Carl Berry with his Project Cyclops, complete with 'Cockpit' from a Sega arcade machine

A HISTORY OF FPV

FPV is now synonymous with racing quads and wings, but where did it all start from? Wayne Andrews delved into the annals of RC history to find out...

AUTHOR: WAYNE ANDREWS

Ever since the very inception of RC flying as a hobby, people have been attempting to carry cameras to capture aerial footage – guiding their aircraft around the skies from a distance, hoping they are lined up on their subject and footage is getting shot.

How did we go from this crude and very much hit-and-miss concept, to the idea of FPV? In this article, we trace the history of FPV, talk to the people involved at the very beginning and learn where some of the most high profile pilots got got their inspiration.

So where, and indeed when, did FPV start? It's an interesting question, as you might describe it as having two answers. It's not like we're going back to the dark ages but in the late '90s, although the Internet was certainly popular, there wasn't

necessarily the huge online communities in every niche and specialised subject you can think of. So to begin with, there were a few rogue mavericks, each independently having the idea of beaming back a video signal from an RC plane and being able to fly using this signal.

The Rogue Mavericks

The earliest hobbyist flying FPV that I have been able to locate is also one of the most interesting, given the creator's intention to not only fly by means of video, but to create a whole mock-up aeroplane cockpit to do so, giving even more immersion than he could hope for.

This man was a Texan called Carl Berry, who sadly passed away in 2012. An electrical engineer, and ex-employee of Boeing Aerospace, he built Project Cyclops RPV-UAV

Despite making the local paper, the idea of FPV just didn't catch on

This pilot does great flying without leaving the ground

By TERRY MINAMI
Staff Writer

Carl Berry enjoys flying radio-controlled airplanes.

System. This was first test flown back in 1989, and video at a publicly sanctioned flying event in 1993 or 1994 shows Carl demonstrating his cockpit – the enclosure from an old Sega arcade machine. His plane, an 8 ft long twin gas plane weighing 15 kg with a 10 ft wingspan needed to be large to accommodate the bulky CCD security camera.

Having migrated parts from his Futaba radio into the arcade cabinet and mounting a 19" monitor to receive the wireless video signal, Carl was able to fly with good clear video along with a semi-functional on screen display (battery voltage and airspeed were operational, altitude was not yet implemented).

Carl's intention was to sell kits based on his Cyclops project. He was clearly an engineering genius, but he didn't really know how to market his invention – so although he sold a few RC and video components, Project Cyclops was practically unknown to the RC community.

Another lone-wolf was Oregon based Dave Upton, who appeared with quite a mature system in 1997 when he produced a video detailing how to install the INCAB-RC Videolink system: a 900 MHz video transmitter and receiver set. The video was intended to popularise the system, and included sections on how to use large car or leisure batteries with an inverter to power up your TV set and VCR. Dave was also the first person I've witnessed to suggest using video goggles in order to further enhance your video piloting.

The low frequency 900 MHz system was able to get approximately 3 miles of range out of Dave's twin engine gas powered plane, and interestingly he also sometimes used a hand held yagi antenna in order to track the plane to get an extra mile out of it. Certainly the easiest form of antenna tracking, but it did use a person holding up a large antenna in the air instead of any complicated electronics.
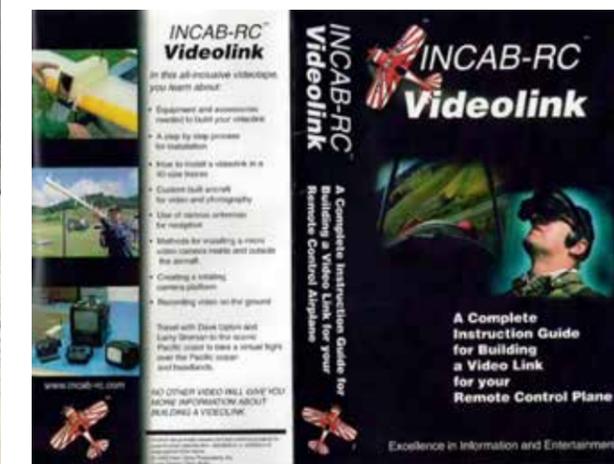
Dave Upton sold a video cassette detailing how to add a video link to a plane (Image courtesy of YouTube)

Looking back, it's hard to imagine why video piloting didn't explode into the consciousness of other RC Pilots. One problem may have been the difficulty of seeing or hearing about other people's adventures. YouTube wasn't created until 2005, and RCGroups.com didn't exist until 2001, so although hobby-based communities existed on the Internet, it didn't include what would ultimately become FPV.

