Domain Awareness

2021

FrostyFlake | Real-Time Weather Monitoring

Many organizations rely on inaccurate and ill-timed weather information, generally in the form of forecasts or disjointed physical observations of the weather. Often, there are also challenges in properly communicating this information to key stakeholders and teams. Leading to increased risk, liability, and costs, while decreasing operational effectiveness, security, and customer service.

The FrostyFlake weather monitoring service solves these problems. FrostyFlake is NOT another forecast but monitors the weather in real-time and notifies customers about their selected weather conditions as they happen. FrostyFlake uses proprietary artificial intelligence in conjunction with established nationwide camera systems to effectively "watch the weather".

Emergency Evacuation Location System

This innovation is an emergency rescue IoT data platform, providing accurate real-time location information. Installed in occupied structures, the system can populate an emergency conditions map with executable data accessible to First Responders from anywhere in the US and send text to emergency call centers. Rescue locations are quickly conveyed by GPS while high-capacity exterior indicators ensure quick visual location for aerial recon and ground- based SAR assets. As a non-mobile phone dependent system, rescue notifications are sustained by battery backup when internet access and building power fail. Activation is protected by unique encryption keys preventing false alarms. This innovation creates a novel approach to strengthen interoperability between key emergency stakeholders.

Security and Environmental Awareness Virtual Reality Simulations

Our virtual reality (VR) hostile environment awareness simulations prepare individuals for difficult and dangerous scenarios during missions abroad. In our customizable VR simulations, individuals observe environmental cues, make decisions, and experience the consequences of their decisions. A VR headset transports learners to immersive, realistic environments where they practice de-escalation techniques in virtual replicas of informal checkpoints, detention centers, and kidnapping scenarios. VR simulations and debriefings train people for different missions in an engaging, time and cost-effective manner.

"One Touch" Rope Tie Down, Self-Tensioning Devise

"ONE TOUCH" Rope Tie Down and Cargo Nets are self-adjusting devices providing the power of communication enabled cargo management. **"Smart" Rope & Webbing** will generate warnings and alerts if there is a problem due to load shift, loose device, tampering, or theft. Time saving safety features, fewer accidents, will benefit the entire transportation field. Less wear and tear on the user and equipment, less freight damage, lightweight, corrosion free equipment has longer lifespan with reduce fuel and replacement costs. Quickens readiness, **"One Touch, One Product"** will replace all 10K, 25K CGU / MB chain devices, simplifying storage and retrieval.

SYBor IoT Interoperability and Intelligent Video Surveillance Edge Computing Platform

The SYBor Technology Platform is the next-generation solution for facilities automation and intelligent video surveillance interoperability for monitoring and controlling one or more Internet of Things "IoT"

smart device ecosystems in government, commercial and residential properties. Its state-of-the-art hardware is capable of supercomputing level performance to provide 24/7 autonomous monitoring addressing situational awareness in security, safety, cost savings, comfort, and peace of mind all in an affordable small footprint with one easy-to-use app compatible with your desktop and mobile devices. With the SYBor Technology Platform and its superior performance, we are establishing smarter, safer homes and communities.

H-Cubed Big Data Acquisition and High Performance Edge Computing

SaraniaSat's ultimate vision is to open up and grow the relatively small market for Satellitebased Earth Observation Data to match the trillion dollar Smart Phone and Internet Data Markets. We believe that this can only be achieved via the daily acquisition and rapid Edge Processing of complex, Big Data. Multiple commercial and government verticals will benefit from daily availability of actionable information.

RFID-Enabled Smart Gun

SmartGunz, LLC is a firearms company providing next generation technology for law enforcement agencies. Our sole purpose for launching SmartGunz, LLC is to save both law enforcement and civilian lives – full stop.

The job law enforcement officers have to do is hard enough without also having to protect themselves from a suspect or prisoner wrestling their weapon away from them! SmartGunz, LLC wants to remove that risk to our men and women who faithfully put themselves in harm's way to protect us and give them one less thing to worry about. Americans are killed or wounded every day by handguns, whether they are targeted victims of domestic violence, children or bystanders harmed by accidental weapons discharges, or people suffering from mental illness intent on taking their own lives.

