

# An introduction to Drones **Quadcopters & UAV's**



# Introduction to Drones

## **Introduction**

You can go backwards, you can hover, and you can go straight up or straight down. What is it? It's a bird, it's a plane, no ...it's a drone! If you are familiar with the RC world, you probably already know this, because the news about quadcopters has been buzzing lately.

Drones (quadcopters) are unmanned aerial vehicles that are extremely fun to fly (especially if you love this type of stuff). In this day, the word "drone" is normally used when talking about some kind of remote controlled unmanned aircraft – this could mean a quadcopter or even a slightly more advanced octocopter. Take note that when we refer to "quadcopter," we are referring to "drones, quadcopters and UAVs – we're telling this so that you do not get confused.

Today, we are going to teach you about quadcopters, give you some buying tips, tell you about flying them and much more, so pay close attention to what we have to tell you in this article.

## **What is a Quadcopter?**

The quadcopter is one of the top selling products in the world of remote-controlled vehicles – so many people are already using them. A quadcopter is an unmanned helicopter that has a total of four rotors. It has a total of four arms – each arm has a propeller and a motor at the end of it. In some ways, they are similar to helicopters. However, the difference is – their lift and thrust comes from four different propellers, instead of one. Also, a helicopter has a tail rotor that is used to help stabilize the craft, whereas a quadcopter does not have a tail rotor.

When the quadcopter is flying, two of the propellers spin counterclockwise, while the other two spin in the opposite direction (clockwise) and this is what allows the machine to hover in the air.

People of all ages enjoy quadcopters and some even use them for photography. In addition to this, they have been used in disaster management, police operations and agricultural applications.

## **They Have Different Names**

As we stated in the beginning of this article, many times, quadcopters are referred to by different names, such as quadrocopter, quad-copter, UAV, UAS or drone. You also have tri copters (those have three blades), hexacopters (six blades) and octocopters (eight blades). The multirotors that have a large amount of blades have a tendency to be larger and are designed to carry a heavier load. For example, Amazon has talked about using octocopters due to their stability and ability to carry a large amount of weight. However, if you do not plan on flying packages around town, the quadcopter will do just fine.

## **Buying a Quadcopter**

It's time to pick your first drone! Isn't that exciting? Of course, mind you, you should treat this as if you are going out and buying a car – research is needed. You need to find the quadcopter that is right for you. Go to your local hobby shop and you are likely to come across dozens of different models. We are going to split this into three different sections – you have buying drones for kids, buying drones for adult and buying drones for hobbyists.

### **Quadcopters for Kids**

We're going to start by telling you about buying quadcopters for kids. Let's think about this – fast-moving flying object with sharp blades – what could go wrong here? Pretty much EVERYTHING.

We're going to be honest with you – drones are dangerous – adult supervision is a must. As for the drone itself, we recommend going for something that doesn't cost a whole lot, yet is sturdy. You need one that has blade guards that will protect people, pets walls and other obstacles going against your little pilot.

### **Introducing the Rolling Spider**

For under \$100, you can get the Rolling Spider – it is an indoor mini-drone that has 2 big plastic wheels (the wheels are removable). The wheels are there for protection and rolling. Take note: In order to fly this phone, you will need a tablet or smartphone.

### **Introducing the Syma X5C**

If you want to give your kid a traditional outdoor RC experience, the Syma X5C would be the best bet. This one offers better range – it's fast, big and sturdy. It also have LEDS that will help keep track of the drone while it is in the sky. Plus, with the Syma X5C, your kid will be tickled, because it comes with a nice high-def camera.

## **Quadcopters for Beginners (Adults)**

As an adult, even though you're a beginner, you will want something that is a bit more sophisticated. Today, we are going to introduce you to 2 quadcopters that would be perfect for beginners (these two have a low price tag on them).

### **The Hubsan X4 H107**

If you like fast flying objects, you're going to enjoy the Hubsan. This beauty has amazing maneuverability and speed all packed into a plastic shell that will fit in the palm of your hand.

### **The Parrot Bebop**

If you are searching for something that is a bit more sophisticated, Parrot's Bebop would be a great choice. This features a fisheye camera (180-degrees), built-in GPS and an automatic flight-stabilization. The GPS will allow the quadcopter to fly back to your launch location in case it gets out of sight.

## **Quadcopters for Hobbyists**

If you've already owned a couple of quadcopters and you know all about them, we have something in store for you.

### **Phantom 2 Vision +**

Have you heard about this one yet? It features a nice GoPro-style camera that you can control from the remote, it has a GPS feature that allows it to return to you and you can even use your tablet in order to plot the flights. Mind you, this one is more expensive, which is why we recommend it for hobbyists.

