Possible Applications

- S.W.A.T. Operations
- LAW Enforcement
- ISR Operations
- Security Operations
- Border Patrol
- Crowd Control

Key Features

- iLEDD System
- Taser System
- 12ga System
- HD Visible Light
- HD MWIR
- LE (B/R) Lights
- Indoor Capable

These are Final Model Renderings. These will be replaced with actual product images as soon as the product is Prototyped.
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SYSTEM DESCRIPTION

Because Lives Matter, and a lack of TRUE Tactical Unmanned Aerial Systems existence in the UAS marketplace today, Pegasus Aerospace has developed a Tactical UAS for use by Government, Law Enforcement, SRO and Private Security Firms, to enable them to safely and accurately achieve their missions, without risking and endangering first responder lives, in case of a life-threatening situation.

Equipped with multiple non-lethal capabilities, including capabilities for surveillance, intelligence collection and the ability to incapacitate a target from a distance, ShockWave Tactical UAS is ‘A First Responders New Best Friend’.

ShockWave is designed from the ground up to be used outdoors and indoors, is easy to setup and operate and can provide real-time intelligence and surveillance as a force multiplier to government, law enforcement or civil security firms. The compact solution can be used in a fully autonomous mode or in manual mode, controlled by a custom state of the art flight computer system designed by Pegasus Aerospace, as well as the following key components:

iLED, is a technology designed by Pegasus Aerospace for the ShockWave Tactical UAS, which stands for Incapacitating Light Emitting Diode Device. This device emits different colored light flashes and patterns, which act on the target’s brain, inducing disorientation, confusion, nausea and in some extreme cases, vomiting.

The DTM System, is a custom Digital Tazer Module designed and developed by Pegasus Aerospace for use with ShockWave. It features cartridges capable of accurately reaching a target 20 feet away. The system features an IR targeting laser, visible on the FLIR system.

The NLLS System is a custom designed 12Ga Launcher module, designed to fire 12 Gauge non-lethal ammunition, such as the FlashBangs, Pepper or Rubber rounds. The system can be deployed to confuse, disorient and incapacitate a target.

ShockWave possesses three different camera systems, providing crystal clear 1080p HD transmissions to the pilot and mission commander, as well as a DVR capable of recording the entire mission. A fixed front camera provides a pilot’s eye view, with a superimposed HUD system. On a gyro-stabilized platform, are two other camera systems installed. An HD daytime and an HD Thermal Camera. Together these cameras provide the operator with an unprecedented first-person view and situational awareness for any operation and in any environment.

With its small transport footprint, agile and readily deployable flight performance compared to other compact non tactical UAV systems, ShockWave gets closer to the action, keeping one step ahead, while meeting complex challenges. A modular and cost effective design enables the operator to deliver multiple capabilities and applications, while meeting national aviation regulations and operational requirements. ShockWave is IP-55, STANAG 4586 FAA compliant and is ready for use in controlled national airspace across all classifications.
<table>
<thead>
<tr>
<th>Parameters</th>
<th>Airframe Model: ShockWave</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
<td>Multi-Rotor Tactical Unmanned Aircraft</td>
</tr>
<tr>
<td><strong>Material</strong></td>
<td>Carbon/Nylon &amp; Graphene</td>
</tr>
<tr>
<td><strong>Dry Weight</strong></td>
<td>5.7 kg</td>
</tr>
<tr>
<td><strong>MTOW</strong></td>
<td>7.5 kg</td>
</tr>
<tr>
<td><strong>Multi-Rotor Diagonal Span</strong></td>
<td>1085 mm</td>
</tr>
<tr>
<td><strong>Height</strong></td>
<td>428 mm</td>
</tr>
<tr>
<td><strong>Propulsion</strong></td>
<td>(4) Quad Brushless Electric Motors</td>
</tr>
<tr>
<td><strong>Power System</strong></td>
<td>22 Ah, Proprietary LiMnO System</td>
</tr>
<tr>
<td><strong>Payload System</strong></td>
<td>Proprietary Designed for Desired Operation</td>
</tr>
<tr>
<td><strong>Safety</strong></td>
<td>Flight Recovery Function in case of Control Loss</td>
</tr>
<tr>
<td><strong>Endurance</strong></td>
<td>45-60 min Seeker Mode</td>
</tr>
<tr>
<td><strong>Range</strong></td>
<td>5 km</td>
</tr>
<tr>
<td><strong>Max Speed</strong></td>
<td>120 km/h</td>
</tr>
<tr>
<td><strong>Vne Speed</strong></td>
<td>150 km/h</td>
</tr>
<tr>
<td><strong>Ceiling</strong></td>
<td>2,750 m</td>
</tr>
<tr>
<td><strong>Weather Limitations</strong></td>
<td>Extreme Cold and Tropical Force Winds</td>
</tr>
<tr>
<td><strong>Optical Payload</strong></td>
<td>3 HD Cameras, 2 Daytime, 1 MWIR</td>
</tr>
<tr>
<td><strong>Assault Payload 1</strong></td>
<td>Non-Lethal iLEDD System</td>
</tr>
<tr>
<td><strong>Assault Payload 2</strong></td>
<td>Non-Lethal DTMS System</td>
</tr>
<tr>
<td><strong>Assault Payload 3</strong></td>
<td>Non-Lethal NLLS System</td>
</tr>
<tr>
<td><strong>GCS Type</strong></td>
<td>Mobile Case Small or Large, Van or Truck</td>
</tr>
</tbody>
</table>
Pegasus Aerospace is developing a family of Airborne UAS compatible light-based, non-lethal devices for law enforcement and military applications, as alternatives to potentially eye-damaging, laser-based devices. iLED divertory devices have high powered, multicolored light emitting diode (LED) clusters and complex optical concentrators that produce a temporary high level of visual impairment and disorientation of the targeted subject(s), while optical intensities remain at eye-safe levels.

