



# **Aero RC Club First Time Buyers Guide**

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## Aero RC Club: First Time Buyer Guide

So you took the first step by joining the club, maybe you have not joined yet. You can join at anytime during the year. Regardless you are here now and clearly show interest in buying your first drone! At the Aero RC Club - our goal is to train pilots up and bring you into the world of First-Person-View Drone Racing. However, going to club events will only net you so much experience. Therefore it is highly recommended you obtain a toy-grade drone to practice on before you go about buying a full-on carbon fiber racing drone.

### **So, how much does the hobby cost?**

We recommend you start with a toy-grade drone which costs about \$50.

In order to get into drone racing you need a transmitter and a drone for a start. Goggles can come later. So you first need to decide on a drone and then decide on a transmitter and drone. Choosing goggles and a transmitter is merely dependent on personal preference and budget.

So you will need to first decide your budget for a drone. A full-on carbon racing drone or even a mini FPV drone which will set you back about \$100-\$200. Then you will need to buy a transmitter such as the FlySky i6X which will set you back about \$80. Finally a pair of FPV goggles for about \$60-\$100 and a reliable charger for about \$50 will round out the most important pieces of equipment which are required regardless of which FPV drone you have planned.

*This totals to about \$190-\$230 for up-front equipment for goggles, a transmitter and a charger. Then about \$150-\$200 for a budget beginner/intermediate drone. **The minimum total spend is around \$360.***

This is to just give you a rough idea of the cost and will vary depending on your choices in equipment. There is more information on how to choose a drone and equipment later on.

### **Should you buy a toy drone because of its camera?**

Generally you don't want to bother with 'add-on cameras' as they are usually average quality unless you are using them for FPV to compliment your action camera. A camera not operating on 5.8GHz is not worth it due to latency issues.

Recommended action cams to get for your drone to record HD footage include the GoPro Session and the Xiaomi Yi.

Also, using a GoPro or Xiaomi Yi for FPV incurs too much latency because the signal needs to be converted from digital to analogue so we do not recommend it.

**So you purchased your first toy drone, and got the hang flying it. What now?**

Now you look into and consider getting into FPV Racing Drones. Your flying skills from flying a toy drone will significantly help you get the hang of FPV Drones. If you decide to build a drone yourself then you can come along to one of our build clinics and get assistance with building it. You are also always welcome to ask any questions you may have regarded to drones through our Facebook page.

**Okay. What if I already have a racing drone? What can the club offer me?**

At our events, we offer a community for you to meet like-minded individuals to fly and race alongside. We also offer competitions such as our upcoming Build Competition, Racing Tournaments, Build Clinics, indoor micro-events and student discounts from Drone Stores? So what are you waiting for? Get into it already!

# Terminology and Abbreviations

Before you get started, it can be handy to know about some of the terminology used

## **BNF - Bind and Fly:**

This means the drone does not come with a transmitter and receiver. You generally buy these if you already have a transmitter and then buy a matching receiver for your transmitter protocol.

## **ARF - Almost Ready to Fly:**

These are usually kits and generally means some soldering and assembly will be required.

## **RTF - Ready to Fly:**

This means the drone should come out of the box in a state that is ready to fly with a transmitter.

## **Mode 1 and Mode 2 on Transmitters?**

Mode 1 means the throttle stick is on the right side.

Mode 2 means the throttle stick is on the left side.

ARC only uses Mode 2. Most toy grade transmitters don't let you modify this, so make sure you order the right one! Proper transmitters generally allow you to switch between the two modes.

## **Gimbal**

The word gimbal is used to describe any adjustable camera or compass holder designed to keep the device level. A more accurate description of the quadcopter gimbal would be a 3 – axis camera stabilization and anti-vibration device.

## **FPV:**

First-Person View. Generally refers to the mini camera footage which is broadcasted live on the 5.8GHz band when someone is flying.

## **WiFi FPV:**

WiFi FPV is FPV which runs digitally via 2.4GHz WiFi instead of 5.8GHz. These generally suffer from intense latency issues which makes it useless for anything but snapping the occasional photo. Do not expect anything more than a bad, laggy stream.