## **Flying a Quadcopter – This is Something You Must Learn**

In all honesty, flying a quadcopter isn't exactly easy. However, with a little bit of practice, you should start to fly like a pro in no time at all. One thing I do recommend – start with the beginner, cheap quadcopters, before you go for something expensive. I'd hate to see you crash something expensive into a tree.

### The Controls

Let's start by taking a look at the controls for flying a quadcopter. Here's an example of all the controls:

- Pitch (elevator) (this is the right stick) – This will tilt the quadcopter forward and backward.
- Roll – This tilts the quadcopter right and left. It does this by slowing one side of the rotors down and speeding up the other side.
- Yaw (rudder) – This speeds up all of the rotors in order to rotate the quadcopter.
- Throttle (this is the left stick) – This controls the up and down axis.

By following step-by-step directions, learning to fly will be much easier. The quadcopter you purchase should come with instructions, familiarize yourself with them.

During your first adventure, try to control your quadcopter by having it go straight up a couple of inches, then land.

Here's how to start out:

Start out by slowly advancing the throttle stick until you hear the motor spinning – back off until it stops. Perform this action a couple of times so that you get the feel of how the throttle works.

Now that you have a feel of the throttle, push it a bit more until the drone barely lifts off the ground, then shut it down right away. Do this a couple of times so that you can see which direction it tries to move. If you find the quadcopter is trying to move to one side or the other, then you can use the roll trim button in order to compensate. If it is trying to move back or forward, the pitch trim button can be

used. If it is trying to move left or right, you can use the yaw trim button in order to compensate.

### **Time for Take Off - Finally**

Now, I know, it's boring to sit there and hover in the air, but this is something you have to do, unless you feel like crashing your copter or injuring yourself. It's finally time to attempt take off!

Let's start out by getting the drone to hover 9 inches or so off of the ground.

You need to make the drone hold altitude and use the right stick to hold the position. To keep it from turning, you may need to use the yaw. During this process, if the quadcopter starts to turn, roll or move forwards or backwards, all you have to do is adjust the trims so that it stays in one spot.

Once you get it down pat, work on landing. While you're trying to learn how to land, don't go too high off the ground – stay about a foot from the ground. While you're one or two inches above the ground, you can shot the throttle off in order to land.

### **Time to Get Moving**

Next, we are going to work on moving that drone, without wrecking the copter. Like you did before, go into hover mode and move the drone a couple of inches away from you, then bring it back using the right stick – go back and forth until you have the hang of it.

After doing this for about 2 minutes, move it side to side using the right stick.

Once you have everything down pat, start flying around while you keep the copter pointing away from you – fly in squares. Once you have the square flight path down pat, start flying in a circular pattern.

## **Quadcopter Photography – Take Aerial Pictures and Videos**

Yes, professional aerial photography has been around for a couple of years now, but the consumer market has just started to expand. Now, we have access to RC aircraft (quadcopters) that have cameras already built into them. This is exciting for photographers and videographers who would like to take advantage of aerial images and add them to their portfolios.

### **The Phantom 2**

Are you familiar with the Phantom 2 copter we told you about in the “quadcopters for hobbyists” section? This is one of the best quadcopters for photography currently on the market – with its 3-axis gimbal, it has the ability to record smooth video. It has a redesigned HD camera and a built in FPV link. You can easily stream live video (or capture images) from your quadcopter straight to your tablet.



## Quadcopter Safety

When you first start to fly, there are some safety precautions you need to take. If you think safety first, you can avoid injuries. There are so many injuries that could have been prevented if the individual took caution while using the quadcopter.

Here's some precautions to take:

- Don't fly when you are distracted
- Go to a big field
- Fly when there is no wind
- Stay away from people
- Stay away from animals
- Don't go past your limits

You should always have the quadcopter in your direct line of sight. If you lose sight of the quadcopter, you won't be able to control it properly. Also, remember, if you fly behind a tree or building, you can easily lose your perception. Having an obstacle between you and the RC vehicle can cut off the RC connection.

In conclusion, if you are a beginner or if the quadcopter is for your child, you need to start out with a drone that has a small price tag on it. However, if you are an expert in the field of quadcopters, putting some extra money towards a nice, professional quadcopter isn't that bad of an idea. Quadcopters come in many different styles and many of them have a camera, which means you will be able to take (or record) some good footage while the drone is flying in the sky. Just remember, before you go out there and purchase the first quadcopter you come across, you need to take time to do research in order to make sure you get the one that not only fits your budget, but your needs as well (not all of them come with cameras built in).