SmartGunz, LLC believes one way to save lives lost from gunfire is to offer "smart gun" firearms technology where the firearm can only be operated by its intended user.

2020

Rear Vision Head Mount Display Safety Device

Wearable technology allows users to view and record what's going on behind them. Gives full-time situational awareness and puts eyes in the back of your head. Blind spots are eliminated in your periphery like a rear-view mirror on your body. Soldiers, public safety, motorcycle riders and cyclists have an inherent inability to see what is going on behind them. Our safety device uses real time video feed, multi spectral camera technologies and advanced near-eye optics. Bluetooth, internal recording, cloud redundancy delivers a higher level of safety and enhanced security.

Stingray Stingerz

The Stingray is a revolutionary height pole warning sensor for the pilot car and oversize load transportation industry. It is a technology tool that communicates at the speed of light. The LED light on the device can be seen up to a half mile away when a low obstruction is hit, thus significantly decreasing the amount of accidents and damages that occur with oversize loads.

Electronic Security Strap

An electric security strap (ESS) with a strap type locking device with maximum protection requiring unique user of fingerprint to release the locking mechanism. The ESS is designed to secure firearms but adaptable to wide range of asset security. Adaptable including vehicles, equipment, gates, doors, and is as a high-level security replacement for chain, cables or padlock.

Extended-range prediction of weather hazards using artificial intelligence

WeatherDeep has combined a series of artificial intelligence and machine learning tools to deploy a flexible, customizable platform for forecasting extreme weather, including tropical cyclones (and their landfalls), tornadoes, hail, temperature, and wind with lead times out to 3 months. These extended-range forecasts are skillful and exceed typical 3-5 day timeframes for hazards offered by state-of-the-science forecast methods.

Descendably - A High-Speed Rappelling Braking System
Current warfighter fall protection systems vary depending on the type of application. The rapid descent braking system has the ability to be operated with a single hand (left or right) versus the required two hands for current technologies. The fall suspension system lessens the risk of injury or death by enhancing tasks performed upon rappelling, improving safety and rescue, removal of equipment, and protection in combat.

Improved Orbit Determination and Visualization for Increased Situational Awareness (IODA VISA) This product dramatically improves orbit dramatically improves orbit determination, prediction, tracking and monitoring capabilities. Significantly faster and more accurate than TLE/SGP4 used today allowing many more objects to be correlated and cataloged with far fewer observations. Provides never before Optics-only solutions for Initial Orbit Determination (IOD) and Optics-Only Ranging. Addresses DoD, Industry and International needs for improved space object tracking, cataloging and real time situational

awareness across the spectrum, from the battlefield, to operational mission planning to collision avoidance and beyond. Faster, more precise analysis coupled with operationally proven AI/ML and visualization products enables user-defined flexibility with standalone, integrated, bare metal or cloud implementations. Products integrated into one package: 1. Flexible Input 2. iOrbit algorithms 3. Proven data correlation and flexible user displays via DisCorT and VENOM technologies 4. Flexible Output to Real-time displays and parallel catalog updating 5. Dual Use - Bare metal, Cloud, Classified or Unclassified environments for Government or Industry.

Single Stage to Orbit Fully Reusable Launch Vehicle

The use of our Aerospike Engine allows for a true Single Stage to Orbit Reusable Launch Vehicle, this will essentially turn rockets into airlines; fly up, fly down, refuel, fly again, all in one piece. This will create a robust fast response launcher to support the warfighter. It will deliver supplies to any FOB, asset, or front-line operation in two hours or less. This launch platform can also can support any and all orbital payload insertion in days or hours, not weeks or months. Simply deliver the payload to the predesignated launch site, and with quick integration, the payload can be fired into desired orbit or landing zone within hours. If this system is properly stored and maintained, the warfighter will have a mission-ready, fully capable launch provider that has extremely long shelf life. The warfighter simply fuels up, launches, recovers, and reuses; providing true orbital sustainment.