## **2.4 GHz and 5.8 GHz**

2.4GHz is the frequency that drone transmitters operate on. These are the same frequencies as WiFi but transmitters have built-in interference-avoidance mechanisms.

5.8 GHz is used for FPV video flying and it's what's used in tournaments for live video feeds from Drones. If you see anyone else flying around with FPV, be sure to check with them and make sure you aren't using the same 5.8 GHz channel. Else you could override their channel and disaster could ensue.

## Beginner RTF Quadcopters

Whether you're looking to get into aerial photography or drone racing, getting a beginner drone to learn on is always a good idea.

### Syma X5C/Eachine E5C

**Price:** \$30 - 36 USD. (\$43 - 52 NZD)

**Flight Time:** 7 - 10 minutes. 5 minutes with camera.

**Stock Battery:** 3.7v 1S 500mAh.



The Syma X5C is the holy grail of beginner drones. They are affordable, repair parts are cheap, easily accessible and they very durable. We highly recommend these for beginners. The Eachine E5C is a clone of the Syma X5C with several improvements such as more speed modes, better range on the transmitter and the inclusion of a camera.

#### Pros:

- Removeable battery
- Two speed modes to suit easy/medium skill levels.
- Incredibly Durable, the body is very difficult to damage under normal use.
- Repair parts are cheap and easy to source.
- Capable of both indoor and outdoor flight.
- Transmitter has excellent anti-interference.
- 6-Axis Gyro allows it to be thrown up and launched mid-air.

#### Cons:

- Wireless distance only spans 20m.
- Only 7 minutes flight time on stock batteries.
- No wall charger included. Only USB or direct-hubsan connector.

**Note:** The WiFi based camera on the X5C-1 is **not** suitable for FPV due to latency issues!



If you looking for a more retail experience to buy a beginner toy drone then Hobby Trend at Sylvia Park Mall is a good place to get a beginner toy drone.

## Eachine E011

**Price:** \$17 USD (\$24 NZD)

**Flight Time:** 3.5 minutes.

**Stock Battery:** 3.7v 150mAh 25C.

The Eachine E011 is an incredible flyer and is the stepping ground into Mini FPV. It has ducted propellers which allows it to be more resilient to crashes, stable in flight and have a higher maximum speed. This is one of President John's favourite quadcopters which he likes to fly with FPV modifications.



### Pros:

- Removable battery
- Great durability
- 6-Axis Gyro allowing it to be thrown up and launched mid-air.
- High yaw rate
- Suitable for any difficulty of flying.
- Block figure can be removed.
- Awesome for racing indoors with FPV upgrades.

### Cons:

- Wireless distance only spans 30m.
- Small and easy to lose especially if flown outdoors.

# Drone FPV Racing

## Eachine E010S

**Price:** \$58 USD. (\$85 NZD)

**Flight Time:** 3 minutes.

**Stock Battery:** 3.7v 150mAh 35C.

Commonly referred to the 'Chinese Tiny Whoop.' The Eachine E010S is the upgraded version of the E010/E011 using faster motors, custom Flight Controller and an FPV Camera attachment. We have a few of these for the club and use them for our indoor events as they are fully tunable. They can also be used outdoors however we do not recommend this.



### Pros:

- Speed settings are fully configurable, with a very high max speed. The club ones are tuned to about 15% power so that beginners can fly them.
- Great durability
- Removable battery
- Great for indoor flying, your home furniture can act your obstacle course
- Batteries take about 15 mins to charge, 40 mins via USB.
- Wireless distance of about 100 meters, plenty to race around the house with.

### Cons:

- Short battery life of only 3 minutes on stock batteries, due to the nature of mini quads for the weight and performance. Make sure to buy a lot of spares batteries.
- Antenna can be easy to break unless you cover it. We at the club use cut-out ping pong balls. Replacing the antenna with a whip antenna is recommended.

