

PREVIEW

ACCURC

SIMULATOR REVOLUTION

IT'S ONE OF THE BIG TALKING POINTS IN THE HOBBY AT THE MOMENT AS THE CREATORS OF THE LATEST ADVANCED R/C HELI FLIGHT SIMULATOR HAVE BEEN BUSY SPREADING THE WORD AND BUILDING UP QUITE A DEMAND FOR IT. BUT DOES ACCURC LIVE UP TO ALL THE HYPE? JAME COLE GETS HIS HANDS ON A PRE-RELEASE BETA VERSION TO FIND OUT

Part of the fascination of R/C helis is that they are had to fly and even more difficult to master. It has become easier over the years especially as the dark art of setup has been simplified, but once you are past that you need to master the flying element which is very difficult and can be timely and expensive. Around 25 years ago the first R/C simulator was released in the form of RC AeroChopper on the Atari ST. At the time this simulator was amazing and it taught me how to fly R/C planes and

gave me a guide to R/C helis, but the graphics were a wire framed model with basic colours, it was simple but it worked. Since then PCs have become much more powerful and great advances have been made in R/C sims and now they all have amazing graphics. They have taught many pilots to fly and the value of sims has become even more widely recognised as they not only help people save loads of time and money on breakages when trying new stuff, but they also help the pros master their flights to music or those set manoeuvres or routines they may want to test out.

Some screen shots from our tests, this is the Synergy E7 ready for take off

Spooling up you can see stuff moving to cause the actions for the model taking off, be this control horns or blade pitch

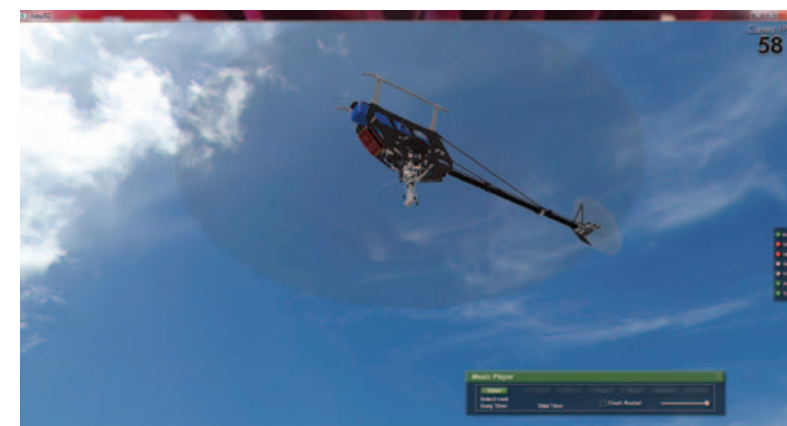
Up and into the hover. You quickly get to see this is not just a good simulator in the physical sense and handling it also looks the part with some lifelike images

If we look at the full size flying world, pilots of real planes are not allowed near one until they have done many hours in the simulator. And if we look at Formula One they invest millions in simulators to bring cars to life and train their drivers. But there are a few key differences in how these full size simulators work compared to our R/C versions and this is where AccuRC aims to change things and offer something much more advanced and completely different.

We have been lucky enough to get an early copy of AccuRC for review and we have been putting it through its paces for a few weeks. By the time this goes to press AccuRC will be available to pre-order.

THE TEAM BEHIND ACCURC

AccuRC, pronounced 'Accuracy' is the brain child of a team of some of the UK's top talent in the R/C and sim world. These guys have come to the table with one hell of a lot of experience and are about to revolutionise the world of R/C sims. That's quite a bold statement but in the quest



The 3D setup is programmed into your transmitter, just like in the real world. A quick flick to inverted and off you go

Hit the letter 'C' and the canopy comes off, again you can see everything working, clever stuff

In a tick tock the model feels like it has a presence and like it has a physical weight

to get the most realistic feeling models possible and to make the sim as close to the real world as possible these guys have teamed up to build the virtual R/C world into a simulator.