MOBILE MULTI-SENSOR TRACKER

Allosense developed a real-time situational awareness capability that helps military personnel track materiel assets while in transit or deployed on the field, including austere environments. Allosense designs and manufactures "always connected" asset trackers using satellite, cellular, and mesh technologies to reduce logistic inefficiencies. The asset trackers incorporate a suite of sensors for ensuring all valuables are readily available in real-time. Allosense delivers an easy user experience for integrating smart sensors and analyzing data. Our patent pending technology safeguard against inventory misplacement, saving the warfighter countless man-hours, stress, and deterioration of common operating picture (COP). With Allosense, the tracking of millions of mobile supplies, munitions, and vehicles is easily achievable.

Data Fusion for Space Command & Control

An Exploitation Toolkit for Space Command and Control that fulfills mission needs for advanced data analytic techniques for tactical Space Domain Awareness. The rapidly increasing sources of data is creating a big data problem in Space that requires techniques capable of ingesting legacy and new data with relative ease. The solution acts as an agnostic integrator for fusion of multiple data sources and an open architecture framework to infer intent via a combination of AI and Ontologies for Semantic Reasoning.

Global Recon Needs the Simplified Method for Atmospheric Correction (SMAC) CubeSats – small and lightweight orbital satellites launched in flocks, are the future of global Defense recon. An impediment is atmospheric degradation of data by smoke, dust, and haze. Advanced Remote Sensing, Inc. (ARSI) has developed Simplified Method for Atmospheric Correction (SMAC) software with support from NSF SBIR and State of South Dakota. SMAC corrects image degradation to yield clear viewing for threat assessment and automated analysis of many hundreds of daily CubeSat images from reconnaissance programs like DARPA's Blackjack project. SMAC is superior to existing methods, applicable to any satellite including CubeSats and hyperspectral, rapidly adaptable to new satellites, and

corrects atmospheric effects sensitively over all environments in near real time. All these capabilities are unique to ARSI's SMAC.

nCIS Low Light CMOS Image Sensor

3rdiTech's nCIS is an advanced Night Vision Sensor that provides the warfighter with rapid & efficient target identification and clarity from day through twilight to starlight in an extremely SWaPC optimized product. This Low Light/ Near IR pixel architecture that can be applied to any standard CMOS Sensor without any process modification to improve Dynamic Range of the sensor by 100%, with Sub-electron temporal noise, sensitivity at 1 milli Lux and can function at very high frame rates. The sensor uses an in Pixel Parametric Amplification technique and switch biasing to reduce noise, unlike the high exposure time used by most NIR Sensors, thus adding value to high-speed low signal environments like LEO Imaging. It can be used both by Soldiers & Special Forces and in Small & Nano Satellites for enhanced LEO Supremacy

2019

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.

iSeeYou360 - Rear Vision Head Mount Display Safety System

Wearable technology allows users to view and record what's going on behind them. Gives full-time situational awareness and puts eyes in the back of your head. Blind spots are eliminated in your periphery like a rear-view mirror on your body. Soldiers, public safety, motorcycle riders and cyclists have an inherent inability to see what is going on behind them. Our safety device uses real time video feed, multi spectral camera technologies and advanced near-eye optics. Bluetooth, internal recording, cloud redundancy delivers a higher level of safety and enhanced security. WATCH YOUR BACK!

Drone Lock to Detect and Force Land Any Rogue Drones

Develop a method solution to detect any unauthorized or rogue drones, forcing them to land in designated area. The method comprises of both hardware and software solution which works in tandem to effectively take control of the drone's operation by lawful agencies. "Drone Lock" is a security system that enables vendors to lock their drones for secure operations when sold in US. Law enforcement agencies shall have the tools & systems to securely take possession of the drone's equipment with the "Drone Lock" system, during incidents of unauthorized and rogue incidents.