[>> Youtube Video of what is possible with these types of mini quads. <<](#)



Hong Kong Racing - Tiny Whoop - Whoopin the Vertical City Part 2



Tiny Whoop

Subscribe 6,715

## Eachine Wizard X220

**Price:** 210 NZD ARF(Needs Transmitter+Receiver+Battery) / 290 NZD RTF

**Flight Time:** Depends on battery size and how aggressively you fly it. Beginners can fly for about 13 minutes on one battery while pros can use a one up in about 4 minutes.

**Stock Battery:** 3S 11.1V 1500mah 25C XT60 battery.

Regarded as the best low budget and no assembly required racing drone. It has amazing value for RTF at 290 NZD which includes a transmitter, lipo battery and props and ARF at 210 NZD which does not come with a transmitter, receiver and battery.



FPV Racing quads are quite comprehensive. It is recommended to start with a ARF/RTF model like the Wizard X220 as you can learn how all the parts work, before jumping into the deep end of building one. So it's best to conduct your research thoroughly as you need maintain FPV drones much like how you maintain your car. You will want to take good care of it and upgrade it. The only thing missing is a balance charger. Check out our recommendations at the bottom of this guide.

Looking to build your racing drone instead? Check out our build guide or talk to one of our committee.

### Acro mode / rate mode

This allows you to fly without automatic leveling/stabilization which essentially allows you to perform manual acrobatics such as flips and rolls. It is also much easier to fly FPV racing drones in this mode.

**Review by UAV Futures:** <https://www.youtube.com/watch?v=7SVrcqJmNFY>

# Introduction to Building Your Own Drone

Building your very own drone requires a lot of research even prior to selection of parts. Here are a few key specifications that we recommend you go for if you choose to build your own drone.

**Please note that this guide cannot cover all aspects of building a drone due to the complexity involved.**

We will also be hosting two drop-in **Build Clinics** each semester. If you need any help with the process of building, purchasing or maintaining your drones then come along and ask for advice.

## **Class Sizes:**

Typically the bigger the drone, the faster it will go. The trade-off is that it will be more prone to breaking in event of a crash and a lot harder to control. A lot of the FPV Scene is moving towards smaller class drones such as 100mm and lighter builds. The 220 class is a comfortable size to start with. Enough room to put everything together and a versatile size.

Just watch this video below which covers how to choose a frame(class size) and how that will determine your build parts such as motor size, prop size and ESC size.

[UAV Futures: How to choose the right frame for you.](#)

## **Motors:**

With brushless motors there's generally two parameters you'll need to pay attention to, motor size and motor kV. Racing FPV multirotors generally use size 2204 motors with around 2300-2400kV in order to get the power output that you need.

## **ESC(Electronic Speed Controller):**

ESCs are the circuit chips that feed your motors power and control their speed. Picking a good quality ESC is essential otherwise it could potentially blow up other components of your drone.

Typically you will want ESCs that output at least 10A for 2000+kV motors and 20-30A for 1000kV motors. You can determine the amperage required by reading the power efficiency chart for your motors. The number of ESCs you need is determined by the number of motors you have.

There are also 4 in 1 ESCs that you can buy, these are great for small builds.

## **LiPo Batteries**

LiPos, you will need 3S (11.1v) and 30C at the absolute minimum. If you want to get serious racing lipos at an affordable price then Ace Company's Hydra Lipos are a great place to get some.

## Recommended Resources:

Stew from **UAV Futures on Youtube** has an amazing wealth of knowledge on every aspect of drones you could just about think of. Here is a link to the channel:

<https://www.youtube.com/channel/UC3ioIOr3tH6Yz8qzr418R-g>

**Here are a few videos in particular to we highly suggest you check out:**

- How to get into FPV Drone Racing for under \$300 USD:
  - <https://www.youtube.com/watch?v=z2Q2KdhtmFA>
- Beginner's guide to Building a fpv racing drone
  - <https://www.youtube.com/watch?v=iURdanOCFIA>

The community over on **Reddit** at [/r/multicopter](https://www.reddit.com/r/multicopter) are a very helpful bunch worth checking out.

