

Shadow Tool Staging Systems

The patented Shadow Tool Staging Systems provides mechanics with simple ergonomic access to their hand tools for effective use. It openly displays tools for constant physical and visual access. Simple custom options offer each tool a dedicated location for rapid inventory control,

reducing tool inventory loss. Designed to be used at the mechanic's side allows seamless tool use for increased productivity.

Z210 Is a Remote Drop Release Aerial Accessory That Is Capable of Precisely Dropping Payloads from High Altitudes for Saving Lives

Z210 is a new remote-controlled Drop Release system that is currently being used to save lives by First Responders in Tulsa Oklahoma, Our Drop release system uses our Patent pending adapter with a stander Picatinny Rail system to attach to almost any UAS. Our Z210 Drop System is deployable at a faster rate than traditional technologies. When the Z210 is combined with a UAS it becomes a valuable lifesaving tool. The Z210 has an HD camera onboard which gives operators the clearest View possible and this improves the success rate delivers payloads that have to be on target. Currently the Z210 Is our smallest aerial release system and measures 10cm x 5cm x 3cm with a max payload of 10lbs. We are currently in development of a Larger stronger Drop systems which may be as large as 30cm long by 15cm wide with similar thickness as the Z210 around 4cm with the max payload around 1000lbs.

Emergency Flotation System (EFS)

Automatically and autonomously senses if an Aerial Vehicle (AV) lands in water, and inflates a sufficient number of independent Airbag Assemblies (depending on particular AV) to provide stable, upright flotation. The EFS provides flotation for AVs that land in water, enabling rescue of crew/passengers and recovery of cargo and the AV before they sink. It reduces the risk of injury/death to passengers, and damage/loss of cargo or the AV. It also contributes to providing a safe future Autonomous Transportation System (ATS) that will use autonomous AVs to transport cargo and passengers over land and water.

Portable, Non-Lethal, Vehicle-Stopping Barrier

The Cowboy Barrier protects personnel and facilities from rogue vehicles. Any vehicle, intentionally or accidentally, with only a foot on the accelerator, can be turned into a lethal weapon against your personnel or your facility. The Cowboy Barrier stands between weaponized vehicles and your people. The barrier is a non-lethal system that stops vehicles before they can inflict damage. It's portable, quick to set up and tear down, requires no maintenance, no electricity. Since the barrier does not physically attach to a surface, installation, use or removal does not damage or alter the street or road.

Emergency Evacuation Alert System™

When people are trapped in structures, the Emergency Evacuation Alert System or, (EEAS™) will provide three levels of real-time tactical information for emergency rescue. Easily installs in your home and is activated by hard wired switch, mini remote or smart device. Once activated, EEAS™ starts accurately broadcasting multiple levels of location data and key conditional factors for first responders. This tactical cloud-based data is accessible to rescuers from

anywhere in the US within seconds. This system can help save valuable time, resources, and lives.

Heavy Lift Unmanned Aerial Vehicles

Mobile Recon Systems enhances the delivery of high value services by UAVs -- supplies transport, inspections, surveillance, mapping, border patrol, search and rescue, and emergency first responders. Many of these uses are currently limited for UAVs due to limited lift capacity and endurance. We address these problems by designing and manufacturing a family of multi-rotor, vertical take-off UAVs, with industry leading lift capacity, functional flexibility, and flight time. Each model accommodates multiple components allowing for easily adding to and changing the UAV's mission. Each is also priced so our clients can save money over alternatives currently used for similar missions.

2018

Alyss Analytics - Soft skill metrics from 60 seconds of video.

Alyss is a machine learning, video analytics AI technology using video content, images, and audio waves to measure individual emotions, soft skills, and attributes which can be tracked and referenced over time to support strategic planning. The long-term benefit of Alyss is the ability to harness its predictive power thereby preserving and strengthening the human capital edge of the US military.