The Community Effect

However, when you track the history of FPV back as a community effort, all roads lead to US-based Thomas 'Mr RC-

In the course of the video, Dave explained how to install the system in different planes and discusses how to view the video on the ground (Image courtesy of YouTube)

ANTENNA COAX

CAMERA / MIC CABLE

DC-DC CONVERTOR

4.8V BATTERY CONNECTOR

XCam2 Tx Board
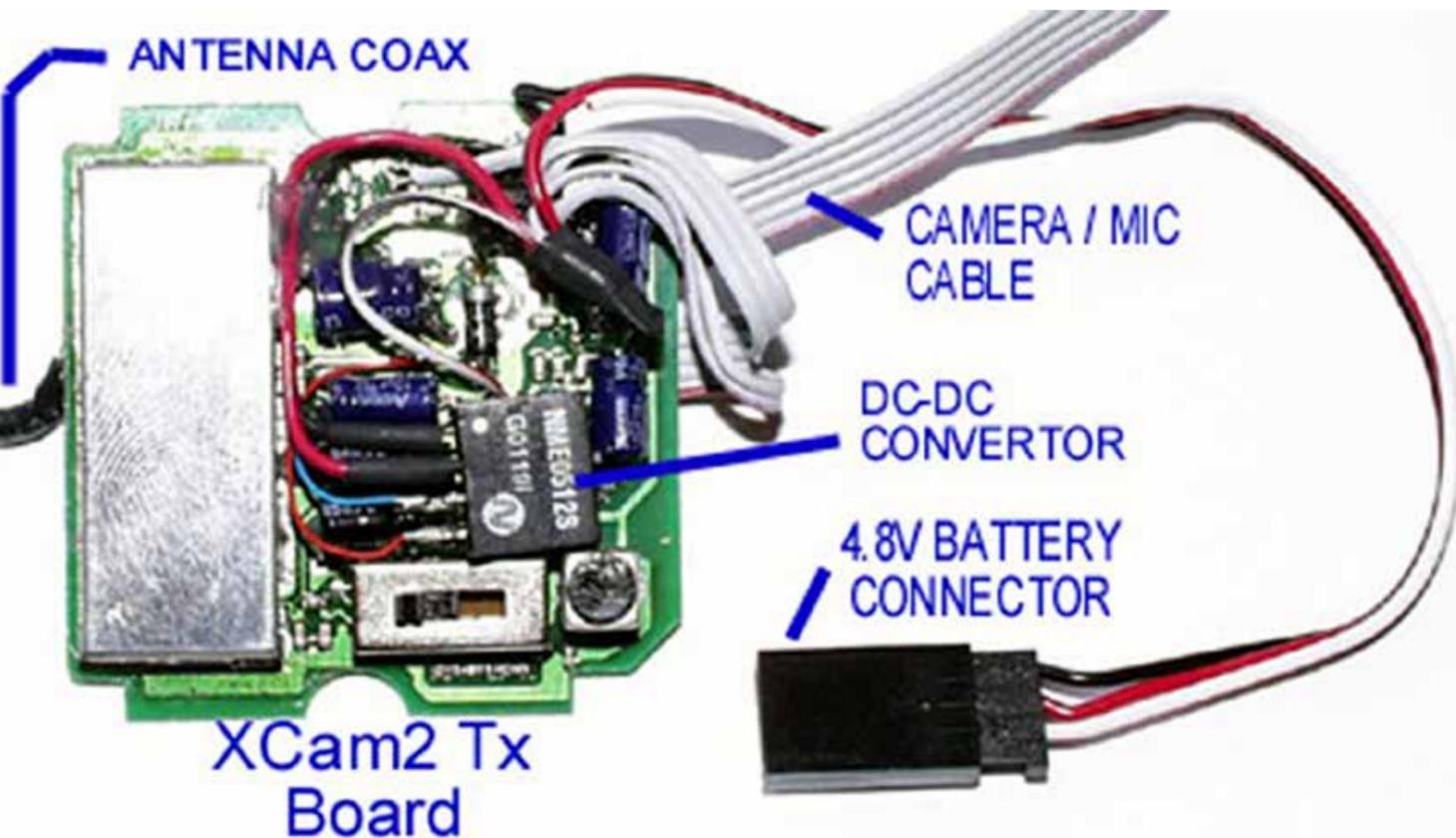
The MR RC-CAM group collated information together about how to repurpose hardware for FPV use. Such as the popular XCam2 video transmitter