Last not but not least be sure to join our **Aero RC Club Members group** on [Facebook](#).

## Racing/Competing Nationally Outside of the Club

If you are looking to compete nationally in NZ then you will need approved Antennas and VTX gear. A list can be found below, these apply to Rotorcross NZ and FlightClub AKL. You can also find more races on [MultiGP](#).

<http://www.flightclub.co.nz/fcaki/forums/topic/flight-club-2017-vtx-requirments-proposed/>

**N.B.** Once you have a drone, make sure to order spare motors and a few ESCs at the very least. You will likely break a lot of propellers so order them in bulk for spares. You don't want to be waiting 3 weeks for new stuff to arrive.

## Recommended parts to keep in mind that could dictate your build.

4 in 1 ESCs exist? Yes they do! Got tight 100mm build and need it to be as light and compact as possible? A 4 in 1 ESC may be your calling. Try this: [Racerstar RS20Ax4 20A 4 in 1](#)

There are also towers, stacked PDB, FC and AIO ESC compact towers you can buy.

Heck even full on everything in one! PDB+FC+AIO ESC. All you need to add is a frame and motors and you are done (just about). [XJB V2 F3 EVO](#)

## Recommended FPV Parts:

Mini Video Transmitter (VTX). [Eachine VTX03](#)

Budget FPV Cam. [Eachine OKKAN EK119](#)

AIO FPV Cam - Just add power!. [Eachine TX03 AIO FPV Cam](#)

Amazing for adding FPV to the Eachine E011 and any toy drone using garden wire.

# Chargers

Drones use Lithium Polymer batteries (LiPos) because of their weight to capacity ratio. LiPos however can be very dangerous if you do not get proper charging equipment and treat them well.

A proper charger will charge a battery multitudes faster than a wall or USB charger. A 3.7V(1S), 500mAh battery could take 1 hour to charge via USB whereas a proper balance charger will only take 25 minutes. A charger is also capable of charging a batch of 5 in parallel in 40 minutes.

**As you scale up in sizing of the drone, a proper charger becomes essential for safety reasons.** The issue with toy-grade drone chargers that utilize USB charging is that they feed power directly into your battery. While this will work for single-cell batteries, if your battery is a multi-cell battery imbalanced charging may occur where one of the cells can be overcharged and therefore result in a potentially dangerous situation.

## Using a Charger

When charging lipos always be sure to only put a moderate amount of amps (2-3A for any battery that is above 3S 1000 mAh) and always use balance charge where possible.

You typically only need a charger that is capable of 4 Amps since that is typically the highest current you will want to charge a LiPo battery. There is not much point getting a giant charger with 10 Amps if you are only charging are 1S-4S lipos.

## A note on included USB chargers

We have seen some pretty horrifying USB chargers being included with toy grade drones and we strongly recommend **against** using them unless you can verify their quality. It's best to purchase a proper lithium polymer charger than risking your batteries (and your house) with an unknown charger.

## A note on Fake Chargers.

There are a lot of fake SkyRC iMax B6 chargers on the market which you can acquire for around \$30. Fake chargers are a big hit or miss, you may get lucky and have one that's fully functional, but you may also get one with low quality internal components that may catch fire or damage your Lipos.

## SkyRC iMax B6 Series- Recommended Charger

**Price:** \$45

**Chargeable Battery Types:** LiPo,LiHV,LiFe,Lilon,NiMH,NiCd,PB

**Versions:** The iMax B6 comes in three variants, the B6, B6 mini and B6AC. The B6AC has a built in power supply while the B6 mini has a smaller footprint.

**Charging Power:** Available in 50W/5A and 60W/6A.



We recommend this charger because of its affordability and it can charge any battery you could encounter with drones.

### Pros.

- Barrel connector allows it to be powered off many different power sources such as car batteries, laptop power bricks, portable field charging packs, etc.
- Can charge many battery types such as LiFe or car batteries.
- Built in battery meter to monitor charging progress.
- The B6 Mini variant can measure the internal resistance of LiPo batteries.
- Has expansion sensors to connect to your PC/Mobile to read the battery temperature and other details.

