

# FAA Forecast Conference

11 March 2008

Unmanned Aerial System, Inc

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President & CEO

# Topics

- History
- Military Applications
- Civil & Commercial Applications
- Forecast
- UAS, Inc.
- Future

# History of UAV/UAS

- **UAS (Nomenclature)**
  - Describes the UAV & associated systems
  - Pilots
  - Command & Control links
  - Procedures (rules of where & when UAV's may operate)
- World War I, but not serious until late 1950s
- Vietnam spawned Firebee, Lightning bug
  - SigInt, Imagery
- Resurgent in 1990 led to Global Hawk, Predator
- This stimulated interest in Civil & Commercial

# Military Applications

- Intelligence, Surveillance and Reconnaissance (ISR)
- Remote Sensors, (EO/IR/MiniSAR)
- Ordinance Delivery Systems (Hunter/Killer)
- Communication Relays
- Makes up a large part of forecasts

# Civil Applications

- Missions that are “Dull, Dirty & Dangerous”
  - Border Management
  - Maritime Patrol
  - Critical Infrastructure Protection
  - Domestic Counter Terrorism
  - Explosive Detection Systems
  - NBC Terrorism Response
  - Transportation Security
  - Search & Rescue
  - Crime Prevention
  - Crises Management
  - Forest Fire Monitoring
  - Land & Sea Traffic Monitoring
  - Weather & Meteorology
  - Drug Interdiction

# Commercial Applications

- Continued
  - Fisheries & Agriculture Management
  - Freight
  - Pipeline Monitoring
  - Powerline Monitoring
  - Private Infrastructure Surveillance/Security
  - Agriculture
  - Aerial Photography
  - Temporary Telecommunications Services
  - Satellite Augmentation Systems
  - ATC Support
  - Others

# Forecast (Assumptive)

- Teal Group
  - Worldwide - UAS spending to be at \$55B in 10 years
- Frost & Sullivan
  - Believes worldwide market to exceed \$17B by 2010
- Visiongain, UK worldwide forecasts:
  - \$10B by 2012
  - \$15B by 2016
- Civil/Commercial market will surge if airspace and civil certification issues are resolved.
- Growth WILL be dramatic

# Where Does UAS, Inc Fit?

What is our Value Add?



# *UAS, Incorporated*




**TOMORROW'S TECHNOLOGY**



**TODAY™**

# ***INVENTIUS*** *Scalable* *Design*



SSS-Class (Prototype)  
11.58m Wingspan  
>800lb Payload

S-plus Class (Prototype)  
4.52m Wingspan  
>180lb Payload

S-Class  
3.85m Wingspan  
>180lb Payload

M-Class (Prototype)  
2.90m Wingspan  
>50lb Payload

E-Class  
2m Wingspan  
20lb Payload

C-Class  
1m Wingspan  
3lb Payload



# Unique Design



## Advantages

- Radar cross-section measurements have determined the UAV to be nearly invisible to most fire control radars (USAF)
- Provides a much larger and heavier payload capacity supporting block upgrade growth than any comparable size UAV
- Longer endurance due to its airfoil efficiency
- Carries a high resolution Electro Optical color camera and a IR camera set while delivering superior imagery
- Proven, one-of-a-kind UAV platform for quick integration and payload flexibility boasting up to 9.4 cubic feet of interior payload