iLED produces extremely bright strobe sequences of light in multiple colors, programmed to flash in a predefined pattern, to which the brain cannot immediately adjust. The effect is a “wall of light,” which temporarily blinds and disorients the subject and conceals the user’s location, giving the user at least a momentary advantage during which the subject can be subdued. During tests, iLED has caused, nausea, dizziness, headache, flash blindness, eye pain, headache and occasional vomiting...

iLED Mode of Action

iLED uses bright, short pulses of light to disorient the subject. Law enforcement officers have used (to some degree) strobe lights in the past. iLED is unique because it pulses in different colors (red, green, blue, yellow, red and white), spatial patterns, frequencies (between 7 and 15 Hz) and intensities (500-5000 Lumens). The combined effect of the different colors and patterns temporarily blinds, disorients and nauseates the subject but doesn't cause any permanent damage. The feeling of disorientation lasts for a few minutes, long enough for the suspect to be subdued. iLED has the potential to cause nausea and vomiting in some individuals, as well as the possibility to trigger an epileptic episode in people with epilepsy.

In order to fully understand how iLED disorients a person, it helps to know how we process visual information. The lens of the eye focuses an image of the world on the retina, a dense collection of light-perceiving cells called photoreceptors. Once the image is taken and converted to an electrical impulse, the optic nerve transmits it to the brain's visual cortex, which interprets the pictures. The brain has a limited rate or frequency by which it can receive and process visual information. If visual information arrives faster than the brain can process it, then the person becomes temporarily incapacitated. The frequency required to overwhelm the brain is between 7 to 15 hertz.

Strobing disrupts the flow of the visual information in two ways. First, the intensity of the flash creates afterimages in the brain. If a person would look at a bright light and then closed their eyes, they’ll see an afterimage of the light. Second, the frequency of the flashing hovers near between 7 and 15 Hz and impairs the brain’s ability to process visual information accurately, which in turn produces disorientation and nausea. Once iLED is turned off, the nausea lingers for a few minutes as the brain recovers.

iLED doesn't have to shine directly in the suspect's eyes. As long as part of the light-rays are reaching the suspect eyes, the device is effective within a few seconds.
Pegasus Aerospace is developing a family of Airborne UAS compatible electric-based, non-lethal devices for law enforcement and military applications, as alternatives to potentially life-threatening, lethal devices. DTMS devices can use proprietary cartridges or X26 cartridges.

Taser devices have been used all over the world in the past 50 years, some with success and some with permanent damages to the subject. Permanent damages were due to the fact that the Taser weapon was used in Drive-Mode, while the subject was already in custody. Drive Stun Mode is applied direct to the subject, and only causes pain to the subject, as it only affects a small area, where the weapon is applied, and does not cause incapacitation or affect a large area.

Our DTMS Systems do not operate in Drive mode. They can be used only in Probe mode, where the incapacitating electrical pulses are delivered to the subject over a set of wires. The device operates in a similar manner as a regular hand held Taser weapon. Once fired, the probes fly out of the cartridge and impale the subjects targeted area. It discharges three times 5 second pulses, with 2 second intervals, or can be set to continuously discharge until the battery is depleted.

**DTMS - SPECIFICATIONS**

- Cartridge type: Pegasus Aerospace Custom or X26
- No. of cartridges: 2
- Targeting: Visible Red Laser and IR Laser
- Electronics: Battery Health Indicator
  - Digital Power Distribution and Circuit Isolation from Aircraft
- Battery: X26 Model Battery
- Connectivity: Proprietary connectivity to Flight Computer and GCS
- Body: Carbon/Nylon Composite Housing
- Ingress Protection: IP-55

DTMS System comes in 2 models. One model is the one block featuring a dual shot capability. This can come in handy when more then one shot is required to complete the mission. The second model is a single shot version, which allows it to be mounted on smaller aircraft. The single shot model does not incorporate the IR laser targeting system.