Simultaneous Localize and Map - Detect and Recognize (SLAM-DR)

SLAM-DR is a real time geospatial information system. It's a SW & HW solution which simultaneously localizes and maps (SLAM) incoming UAV video or still images to create a 3D reconstruction of an area of interest with multi-object detection and recognition (DR) through the application of machine learning methods. Using a video feed or images from a camera on a UAV, operators can in real-time while it is

being generated, manipulate 3D terrain and structures and see objects of interest appear in the immediate context and overlaid on existing maps and terrain. Able to geo-locate and identify (recognize) objects even in GPS denied environments.

AeroPlug - Autonomous Drone Recharging Station

Despite all advances in drone technology, there are still many technical bottlenecks for commercial UAVs to break through in order to expand more application services. Our patented UAS addresses a main issue: the limited endurance of drones. It enables automated operations of commercially available drones by charging and storing of them with payload on board. Our technology protects drones, and provides additional functionality, such as the ability to autorun the drone, and readiness for immediate mission performing. This technology makes the autonomous operation of drones much more efficient, inexpensive, and easy to implement.

HS-Drone [.com]

Drone technology (e.g. quadcopters) is application-limited due to low energy efficiency and low velocities. HS-Drone's patent-pending passively-adjusting tiltwing technology is a simple, light-weight, low-cost, and scalable technology.

Simple, light-weight, and low-cost translate to this "transition" drone technology having the potential to replace bus, truck, train, and airline passenger/parcel service for distances from 20-1000 miles due to the combination of high speeds (>300 mph), access due to vertical takeoff/landing (VTOL), and high passenger-mpg (> 50). Scalable translates to performing R&D and demonstration on the toy scale with the results being directly scalable in size from toy to parcel to passenger service.

2018

Enhanced Autonomous Vehicles and Situational Awareness for the Warfighter Current Intelligence, Surveillance and Reconnaissance (ISR) solutions require too much human involvement, size, weight, power and cost. Aware Vehicles and its partners are advancing innovative fully autonomous Unmanned Aerial-Ground-Marine Systems (UAGMS) to conduct and support persistent, round-the-clock real-time ISR in support of urgent operational needs and requirements of the Warfighter including but not limited to the identification of camouflaged personnel or equipment, IEDs, bunkers or chem-bio signatures. Our innovative systems approach solves small unmanned vehicle range and user limitations while providing an unprecedented level of situational awareness and artificial intelligence with advanced imaging technologies and data analytics. Other defense applications include: infrastructure and damage assessment; disaster response; logistics and freight management; and real time 3D mapping.

Thermal imaging drones

My technology is thermal imaging drones. They will be able to help firefighters see through smoke, help in search-and-rescue operations, and police or military. I believe these drones will be useful day or night.

ISeeYou360 rear vision head mount displays/safety device

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situational awareness and puts eyes in the back of your head. Blind spots are eliminated in your periphery like a rear-view mirror on your body. Soldiers, public safety, motorcycle riders and cyclists have an inherent inability to see what is going on behind them. Our safety device uses real time video feed, multi spectral camera technologies and advanced near-eye optics. Bluetooth, internal recording, cloud redundancy delivers a higher level of safety and enhanced security. WATCH YOUR BACK!

Total Facility Security: All equipment, airspace, connectivity secure
Noice Industries secures all physical infrastructure, including access control, airspace, buildings, connected devices (IoT), facilities, equipment, land, operational technologies (OT) and property. Noice Industries produces autonomous and turnkey surveillance solutions that deliver actionable intelligence and situational awareness in real-time, from confined spaces or critical infrastructure to the most difficult and remote locations. We utilize drones and smart sensors to provide continuous day and night aerial, all-terrain, marine, sub-terrain, indoor, outdoor surveillance solutions. Experienced security companies may also purchase our UAV and sensors, hire its own pilots or personnel and implement a strategy designed and produced by Noice Industries.