### Cons

- Requires an external power supply (Not Included).

## SkyRC S60

**Price:** \$70

**Chargable Battery Types:** LiPo,LiHV,LiFe,Lilon,NiMH,NiCd,PB

**Charging Power:** 60W/6A.

A great comparable alternative to the iMax B6 series. Smaller and more compact.



### Pros

- Internal power supply with AC Plug(Plugs directly into your wall socket).
- Battery Meter to monitor progress.
- Internal Resistance Meter.
- Has expansion sensors to connect to your PC/Mobile to read the battery temperature and other details.

### Cons

- Internal power supply meaning you cannot power it using external power supplies such as portable power or car batteries unless you have an AC inverter.

## FPV Goggles

FPV Goggles are essential once you have your own FPV drone. Aero RC Club suggests the Eachine series because of their affordability and quality.

The club uses the Eachine EV800s and are our recommended go-to goggles because of their detachable monitor+goggle design and external 2S/3S LiPo battery support.

### Recommended Goggles

Budget	Mid-range	Mid-High Range	High Range
Eachine VR 007 Pro	Eachine EV800	Eachine VR D2 Pro	Eachine Goggles Two
			
<b>Price: \$70</b> <b>Special: TBC</b>	<b>Price: \$100</b> <b>Special: \$80</b>	<b>Price: \$130</b> <b>Special: TBC</b>	<b>Price: \$232</b> <b>Special: TBC</b>
<ul style="list-style-type: none"> <li>-4.3' screen. 272p</li> <li>-No autosearch.</li> <li>-Great budget goggles.</li> <li>-External battery included.</li> </ul>	<ul style="list-style-type: none"> <li>-5' screen. 480p</li> <li>-Great budget goggles.</li> <li>-Monitor can be detached and mounted on a tripod.</li> <li>-Club uses them.</li> <li>-Internal battery. (3.5 hours)</li> <li>-Supports external 2S and 3S LiPos with JST connector.</li> </ul>	<ul style="list-style-type: none"> <li>-5' screen. 480p</li> <li>-Diversity Antennas.</li> <li>-Frequency avoidance</li> <li>-Built-in DVR(Record footage).</li> <li>-No internal battery.</li> <li>-External battery included (2.5-3 hours).</li> </ul>	<ul style="list-style-type: none"> <li>- 5' screen. 1080p.</li> <li>-16:9 cam support.</li> <li>-Diversity Antennas.</li> <li>-No built-in DVR.</li> <li>-No internal battery.</li> <li>-External battery included (1-2 hours).</li> <li>-HDMI port for home theatre use and FPV with DJI drones.</li> </ul>
<a href="#">BangGood Link</a>	<a href="#">BangGood Link</a>	<a href="#">Banggood Link</a>	<a href="#">BangGood Link</a>

Other popular brands include Aomway, Fatshark and Skyzone which range from \$250-\$800.

# Transmitters

When it comes to drones, the transmitter you choose will be your second-biggest investment before your goggles. Selection of a transmitter really comes down to preference. There is not much difference between transmitters they all serve the same purpose. Here are a few things to keep in mind when selecting a transmitter.

## **Pinching Vs. Thumbing**

The standard transmitters are typically quite good for pinchers (People who prefer to control and fly the gimbal sticks with two fingers) and thumbers (People who control the gimbal sticks with their left and right thumb). There is also a new design of transmitters, the Turnigy Evolution which is designed for thumbers with drone flying in mind.

## **Channels**

The recommended number of channels you need on a transmitter is 8. 6 channels is the bare minimum as channels are used as follows: 4 channels for movement, 1 for arming/disarming and 1 for switching between modes.

## **Protocol**

The most popular protocols include FrSky and FlySky. FrSky is more expensive compared to FlySky (Typically \$20-\$40 vs. \$5-\$20). They are both equally good at a protocol-level. The quality comes down to which receiver module you buy.

