

Purchasing an Aerial Robot (Drone)

Most drones are Radio Controlled (RC) Unmanned Aerial Systems (UAS) to begin with, requiring human operation. Autonomous flight, the ability to stream video live, and phone application control will typically involve additional costs for the additional small electronic equipment that is installed to create that functionality.

The choice between a fixed wing (airplane) or a multi rotor (Quad Copter, Hex, Etc.) is usually based on the distance that is needed to travel. Fixed wing aircraft are better for covering large areas to do things like crop inspection, Mapping, Utility Line Inspection, etc. Multi-Rotors are excellent at close up inspection of anything, provided you can get the job done in around 20 minutes, before the batteries need recharging. (This paper will focus mainly on Electric Drones and not Nitro powered, Hydrogen, or other fuel sources.)



The bare bones cost of many popular Hobbyist multi-rotor drones like the DJI Phantom or TTR Ghost is around \$500—\$600 including drone, Radio Controller and Battery. Carry case, camera and accessories sold separately. A system with a camera, First Person View, longer range video transmission, etc typically costs around \$1500– 1800+ depending on the camera, options included and brand of equipment selected. Gimbals, costing hundreds, are also a big factor in total cost.



= +/- \$500-600

No Video



Splah Drone w/ FPV,
GoPro 3 Camera,
autonomous flight
controller, etc. \$1,600

Cameras, Gimbals & Accessories

Drones are used primarily for photos and video. There are many types of camera payloads that can be flown, like Lidar for precise laser mapping, NDVI or Near Infra-Red for Vegetation analysis, Thermal for differentiating between heat signatures or standard video shot with a GoPro or similar. Depending on your needs, the cost of these cameras can range from just a couple of hundred dollars to well over a hundred thousand dollars. While there are thousands of options to choose from, a small example of costs can be seen in the table below



Go Pro Hero \$300 and up

Useful for aerial photography and Video



Motorized Gimbal \$300 and up

To stabilize the camera in Flight and allow the operator to point camera



FPV Kit \$600—1,500

Extends the range of video transmission from 100' to a few thousand



Autopilot & Intelligent Flight Controllers \$1,300 and up

Allows the use of phone or tablet to program flight path, adds autonomy



Telemetry Devices \$100

Provide flight data to the operator like battery remaining, compass dir.

Modular Systems

Modular systems allow the operator to switch out payloads and use the same machine for different types of jobs. Some manufacturers offer just the aircraft with power connections on board. Others sell complete systems, with modular payloads, proprietary connectors, custom software, onboard CPU's etc.



If you know that you are only going to do standard video or photography, and will never use an alternate payload, you may save a little money by purchasing an All in One Camera Drone.



Self Contained (All in One) Units



Some manufacturers have dramatically reduced the costs of manufacture by building their own systems that incorporate the camera, gimbal, intelligent flight controller and Telemetry devices into a proprietary system that may cost much less or include better features and software. There may be advantages like less weight or longer flight times, and disadvantages like limitations on the camera or availability of repair parts that accompany the savings.

Some of the more popular styles of All in One Drones are listed below:

DJI Phantom 2 \$ 700—800+

DJI Phantom 3 \$1000– 1300+ (standard or pro)

Splash Water Resistant QuadCopter with GoPro 3 and Gimbal \$1,600+

Walkera QR X350 \$1,100+ includes FPV

Custom & Modified Multi-Rotors

Sometimes what you want isn't readily available off the shelf. An example might be landing and taking off from water, or precision landing on a vehicle. Most of the time the design needed is almost there, it just needs a few modifications.



Specializing in Water Resistant Aircraft for Maritime Surveillance

By selecting components or systems from the best manufacturers in the world, our shop can fulfill and even exceed your every wish or requirement. We work with over 30 manufacturers to deliver cost effective solutions to every need.



There are exciting new developments like Drone Docking stations that recharge the drone automatically, drone shelters, Extended range antennae and new cloud based services that develop reports from drone data.

Many of these options are still in the tens of thousands of dollars right now, but as mass production, and market selection kick in the costs should lower dramatically.



If you need a solution right now, that isn't readily available, or seems a little impossible, call us right away. That is what Palm Beach Drone does. We match up ideas, engineers, suppliers and services to deliver world class solutions. What others think is mere science fiction, we will deliver as a reliable solution!

Call 561-389-1490 to speak with a robotic professional today!