CAM' Black, who started up the RC-CAM MSN group (like a modern Internet forum hosted by Microsoft) back in December 1999 – an online community dedicated to trying to get wireless video sent from a radio controlled plane back to the ground. The term FPV still hadn't been coined at this stage, so the talk was of video piloting.

Without prior knowledge of Carl Berry or Dave Upton's efforts, video piloting was effectively re-invented, but this time it wasn't the brainchild of a single individual, it was very much the effort of a collective. I spoke to Thomas to ask him what the reasons behind the idea of flying your plane with a video link came from.

"We were all driven to do it for different reasons. But no doubt the underlying feeling for many of us was that it would be cool and exciting. I dreamed about doing it for many years, mostly waiting for the technology and high cost to get within my reach.

It was a slow but steady evolution. Development was driven by hobbyist that shared their success stories in forums; Significant online collaboration began in the early 2000's. Soon some small online FPV shops appeared (mostly operated by hobbyists with a regular day job) that sold ready-to-use wireless video equipment that came from the security camera market. These were often the same components that hobbyist had already evaluated and discussed in hobby forums such as rc-cam.com."

The results of Thomas' early experiments with wireless camera

equipment can still be viewed at www.rc-cam.com/

His first project, RC-CAM1 was driven by a monochrome camera and a 434 MHz video transmitter which he could pick up on his home TV. The 200 g plus setup was flown on his model helicopter and the results picked up on his home TV and recorded on VCR. It could get about 150 ft in range, but suffered from constant dropouts, and only worked for a few minutes on the 9 V alkaline batteries

Thomas kept developing his projects through hacking security cameras and video transmitters. By the time he got to his RC-

Raphael 'Trappy' Pirker using a pair of cinemizer glasses hacked into a pair of Ski Goggles

VRFlyer's 'Bromont Golf Club' flight, with perfect looking live video and working head tracking was the catalyst for many other FPV'ers

CAM4 project, there was a pretty useful base to work from, a security camera called the Xcam2. It was based now on the far better 2.4 GHz video, but only transmitted at around 5 mW. However, this was still a leap forward in these early FPV days.

The collective power of the community really pushed forwards quickly, and as people discovered other security hardware and baby monitors to hack for FPV usage, they in-turn shared this new knowledge, allowing everyone else to once again jump forward.

Some rising stars started to appear out of these early days, people that really pushed the limits of what the equipment was

capable of and went further to develop new gear to allow them to go further, higher and act more crazy. One such pilot was Val 'Cyber-Flyer' Petrov, in 2 years going from his first flight to reaching 33,000 feet altitude, and 5000 ft using a Helicopter.

He was able to reach the amazing 33,000 feet altitude by using the first diversity receiver – which he made himself, and being able to remotely control the mixture of his 4-stroke engine on his 7 ft wingspan plane. (At this point in time, it should be pointed out that there weren't any legal guidelines in place stopping pilots from such altitudes/distances)

Cyber-Flyer was also the first person to use the term FPV sometime around 2002-2003, which for some reason seemed to be more attractive to other pilots than simply 'Video piloting'.

Bromont Golf Club
However, the man responsible for getting a huge amount of people into the FPV hobby – and mainly through a single video he made – is Denis 'VRFlyer' Gratton, a French-Canadian based in Montreal. In 2006 he released his video 'Royal Bromont Golf Club' in which he flew, unsurprisingly, over a golf club. What is extraordinary about this video when watched now is that it would still look like a solid FPV video today.