OnePager

OnePager software is used by project management organizations worldwide to create standardized timeline reports while saving time, money, and frustration. The software converts tabular project data from Microsoft Project or Excel into Gantt charts that are easy to customize, standardize, and share. If your organization manages large-scale projects, OnePager is a must have. Never build a Gantt chart by hand again!

Structural Concrete Mix for Construction for Electromagnetic Wave/Pulse Shielding The

conductive concrete technology addresses the national security needs for shielding electromagnetic pulses (EMP). An enclosure can provide shielding at frequencies from 10 kHz to 18 GHz. The construction cost is about 10% that of a Faraday cage or a shelter constructed with metal panels, which require high maintenance costs. Conductive concrete shelter is maintenance-free. The test results of a full-size conductive concrete shelter have shown 100~120 dB of shielding effectiveness. Conductive concrete can secure EM waveforms from C4ISR facilities. It is about twice as strong as normal concrete and is durable with a service life of 35 years.

Lift Nacelle

Copperhead Aeronautics is developing rotor replacement technology, referred to as a Lift Nacelle, for both drones and helicopters. By focusing on energy efficiency and elimination of moving parts Lift Nacelles can improve aircraft fuel consumption and reduce maintenance costs, while improving the aircraft top speed, operational range, and maximum payload.

Enduralock Vibration Resistant Fasteners

Enduralock offers numerous fastener designs, all intended for use in high vibration environments across numerous industries. All Enduralock fasteners are permanently locking, highly vibration-resistant, fully reversible and reusable, and may be reapplied using a blind approach. All Enduralock fasteners ensure ease of installation, reversibility, and reusability with standard sockets, and they provide for reduced time and cost of installation and maintenance. The National Aerospace Standard 1312-7 requires a self-locking nut to withstand 30,000 cycles of vibration. Enduralock's fasteners have withstood 300,000 cycles (10x the industry standard) without loosening. In customer specified testing, the fasteners survived 1 million cycles without any loosening.

Tenendus is an Artificial Intelligence One Solution Employment Referral Platform Tenendus product is an Artificial Intelligence one Solution Employment Referral Platform. This product is driven by Referral Incentives, Integrating Real-time and predictive analysis, Block chain methodologies and Robotic Process Automation of Cognitive technologies. > It is a very unique job search platform that rewards candidates for their participation, ensuring a larger pool and more quality options. Furthermore, this empowers the economy and provides rewards to current service men and women and veterans for their referrals. > Artificial intelligence provides detailed feedback on all aspects of the job posting or job seeking process including predicting time to hire, aiding with creating of the job post, intelligently matching candidates, and allowing recruiters to see a dynamic profile that is much more than a candidate's resume. With Tenendus, recruiters will achieve the fastest job placement of the most qualified candidates. > Economic development Engine for Federal government jobs and a unique solution for employment.

Small and medium duty commercial hovercraft

Hov Pod operate off-road and amphibiously over mud, riverbeds, shallow water/tidal regions, flooded land, rapids, shingle beaches, open water, grass, sand, desert, swamps, marshland, prairie, wetland, meadow, bogs, bayou, shore, weeds, submerged plants, snow, ice, shallow lakes, dried up salt marshes, rice paddy, sandbanks, roads, indeed any flat surface. Hov Pod leave no footprint on wild life or ecology. Hov Pod come in unique sizes, including a model that can carry up to 9 people or haul a 1500 lb (680 Kg) payload to a remote destination, flying at speeds up to 45 mph. Hov Pod solutions get first responders close to survivors during a disaster, move from water to land, survey remote areas, swarm an island, search a perimeter 24/7, engage insurgents at the border, ferry passengers, land on the beach or provide a unique

adventure experience to unexplored boundaries.

Intrinsic Dashboard: Measuring and Building Mental Skills for Performance The Intrinsic Dashboard is a software platform that permits military leaders to utilize predictive analytics to understand and unlock the mental potential of members of the armed forces. The platform utilizes a scientifically-validated psychometric assessment called the Intrinsic Profile, which measures members' self-motivation, grit, resilience, adaptability, integrity, and other predictors of performance. Individual and aggregate results on the Intrinsic Profile are then displayed within a customized dashboard which includes personalized strategies on how to build these skills in each person. This allows military leaders to analyze, explore, and filter data to identify and build exceptional military performers at every level.