# ***INVENTUS***<sup>TM</sup> ***FEATURES***



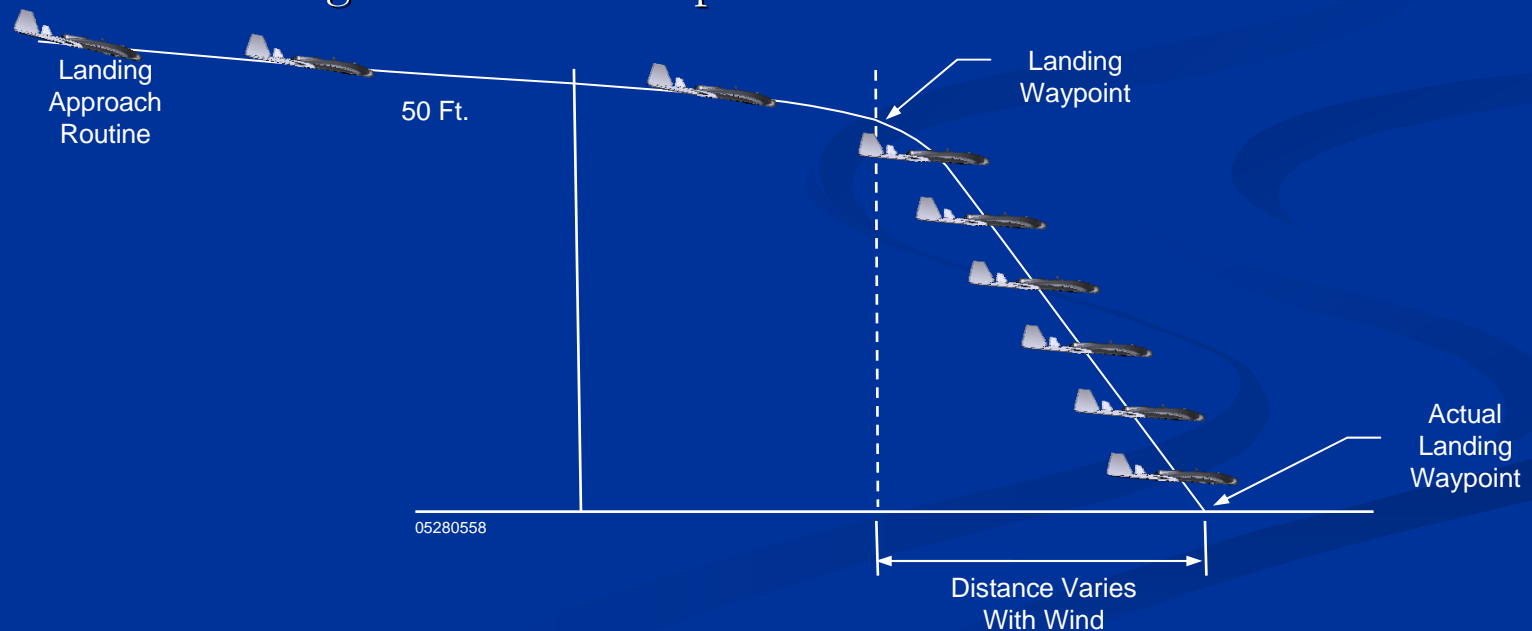
Scalable, high performance UAS

- **Fully Autonomous (Launch, Navigate and Recover)**
- **Unlimited Communication/Operation**
- **100% Re-taskable in Flight**
- **100% Autonomous or Man-in-Loop operation**
- **PROVEN weapons capable**

# Inventus™ Air Vehicle

## Recovery

- Deep Stall Autonomous Landing
  - Based on preprogrammed landing waypoint
  - Uses preprogrammed landing routine
    - Drops from operational altitude to 50 feet
  - When the UAV reaches the Landing GPS point
    - Flares control surfaces (40 degrees up)
    - Cuts motor power
    - The UAV glides in at 10 feet per second



# **INVENTUS<sup>TM</sup>** *C-Class*

## Applications

### **Military Squad Level Operation**

Remote Reconnaissance and Surveillance, Force Protection, Convoy Security, Target Acquisition, Battle Damage Assessment for Light Infantry, Dismounted Warfighter and **Military Operations on Urban Terrain (MOUNT)**.



### **Law Enforcement**

Remote Intelligence Surveillance and Reconnaissance (ISR), Search and Rescue, Border Patrol, Maritime and Perimeter Security.

### **Commercial and Private Sector**

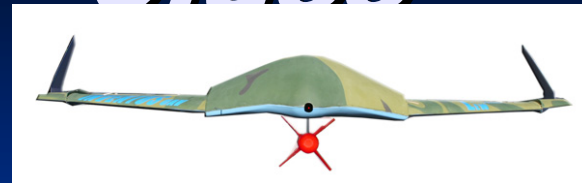
Inspection and monitoring of pipeline and utility assets, cruise lines and ship security, stadium and large events security, wildlife monitoring, crop data collection and asset location.



**C-Class vehicle launch**

# **INVENTUS**<sup>TM</sup> *E-Class*

## Applications



### **Joint Theater Attack Missile Defense Office (JTAMDO)**

Used to test the Air Defense Network surrounding Washington, DC, on an annual basis. Only UAV that has flown over National Capital Region since 9/11.

### **Law Enforcement**

Remote Intelligence Surveillance and Reconnaissance (ISR), Search and Rescue, Border Patrol, Maritime and Perimeter Security.

### **Commercial and Private Sector**

Chemical and biohazardous detection and sensor monitoring, inspection and monitoring of pipeline and utility assets, cruise lines and ship security, stadium and large events security, wildlife monitoring, crop data collection, aerial mapping and asset location.





# Air Vehicle Description



05220571-1



# Technical Maturity

- The Inventus™ has been in production for over 4 years
- The Inventus™ UAVs have operated from the following U.S. Government and Military Ranges:
  - 1) Nevada Test Site, Hazmat Spill Center, Frenchman Flats, Nevada
  - 2) Nellis Range, Nevada
  - 3) FBI Academy, Quantico, VA
  - 4) White Sands Missile Range- 20 missions.
  - 5) Redstone Arsenal, Huntsville Alabama- 12 missions
  - 6) Bolling Air Force Base, District of Columbia
  - 7) US Army Center for Air Defense, El Paso, TX

# ***INVENTUS***<sup>TM</sup> *S-Class*



- Successfully flew full MiniSAR mock-up while under contract to UAV Battlelab
- Successful integration of operational MiniSAR into S Class
- Successful end-to-end systems test with Multi-Purpose Ground Control System built by Northrop-Grumman (controls UAV and Sensor + BLOS communications through Iridium)
- UAS, Inc. & Northrop working with AFRL to continue original MiniSAR Program



# WELDED WING™

- Multiple SUAV Deployment System
  - 5 UAVs flying as a single unit
  
- Deep Penetration into Denied Territories
  - Total Mission Range 1,126nm
  
- Multiple Mission profiles
  - Up to 5 separate missions with mothership (S-Class) providing SATCOM relay of mission data
  
- Multiple Recovery Options
  - Designated return location
  - Weaponized UAVs may be used to destroy targets of opportunity or self-destruct UAV

# What Does The Future Hold?

- Technology is out there
  - UAS, Inc. will stand up a R&D group
- Propulsion Systems technology is maturing
- New and more stringent customer requirements
- Airborne Communications are evolving
- Data Links are imperative for PPLI's:
  - Health
  - Stores
  - Location, Speed
  - Fuel
- Combat UAS systems
- I am convinced the technology exists to accomplish virtually all UAS missions required, including HALE.

# Summary

- UAS, Inc. will strengthen relationships with existing customers & develop new opportunities
- UAS, Inc. exploring probable new mission areas with innovative concepts & designs
- UAS, Inc. committed to working with FAA to introduce UAS platforms into the National Airspace System (NAS) in full compliance with regulations and safety standards

# Thank You!

- Questions....
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