This grabbed the attention of other pilots that would go on to be influential themselves. ImmersionRC are huge players in FPV, with their range of 5.8 and 2.4 GHz video transmitters

The Prototype RCV922 FatShark goggles as tested by VRFlyer, and side-by-side with his own all in one goggle-in-a-hat concept

FAT SHARK
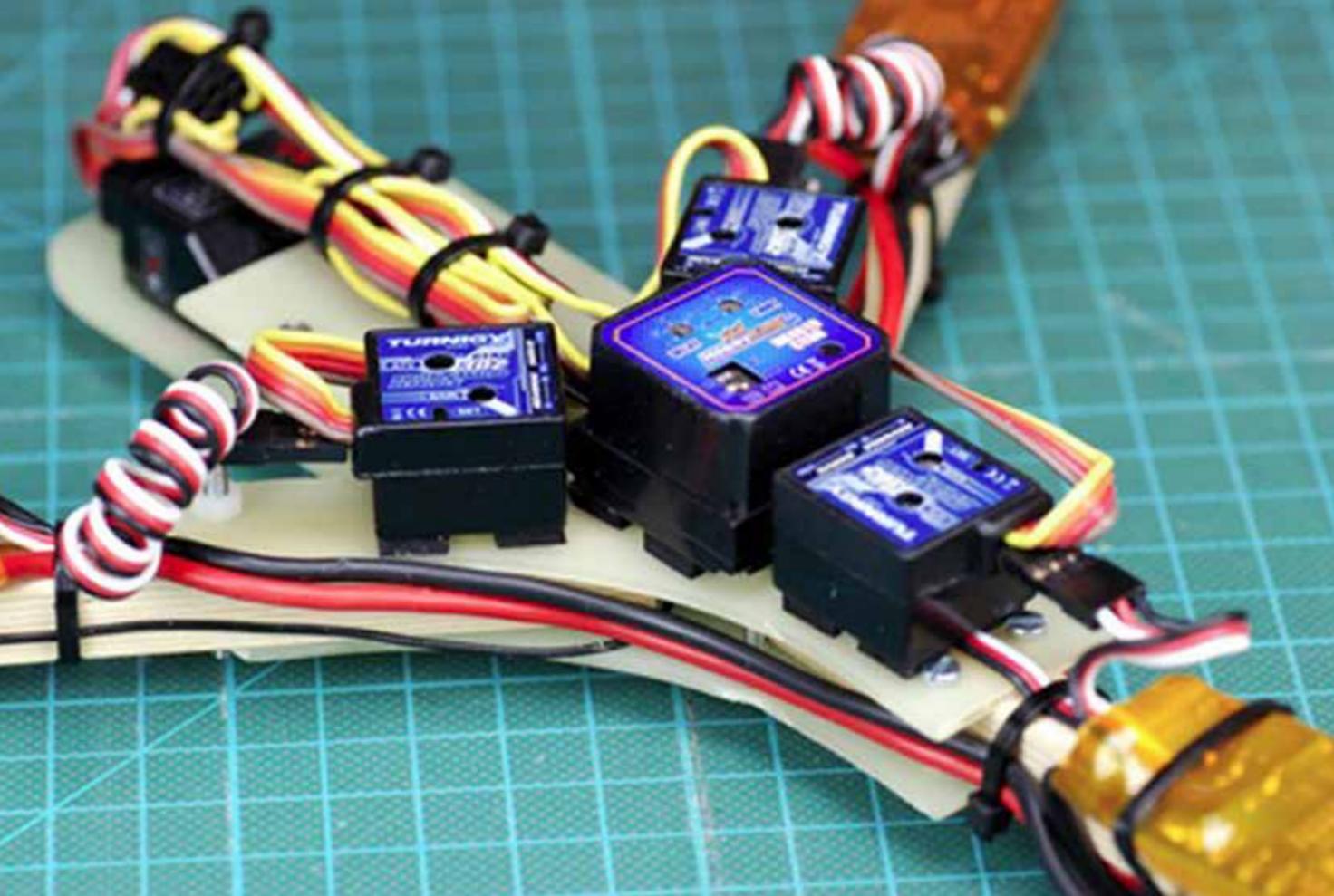
The original Tricopter design needed 4 helicopter gyros and lots of complex transmitter mixing (Image courtesy of rcexplorer.se)

and receivers, UHF radio systems and recently the Vortex 250 race quad, as well as Lift Off, the drone racing simulator. On their web page about the company origins, it references the video quite explicitly:

"Since 2006, when vrflyer published his 'Bromont Royal Golf Club' video, the ImmersionRC team have been hooked on this rapidly developing hobby."