This design team consists of Ashley Davis, the lead developer who is an accomplished pilot and technical guru; Colin Mill, an expert aerodynamicist who designed the first heading hold gyros and the world famous CSM sim; Brian Clarkson, architecture developer who has also designed sims and has been involved in R/C for many years; Nigel Fraser Ker, project consultant and another accomplished heli pilot; Zane Desir, developer; and Roger Hamilton, main investor and in charge of marketing.

Features at a glance...

- Real-time physics
- Real-time aerodynamics
- Wide range of R/C helis
- Wide range of options to tune your machine
- Online multi-player support
- Social media support and integration
- In life updates included
- Full gyro variables including auto levelling

WHAT DOES ACCURC OFFER?

In answering this it is probably easiest to think about a racing car game/simulator. In the old world you create an object on the virtual track and then you have three controls: steering, speed up and of course brake. Now that block on the screen (the car with lots of photo realistic graphics) is then made to go faster or slower when pressing the throttle, or to brake when you hit the brake, and of course to move left and right when you move the steering. Now that's great in theory but if you want to simulate an F1 car going around a track to get a realistic experience you take it to a new level and whilst there is a photorealistic presence on the screen a lot more is happening under that virtual hood.

What happens in the F1 simulator is that when you hit the throttle on the control it simulates you pushing the throttle pedal which feeds back to the ECU which controls the fuel injectors, more fuel is



PREVIEW



This is the team behind all the clever stuff and the guys that have made this happen

injected which makes the engine spin faster which drives the output shaft to the gearbox and then outputs to the rear wheels, the rear wheels will then spin up creating the traction, etc. Of course when this happens there are aerodynamic forces on the vehicle which are also simulated and the list goes on. So what actually happens is you start to control a virtual vehicle.

Apply that same principle to the R/C world and you have AccuRC. When you see the funky graphics of servos moving control arms which alter the pitch on the blades that's not just for show, that's what is actually happening. These guys have worked tirelessly for over three years to programme all the physics and aerodynamics needed so that when you pop your AleeS Rush into a hover on the simulator you are flying a machine in the sim that is about as close to reality as it can be with modern technology. Hopefully this explains a little why AccuRC is being described as a 'simulator revolution'.

GETTING STARTED

We installed AccuRC on a laptop with 4GB of RAM and an Intel i5 2.5GHz processor. The recommendation is for at least a 2GHz processor, 2GB RAM and a decent graphics card, which I don't have. My machine is not some super computer but a half decent two year old laptop, which for me is important as we don't all have the latest and greatest machines to hand

What's in the Box..?

- Transmitter lead
- USB adaptor
- CD to download the latest software

You will also be able to get additional accessories for the USB adaptor that will allow you to add a satellite for JR/Spektrum or to use an S-Bus receiver (more support for other transmitters to follow), this will allow you to pair your transmitter to the sim with no cables by transmitting on 2.4GHz.

Updates with new models and new versions of the sim are also coming with planes and gliders in the mix in coming updates. For the minute though this is an R/C heli sim only.

to be able to run these things. It probably won't like anything too slow as there are a lot of calculations being processed when you are flying the models.

After the simple installation process we set about going straight to the default model which is the Synergy E7. The first screen you are presented with is the 'Workshop'. From here you can choose your transmitter settings. I chose the virtual transmitter whilst also selecting my Spektrum handset from the list.

Once back to the main workshop screen you can check your controls to check everything is going the right way (just like you would on the bench or at the field). For those new to the hobby or about to build one of these machines this is excellent as you can see how it should all move and interact. A left button click

whilst moving the mouse will allow you to navigate around the model zooming in and out as you see fit. Whilst still moving the servos with the canopy off you can see all of the servos move, linkages move and in turn the blade grips move as you wiggle the sticks. The attention to detail is stunning.

