

Drones for Dummies

Tom Hallman
President
Pictorvision Inc.

thallman@pictorvision.com



Pictorvision Inc.

Van Nuys



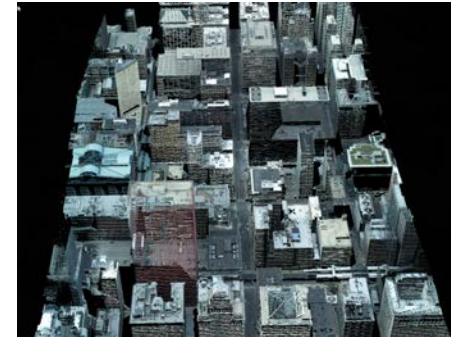
Formerly the Entertainment Division of Wescam

Aerial Cinematography specialists for 45 years

2 Academy Awards for Technical Achievement

Wescam

Eclipse



1 SOC award for Technical Achievement

Eclipse




Pictorvision
Above & beyond

What is a Drone / UAV?



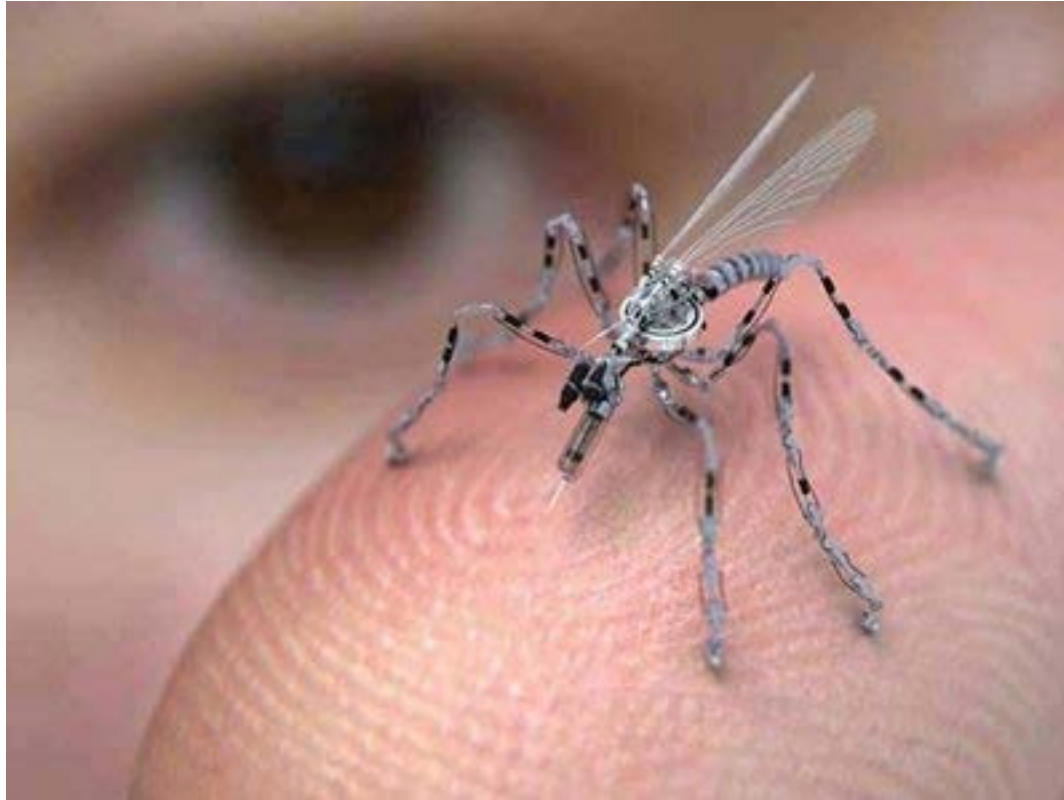












How do you group these all together?



“Small” UAV’s suitable for Entertainment Use

- Under 55 lb
- Under 400 ft AGL
- Line of Sight



Typical Drones for Film Making

- Octo-Copter:
 - 8 Arms each with one motor and prop
- X 8 or Hex 8
 - 4 arms each with 2 sets of motors and props
 - Motors run coaxial: push /pull
- Electric Powered
- 7-15 min flight times



Typical Gimbals, Camera and Lenses



Red Dragon or Panasonic GH4
Short lenses
FIZ drive capabilities are just arriving
HD downlinks
Movi, Zenmuse or custom gimbal

Size and weight are the enemy. They reduce flight time

Legal Restrictions

- FAA approved or “exempt” companies
Exempt from some FAA rules in order to fly
- Under 55 Lb
- Under 400 ft AGL
- Licensed Pilot
- Line of Sight
- Visual Observer
- 50 Knots
- No night Flying
- No operating from moving vehicle
- 500 ft away from civilians

What Drones are Good for

- Low altitude shots
- Difficult Locations to get to
- Small spaces
- Close Range (but not too close)
- Inside (sometimes)
- Those shots between the reach of a crane and a full sized helicopter