Another influential, and perhaps sometimes controversial pilot is Team Black Sheep frontman, Raphael 'Trappy' Pirker. I asked him how he first became aware of FPV:

"I first heard about it on an Engadget article from a French Canadian called 'VRFlyer'. I was into model aviation back then, but FPV totally intrigued me."

Clearly, VRFlyer had a lot to answer for, I talked to him about how he got going in FPV and like many of the early pioneers he started off unaware of others doing the same. (English is very much a second language for Denis):

"For myself I began in 1995 with an RC car and began to fly an RC plane in 2001. I knew nothing about RC toys when I began so I bought a cheap radio control car and installed a B/W camera. Pretty small for this time, it was 2 x 4 x 1 inches at the pilot location and was using a video sender to transmit the video to UHF channel 14 of my TV. We used video sender to transmit the video from a VCR to a TV without wires inside

a home. That gave me the idea of using the video sender and my camera on an RC car. It was only a small project...

The quality of the transmission was horrible, and when my cheap car was too far in my home (I mean the room next to me) the radio link of the car was lost and the radio applied full throttle, smashing my camera under the bed!

I still have my first car, but this car had always been in reconstruction following the technologies. The main problem at that time was the video link (430 MHz) made interference with the radio link of the car and I had this problem for 6 years until a new, very good and cheap video transmitter hit the market – it was the 2.4 GHz video band (2.4 GHz radio was not invented).

With 2.4G video link, I had no interference with the 72 MHz radio that we use in North America. I was able to reach 10 houses away with my car, so I began to build a video controlled RC plane in the winter. I bought a video headset knowing I would need it to fly under the sun in a club."

By this time, Denis was active on the forums, but he was being told that flying with a video link was close to impossible, and people were doing LOS take-offs and landings and only using the video when they were very high.

"Frankly I was not sure at this time why they were telling me that, but today I understand they were using a standard lens

that came with a little spy camera that was available. It was possible to buy a wide angle lens, but it was expensive because of the shipping, and when it arrived, the thread did not fit my camera. So to make it fit, I used a metal saw and cut the lens support of my camera to fit a bigger support and glued the wide angle lens in place. This is not the kind of stuff that people do normally, but it made all the difference. With a wide angle lens, the movement of the plane appeared far less in the picture, the speed also appeared reduced and we saw wider so we kept in view the landing site longer."

As a brand new pilot back in 2001, Denis turned up at his local flying club, complete with his plane equipped with camera and video downlink, and headset which included some hacking to integrate the video receiver. It certainly turned some heads, but the club insisted Denis fly LOS to demonstrate he could safely fly a plane. After 3 weeks, they were happy with him to fly FPV.

He carried on flying like this for several years at the club, and around fields near his town, but where Denis's interest really lay was in a head tracker.

"I had always been interested in aerobatic flight – my dream was to fly aerobatic from the cockpit point of view, so I need to turn my head and look at the wing tip to align horizon to fly straight when the nose looks up. I talked about a head tracker for 2 years on the forum, but very few were interested, because 99% of people just want to fly far and high."

He was able to get a module in order to construct a headtracker, but didn't have the technical knowledge to finish the build, so sent it over to a member who went on to develop and sell these head trackers as the company RC-Tech from Switzerland at a high price of $300. Happily for Denis' sake, further help came in form of one of the co-founders of ImmersionRC, Anthony Cake.

"Anthony from Immersion told me it was far too expensive. A few weeks after, Anthony had sent me a prototype of headtracker for evaluation. $150 and far more advanced...and ImmersionRC was born.

And around the same time, Youtube was born and became popular. So with the headtracker, I made a video explaining my hobby and I was flying above a golf course. I made a good edit, good music, and showed something that everyone had dreamt of one time in their life – flying like a bird."