One of the points to note at this stage is that you will need to check the 'Avionics' section and to adjust the flybarless controller's settings. This will allow you to select a baseline setting that suits you and your current flying skill level. Pro level is great for those that fly a machine well or you may want to select one of the other options if you are not a 3D monster. I selected Pro!

TIME TO FLY

Having selected the transmitter we hit the fly button. Popping the model into the hover you get an instant feeling of being connected to that virtual machine and it feels very real. It has all of those little features you expect when you fly your R/C heli, the odd things in ground effect and a presence, which is hard to put your finger on, but it's there.

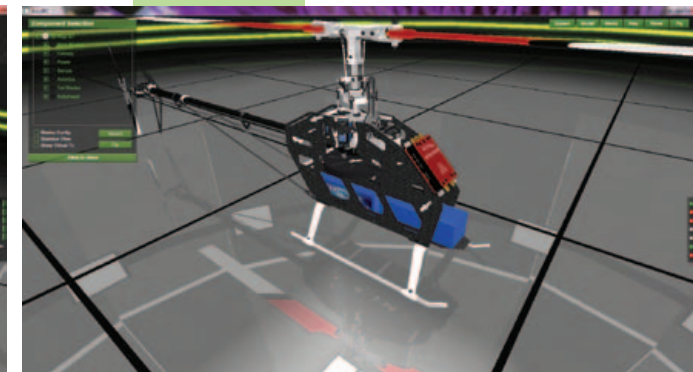
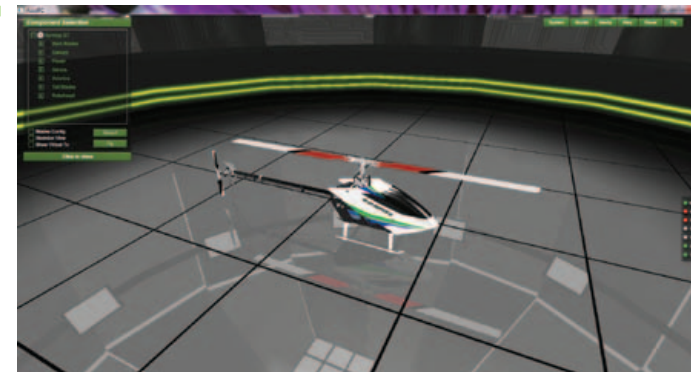
Trying the basic stuff and everything feels oddly real, it's not like flying your usual sim. The model gets affected by the wind in a real sense, not just blown away. For me there are a few things that work exceptionally well on this that don't seem to work in such a real way on any other sim. So now it was time to try some 3D manoeuvres.

Hurricane - Be this backwards, forwards or sideways hurricanes on a sim always seem to be a struggle, you can never quite get it locked in like it is with the real deal and you always seem to be fighting the sim's incorrect physics, but the AccuRC sim has this nailed down and the hurricanes are just like they are at the field.

Transitions and tick-locks - This is always a tricky one to replicate as with a real model you have the weight of the model to contend with which you have to slow up, bring to a halt and then swiftly change its direction, be this a transition from a skids in to skids out hurricane or be it an aileron tick-tock. It's actually that different that in real life I can do them all day long but I struggle on the sim to get it as accurate as I can in real life. Well the AccuRC sim seems to deal with this perfectly with a feeling of realism and a presence and weight.

Autos - Whilst I learnt to auto on a sim many years back it was more about the concept of the auto and to be honest very few sims have managed to get this right over the years as the aerodynamics involved are quite detailed. Start doing rolling autos and other than getting the basic inputs right you are best practising that for real. Again the AccuRC sim seems to do a stunning job of getting this 95 percent spot on with rolling autos, flipping autos all working as expected, or as per real life.

As I am writing this article I am actually switching pages back to the sim to



validate what I have put into words and I stand by it 100 percent, in fact so much so that the autos are 99 percent as they are in real life. This really is a revolution, but that's not all!