## **Mode 1 VS. Mode 2**

Mode 1 means the right hand stick controls throttle whereas mode 2 means the left hand stick controls throttle. Mode 2 is the most popular and is suited for right-handed users and vice-versa. The modes are simply a hardware spring and can be changed over by moving the spring mechanism from one gimbal stick to another.

## FlySky i6X/iRangeX i6X - Recommended Transmitter

**Protocol:** Flysky AFHDS/AFHDS 2A

**Price:** \$85/\$70

**Switches:** 3x 2 position Switches. 1x 3 Position Switch. 2x Dial Knobs.

**Channels:** 10

**Pros:**

- Practical design and meets all needs of a transmitter.
- FlySky Protocol meaning cheap receivers.
- 10 Channels giving you plenty.
- Backlit display.
- No self-centered gimbals.

**Cons:**

- Requires 4 AA batteries



## Turnigy Evolution

**Protocol:** Flysky AFHDS 2A(No AFHDS)

**Price:** \$80

**Switches:** 2x 3 position switches on back. 1x Two position switch on the front.

**Channels:** 8

**Pros:**

- FlySky Protocol meaning cheap receivers.
- Good gimbals.
- Comfortable, ergonomic design with thumbers in mind.
- Touch Screen display
- Built-in Li-ion battery and re-chargable by USB
- Telemetry
- Backlight LED gimbals.
- Small in size and easy to carry.
- Voice feedback

**Cons:**

- Only supports the FlySky AFHDS 2A protocol. No support for FlySKY AFHDS protocol.
- Not suited pinching due to ergonomic design.
- Self-centered gimbals
- No trimming switches for gimbals.
- Only good for racing because not enough switches/pots for aerial photography.
- Memory support for only 5 models.



## Tarananis QX7

**Protocol:** Built-in FrSky. Support for other protocols through JR modules.

**Price:** \$160

**Switches:** 4x 3 position Switches. 2x 2 position switches. 2 Knobs. 2 extra switches and 2 pots on side.

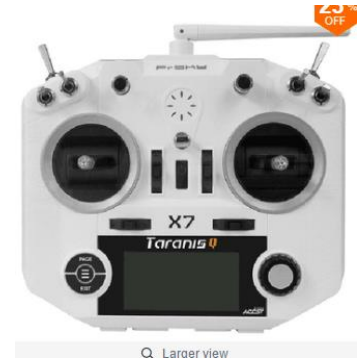
**Channels:** 16

### Pros:

- Telemetry.
- Good for pinching.
- FrSky Protocol. Compatible with FrSky X, D and V8-II receivers.
- Memory support for up to 60 models.
- Voice feedback.
- Vibration feedback.
- Supports external JR modules(Allowing you to switch between different protocols. N.b There are currently no Flysky AFHDS 2A modules on the market.
- Smaller and more lightweight than its Taranis X9D counterpart.

### Cons:

- No 2S/3S LiPo battery included.



## Ongoing Costs

### **Propellers.**

These will be your biggest ongoing replacement part. However, they are relatively cheap for all drones and toy grade ones are very durable. Thankfully propellers are readily-available and quite affordable. How often you will be replacing props is dependent on how often you crash your quad.

### **Brushed vs Brushless Motors.**

Toy grade drones generally used brushed motors instead of brushless motors. The problem with brushed motors is that they need replacing every 30-50 flights; the actual values will vary depending on the drone and the way you fly. They are however readily-available and affordable, for example, Syma X5C motors are 20 cents each.

Brushless motors cost a lot more(\$3-10 USD each), however they are much more durable and can push out a lot more power. Brushless motors generally do not need to be replaced unless it is physically damaged (e.g. in a crash).

### **Brushless motors.**

Brushless motors range from \$10-\$40 a motor. Any beginner/intermediate drone will be using budget \$10 motors. Make sure to always stock spares!