Currently DTMS System is designed to be used only on our Proprietary ShockWave Aircraft along with our Proprietary Aurora Flight Computer loaded with our security features. It is also only available for Government, Law Enforcement and/or Private Security Firms.
Pegasus Aerospace is developing a family of Airborne UAS compatible, non-lethal devices for law enforcement and military applications, as alternatives to potentially life threatening, lethal devices. NLLS devices are designed to use standard 12Ga Shot Gun Shells. The shells that can be used are: Flash Bangs, Pepper Rounds, Rubber Pellets, Rock Salt, or any other non lethal 12 Ga round.

Non-lethal weapons, also called less-lethal weapons, less-than-lethal weapons, non-deadly weapons, compliance weapons, or pain-inducing weapons are weapons intended to be less likely to kill a living target than conventional weapons such as knives and firearms. It is often understood that unintended or incidental casualties are risked wherever force is applied, but non-lethal weapons try to minimize the risk as much as possible. Non-lethal weapons are used in policing and combat situations to limit the escalation of conflict where employment of lethal force is prohibited or undesirable, where rules of engagement require minimum casualties, or where policy restricts the use of conventional force.

Non-lethal weapons may be used by conventional military in a range of missions across the force continuum. They may also be used by military police, by United Nations forces, and by occupation forces for peacekeeping and stability operations. Non-lethal weapons may also be used to channelize a battlefield, control the movement of civilian populations, or to limit civilian access to restricted areas. When used by police forces domestically, similar weapons, tactics, techniques and procedures are often called "less lethal" or "less than lethal" and are employed in riot control, prisoner control, crowd control, refugee control, and self-defense.

NLLS Systems are designed to be used in conjunction with ShockWave Tactical Drone. It is intended to fire 12Ga Non-Lethal ammunition, in order to incapacitate a subject which is uncooperative and disruptive. The system can only be connected and operated by ShockWave Aurora Advanced Flight Computer. Currently it is not compatible with any other UAS.

NLLS - SPECIFICATIONS

<table>
<thead>
<tr>
<th>Cartridge type:</th>
<th>Any 12Ga, Non-Lethal Rounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capability:</td>
<td>4 barrels, each one shot each, reloadable.</td>
</tr>
<tr>
<td>Targeting:</td>
<td>Line of Sight and IR Laser from UAS</td>
</tr>
<tr>
<td>Electronics:</td>
<td>Fire Safety Control</td>
</tr>
<tr>
<td></td>
<td>Digital Power Distribution and Circuit Isolation from Aircraft</td>
</tr>
<tr>
<td>Power Source:</td>
<td>From Aircraft</td>
</tr>
<tr>
<td>Connectivity:</td>
<td>Proprietary connectivity to Flight Computer and GCS</td>
</tr>
<tr>
<td>Body:</td>
<td>Carbon/Nylon Composite Housing, Aluminum Barrels, Titanium Firing Pin</td>
</tr>
<tr>
<td>Ingress Protection:</td>
<td>IP-55</td>
</tr>
</tbody>
</table>
With ShockWave, Pegasus Aerospace is introducing this True tactical Unmanned System, and with it also a state of the art Imaging system. ShockWave will feature three different camera systems. One camera will be the Pilot-Eye-View. This camera provides a 1080p Full-HD capabilities, and low light capability. It features a Custom designed and superimposed HUD system, providing the pilot with an unprecedented flight experience.

The secondary and tertiary camera systems provide the Sensor and Payload Operator with the ability to simultaneously monitor 1080p Full-HD feed in Daylight and MWIR capabilities.

All three camera systems broadcast securely in 1080p Full HD over a range of 5 km, 3.1 miles.
The material in this document has been prepared by Pegasus Aerospace and is intended to serve as general information about ShockWave Tactical Unmanned System and it is current as of the date of this document.

This information is given in summary form and does not purport to be complete. This document may also include statements regarding our intent, belief, current expectations, predictions, projections, estimates or other information with respect to Pegasus's business and operations, market conditions, that might be considered forward-looking.

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Pegasus Aerospace has been developing Unmanned systems custom tailored for each customer and has the capability for rapid design and prototype. With the introduction of ShockWave, Pegasus Aerospace is raising the bar on current Unmanned Systems, providing the first truly Tactical Unmanned System developed for Government, Law Enforcement and Private Security Firms, with the sole thought in mind to save First Responders Lives.

Pegasus Aerospace is a Florida, registered company, which was founded in 2013.

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iLEDD is a 2018 Pegasus Aerospace registered trademark.

DTMS is a 2018 Pegasus Aerospace registered trademark.

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