What Drones are NOT Good for

- High Altitude
- Long runs beyond line of sight
- High speed
- Inclement weather (rain or high wind)
- Large cameras or lenses
- Over crowds or developed areas (for now)
- When recording sound (they do make noise)

Are Drones Cheaper

- Often but not always
- 4 Man crews
- Serious FAA maintenance records
- Extra steps for flight permissions
- Slower to reposition via ground than flying

Steps for Legal Drone Shoot

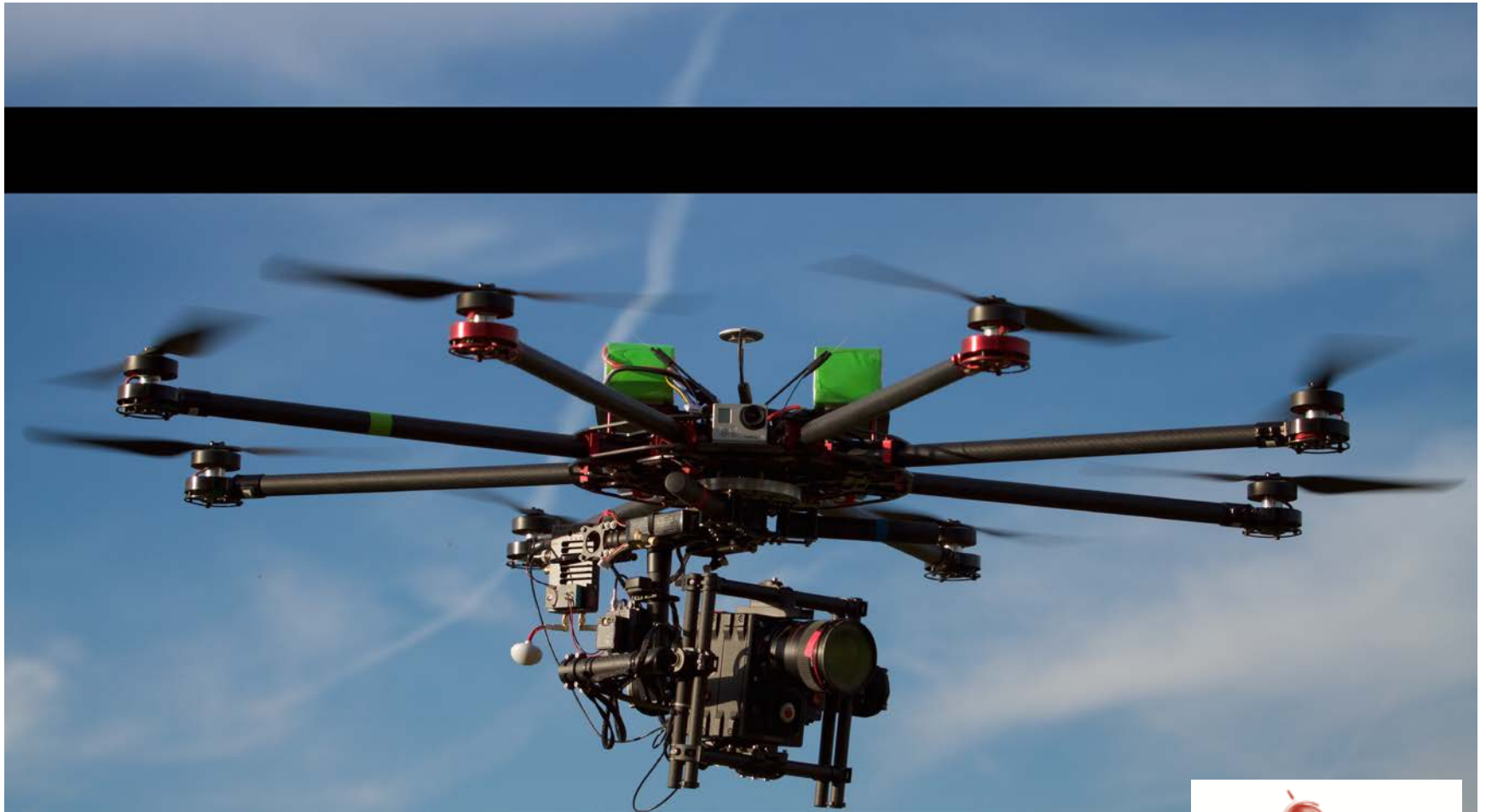
- **Production company:**
 - Hire experienced company with FAA exemption
 - All the normal film permits
 - All the normal permissions
 - All the normal safety personnel

- **UAV Company:**
 - Have a Section 333 Exemption
 - Get COA (Certificate of Authorization) for the specific location from Air Traffic Control
 - At least 3 days prior, File and get approval of flight Plan of Operations (POA) from local FAA FSDO
 - 48-72 hours before shoot file NOTAM (Notice to Airman)
 - Get agreements with any local airports
 - Coordinate with any military operations in the area

Future Opportunities

- Commercial Grade Hardware and Software
- Smaller dedicated cameras
- Lighter weight optics
- Batteries with better power to weight ratios
- Complete aerial systems
- More efficient designs
- Safer designs

Newest FAA Approved Drone the PV-HL1



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