Rotary Engine

The Person Rotary Internal Combustion Engine, (PRICE), is an entirely new, innovative engine design that has a greater power-to-weight ratio, far less complexity, and an exceptionally better specific fuel consumption than conventional reciprocating, rotary, and turbine engines.

Rumble's Situational Awareness and Intelligence Solution

In combat and security initiatives, real-time information is key to success. Having complete and current awareness of the situation enables effective action as the engagement unfolds. Rumble delivers real-time situational awareness by integrating all data points including drone surveillance, wearables, cameras, geofencing, facial recognition, sensors, task management, legacy data, existing system data, user inputs, and communication on a role-based mobile platform. The platform overlays existing software and hardware systems to integrate and present relevant information to participants in easy-to-read dashboards on mobile devices. Users see what is happening, share videos, pictures, and voice communications, and proactively address the threat.

Roobix - An electronic fuel ticket

Roobix was designed to solve the challenges associated with tracking aircraft fueling and aircraft fuel inventory. Roobix can be downloaded to any mobile device or tablet and allows the end user to easily create a paperless ticket. This electronic ticket can be shared immediately with multiple users including the front desk, pilots and fuel companies. Roobix was designed to reduce the errors associated with aircraft fueling while providing instant data to the end user to speed up reporting of inventory and payment. Roobix was designed for aviation, but would also be useful for other refueling operations.

Keronite Advanced Surface Treatment for Light Alloys

Keronite plasma electrolytic oxidation (PEO) surface treatment is applied to mission critical aluminum, magnesium, and titanium components to greatly extend endurance life, corrosion resistance, and performance. The unique, tightly controlled PEO ceramic layer that is formed on

the metal surface can be tailored to suit many applications, and meet extreme performance demands of severe operational conditions. Keronite simplifies engineering, design and labor efforts, and complies with strict legislative and environmental regulations. Keronite reduces cost, downtime, and programmed depot maintenance cycles for a wide range of Department of Defense assets.

Zramic (pronounced Z-ram'-ic), a Novel Corrosion Protective Nanostructured Coating

Advances in materials have a significant impact on future warfare and military instruments of power, which led to the creation of Zramic. Zramic is an innovative environmentally friendly nanostructured anti-corrosion coating. Zramic incorporates a two-layer approach that prevents the diffusion of corrosive species to the substrate, while providing localized substrate protection from corrosion. This capability is long lasting since Zramic provides a strong unique bonding to the substrate. Zramic decreases maintenance costs and the time assets spend in the depot, allowing for more efficient use of US DoD assets.

Rifle Barrel Optimization Sleeve

Ullr Performance Products, LLC is a Wyoming based start-up focused on the optimization of barrel performance and endurance. Our barrel sleeve increases accuracy, decreases thermal wear, manages barrel harmonics and extends the life of the barrel. Current barrel enhancements on the market are missing out on key optimization targets that Ullr's proprietary technology identifies and improves upon. With Ullr's barrel sleeve technology, barrel accuracy and lifespan will increase.

VRC COLD SPRAY APPLICATION DEVELOPMENT

VRC Metal Systems manufactures Cold Spray equipment that bonds metallic powders to nearly any metal surface. The high-pressure system deposits similar and dissimilar metals on most metallic surfaces even in previously impossible heat sensitive applications. VRC's supersonic cold spray equipment enables innovative solutions for repair, additive manufacturing and coatings for many industries including aerospace and defense. VRC has played an integral part in the approval of the repair process by using high-pressure cold spray to repair Army helicopters, Navy submarines and the B1-B Bomber in the Air Force. VRC is building on over $16 million in research and development efforts.