### **Electronic Speed Controllers (ESCs).**

You will typically want to have at least 2 spares laying around. ESCs can burn out from time to time. Very rarely, but it does happen and you don't want to be stuck waiting awhile for new ones to arrive. Budget ESCs typically cost about \$10 each.

### **LiPo Batteries:**

It is recommended to have at least 2 spares. This minimises wait time but be careful not to charge the batteries while they are still hot as it can shorten the life of your batteries. Also, give your drone rest time in between batteries to avoid motor damage (especially in toy grade models).

Lithium-polymer batteries are annoying to get into the country because most air carriers won't take them as cargo. The simplest ways to acquire them are to purchase locally or via sea freight from Australia. HobbyKing.com.au is a good supplier for LiPo batteries. Alternatively, you can get them from New Zealand retailers such as our sponsors.

1S lipos you are looking at 3 USD each.

2S lipos, you are looking at 5-20 USD each.

3S lipos, you are looking at 20 NZD- 40 NZD

4S lipos, you are looking at 30-50 NZD.

## FAQ

### Where do I buy from?

[BangGood.com](http://BangGood.com) - Cheap and not too bad with free shipping. Trustworthy, but mediocre customer service. Tracking doesn't always work. Free shipping takes 2 weeks after 1-3 day dispatch.

EMS Shipping is also cheap and affordable.

If customer service isn't working in your favor, then you always have the 6-month PayPal protection (If you pay with PayPal which is highly recommended).

Just don't expect any sort of reliable warranty when ordering from China except through PayPal.

[AliExpress.com](http://AliExpress.com) - A large marketplace full of many different sellers where AliExpress handles all the ordering and payments. It's pretty much eBay based in China but catered to International Customers. Our president has personally made several hundred orders on this site and hasn't run into many issues. However just be mindful of any fakes (unless of course you want fakes :-'))

### Who are our sponsors? (all local)

[HobbyTrend](http://HobbyTrend)

Perfect for RTF toy drones.

These guys are a great bunch. They have sponsored the club a lot of equipment and definitely a store you should support. Much of their catalogue is not on their website, however they are based in the Sylvia Park Shopping Mall in Mount Wellington (East Auckland).

[Ace Company \(IVRotor\)](http://Ace Company (IVRotor))

Mainly sell racing drone parts.

10% storewide discount(where applicable) for ARC student members.

These guys sell a huge variety of FPV equipment and parts, perhaps most of interest is their Hydra series of LiPo batteries.

### How do I claim my ARC concession from the Sponsors?

#### Ace Company:

Simply create an account on their website and flick them an email with a photo of your Student ID and ARC 2017 membership card from your Uni email.

They will then use a tool created by us to verify if your name and email match and then apply the ARC Concession to your account to claim said discounts.

Please note that you may not be able to claim your discount if your email and membership ID you provide does not match our records.

**But I don't trust putting my credit card details online.**

Alternative you can pay with PayPal. PayPal goes through secure encrypted SSL and your data cannot be stolen by other users on the same internet hotspot as you.

**A word on fake drones/parts:**

Some fake drones can be much cheaper and a huge improvement over the original. However you need to be careful on what you buy and where you buy. Always make sure to research the site to see if what part you are buying is genuine. If you are sold a fake unknowingly you can contact their customer service and if that doesn't work then claim your money back with Paypal.

For fake parts. Well they can be decent. It really varies between who the manufacturer is and how much of a price difference there is over the original. Just remember fakes are generally manufactured by the website retailer. So fakes from one website may be different from another website.

**Rules and regulations**

Here are the rules regarding drones so have a skim through

Rules: <http://www.caa.govt.nz/rpas/>

Available flying spots: [www.airshare.co.nz](http://www.airshare.co.nz)

Auckland council parks:

<http://www.aucklandcouncil.govt.nz/EN/parksfacilities/sportrecreation/Pages/drones.aspx>

Notable places to fly include the Auckland Domain, Tahaki Reserve by Mt Eden and pretty much any park/reserve that is owned by the Auckland Council.

Just be sure to operate under a shielded operation if it is in an aerodrome!