CHANGING STUFF AND EXPERIMENTING

Once over the initial excitement of the sim you can start to experiment with different models. You do this by adding them to 'Your models' from the 'Hanger'. There is currently a wide choice of models from the Goblin 700 to the Logo 600 and T-Rex 600N DFC.

As this sim uses real aerodynamics to calculate everything you can actually start experimenting with things to see what the effect is. This could be a set of blades, of which many are available in the program. These are all set up with the correct dynamics, weights, centre of gravity, these then dictate the lift they generate and the affect they will have on the model so you can test your new blades before you even buy them. Or of course you can set up your own models that you own and tune them to have your setup. Here is a list some of the things you can change by simply right clicking on the item in the workshop and choosing from the list:

- Servos and servo voltage
- Main blades
- Canopy
- Head dampers
- Tail blades
- Pinion size
- Batteries - which go flat at the end of the flight
- Motors
- Speed Controller
- Receiver
- Flybarless controller
- Throttle governor

If you are choosing a different option from the above you have most major

brands supported so you can pretty much replicate your model from servos up to blades within the sim. We have tweaked and messed around with different setups. I have to say it's great for my son Aaron as he can experiment to understand more about what's going on, and that will be the same for many people.

There are lots of things coming soon with this sim and we are looking forward to each and every one of them. It is worth noting that in having all these variables you can adjust heaps of stuff on the model but you cannot change the laws of physics! In saying that what we mean is you can't fudge anything. By way of example you can't adjust the lift of the model in a knife edge circuit (funnel). Why? Because there is no such thing, the helicopter stays in the air when 'on knife edge' because when going round in a hurricane for example the angle of the rotor disk produces a force which can be split into two vectors - the one balancing the centripetal force and one balancing the force of gravity. You can't fiddle with these because they are laws of physics. This is just a basic example, but it does convey the principle of fidelity which underpins the whole ethos of AccuRC and why it differs to anything else on the market.

So tweak away and be confident that you are tweaking would have a very similar if not exact difference to what would happen down at the field.

THE VERDICT...

The attention to detail is really amazing. Things like being able to check out your servos and change the servo arms, you can then see the range of movement, or the fact that you have a digital pitch gauge you can put on the machine to test it. If you over pitch the machine and

Once back in the workshop you can move around the model, a right click will outline the highlighted area and allow changes

With the canopy off you can start to tweak lots, if you want to experiment of course, or to make the model just like the one on your shelf

Right click the mouse, select pitch gauge and you have the ability to check the output of the blades based on your stick movements

You can even change the motor, this affects performance and battery life, check out the attention to detail

run 15 degrees of pitch the model will give a massive torque reaction, as you would expect in real life. It's real life in a sim!

All in all the feel of the sim is about as real as it gets, and whilst I have not used sims in anger for a very long time I find myself picking up this one to try something new.

The setup out of the box is simple and all you need to change is the flybarless mode to one that suits you, 'Sport', 'Expert' or 'Pro' and off you go. However, if you know what you are doing, or want to play to learn then you can change so much it is just crazy.

It doesn't matter if you are a competent pilot, beginner or someone looking to get into the hobby, this thing will amaze you and you will need one. I think my favourite feature is the music option/mp3 player. You can set this up to restart if you crash, this makes it amazing for practising flights to music and to get a routine right, of course you can turn off the restart on crash feature and just listen away!

There are so many details here it is hard to cover them all off in this short preview but I will sum up by saying that for me this is a revolution in R/C sims and everyone will want the super accurate AccuRC sim. We will have a full review of the actual finished article once it has been released.

Jame Cole

Tech Spec...

ACCURC SIMULATION

System requirements: 2GHz 4-core processor, 4GB memory and a reasonably modern graphics card but NO need for cutting edge, really expensive, only just released graphics cards.

RRP:£89

Available: Mid to late June

Web: www.accuarc.com

Facebook: www.facebook.com/accuarc.simulator