Blast-Wall

The Blast-Wall redirects jet wash into the air instead of across the ground. This provides a smaller footprint on the testing area. Each Blast Wall unit is mobile with a right & left used in tandem to make the area wider or smaller as needed. The Blast Wall uses an air over hydraulic jack system to assist with the mobility of each unit.

Composite Patch Repair Method

Composite repairs are often complex, time-consuming, and mechanic dependent. The current repair process is susceptible to user error and variability, calling into question the structural integrity of the repair patch. The presented technology includes a system that enables repair patches to be made with greater precision and speed. Through this technology, a damaged composite area can be scanned via an electronic handheld device with the data then being wirelessly transmitted to a manufacturing facility capable of immediately preparing the repair patch. This on-site scanning process significantly reduces the amount of time needed for preparing a repair patch.

Multifunctional Nanocomposite Material

The properties between layers of traditional composites are often the weakest. The composite's layers are bonded only by the matrix because the composites are manufactured using 2-D woven fabric reinforcement. 3 D reinforcements can be used in a composite, but such reinforcements make it difficult to control the composite's thickness, thereby limiting the composite's multifunctionality. The presented technology combats these issues by introducing helical carbon nanotubes (HCNTs) into the matrix of the composite. The HCNTs act as 3-D reinforcements, but without the traditional restrictions of 3-D reinforcements. This technology may provide superior mechanical, electrical, thermal, magnetic, and optical properties.

Electro-Mechanical Devices

A HIGH SECURITY HINGE that provides full interlocking of Door to Cabinet at Top, Bottom and both sides of cabinet. Can be used on small containers as well as large cabinets such as Vending machines. AN improved Crescent wrench that offers BI-DIRECTIONAL RATCHET ACTION that allows for the tightening or loosening of a bolt, WITHOUT REMOVING THE WRENCH and allows access to areas not possible with the conventional Crescent Wrench.

Kerberos TRANS-L8

Forward deployed warfighters face threats that are rapidly evolving and asymmetric. They are often surrounded by vast amounts of foreign and encrypted communication in the RF voice spectrum (100 KHz – 8 GHz) that represent valuable intelligence or describe a threat. TRANS-L8 will surveil the signal intelligence surrounding worldwide Forward Operating Bases (FOBs), embassies and consulates, and automatically – On-the-Fly- translate the language, identify potential threats and upon threat detection, send alerts to local and national assets – and all echelons in between. To put it simply: The Kerberos TRANS-L8 is a 24/7, never-tiring, always diligent, Linguist and SIGINT Analyst "in a box".

UAV Innovations and Transportation Inventions.

I am inventing technologies that do not exist, and am, designing a company for drone / UAV analytics, research, and data collections to sell to Govt, and other manufacturers around the

world. I expect this business to expand within three years to 50-100 people. Build wind tunnels, cold and heat rooms, for testing, and provide secure data to entities that need it. Several ideas will affect both law enforcement, wildlife rescue, and transportation. I have invented a Skyway over our current Highway system, and have an idea on how to isolate that into a much better system than is currently being used and flooding our worlds WIFI.

2017

Stretch Roll Forming (SRF)

Stretch Roll Forming (SRF) is a new manufacturing technology, for making parts from metal sheets, bars and extrusions, developed to produce structural components in aircraft grade aluminum without tooling. It combines two well understood forming technologies in a unique manner. An industrial prototype (TRL 6) has been developed to form extrusions that make up the structural parts of airframes. The SRF forms parts in aluminum alloys commonly used in aircraft without heat treatment or monument tools. The CNC controlled prototype matches or exceeds the quality of current processes in terms of geometry. The prototype also forms parts from mild and stainless steel. Technology development is funded by the Defense Logistics Agency for one off component manufacturing to support the warfighter in the following areas: AF Mission: Agile manufacturing; focus on flexible, low-rate production using Digital Thread for Manufacturing; Army Mission: Provide affordable and timely manufacturing solutions that address highest priority needs of the Army including: Air Systems; Navy Mission: Develop enabling manufacturing technology, new processes and equipment for Naval weapon system production.