I mentioned just how good the video looked to Denis, but it turns out there was a little bit of a secret.

"It does not appear in the Bromont golf FPV video, the video transmission was poor with a lot a video interference – in fact, I kept only the good parts and cut everything else. But this is my secret and people thought it was perfect!"

The Bromont Golf video in RC flying and FPV terms should

probably be deemed the first viral video, and had some unexpected side effects for Thomas.

"The rc-cam forum had moved to a commercial hosting site that was funded from my personal hobby budget. When the Bromont video was released there was a link to the rc-cam site in the credits. Within hours the rc-cam site's bandwidth spiked off the map, crashed the site (several times), and cost me a small fortune in unanticipated bandwidth fees."

The Next Generation
After the Bromont video, a 2nd generation of pilots started getting more daring, and were getting better video through smaller HD cameras. Brazil based Gabriel made some incredible, and many would say, dangerous flights around Rio, whilst Trappy strapped a GoPro to a wing and FPV'd down some of the most amazing mountain landscapes in Europe, catching the attention, and imagination of more and more FPV pilots.
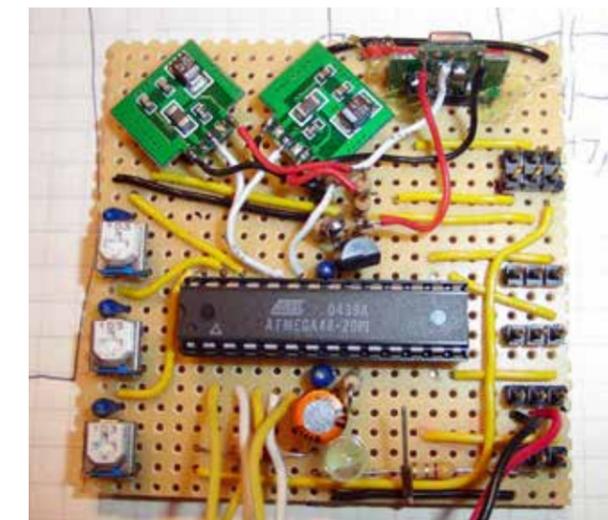
The original KK board, as built by Rolf 'KaptainKuk' Bakke (Image courtesy of RCGroups.com)

The evolution of flight controllers (From top left). The original (pre-build) KK board, the HobbyKing produced KK2, the extremely hard to find Open Pilot Copter Control board, and finally up to date with an SP Racing F3 board

The equipment used in these days was generally 35 MHz radio control, complete with several metres of trailing antenna, and a mix of 900 MHz, 1.2 GHz and 2.4 GHz video systems, with 2.4 GHz starting to emerge as a standard.

The standard on exactly how to view your FPV feed hadn't really been settled. A mix of old TV sets, and a whole host of low resolution 'cinema' goggles with lots of trailing wires hanging out of them, some (as in the case of Trappy) being hacked to fit into Ski goggles in order to deal with light leakage. VRFlyer had the closest we have seen to the modern FPV goggle with him managing to integrate his video receiver.

Over in China, Gregory French was attempting to design a camera-based RC race car. His first experience led directly to the founding of his company, FatShark. As Greg explained...

"My first experience was awful, which is why Fat Shark goggles were created. I was in China at the time cobbling together a hodgepodge of cameras, Tx's and Rx's that I picked up at the local electronic markets and using a pair of Oriscape goggles to drive an RC car. The system was so unstable and frustrating that I decided to put it all into one headset so I didn't have to deal with cables and connectors."

The first goggles released by FatShark, specifically for RC car racing, were the low resolution RCV130 vision system. But noticing the use of goggles to fly RC planes, Greg went on to design a goggle specifically for the FPV pilot. This was released in the summer of 2007. The RCV922 had an increased 640 x 480 resolution with a wide field of view of 46 degrees, a 2.4 GHz Rx built-in, and came bundled with a 50 mw VTX. Greg took a pair of pre-release goggles over to Canada to get some feedback from VRFlyer who suggested adding in a low-voltage alert – which was quickly added to the final production models.

Despite some other manufacturers giving it their best try, FatShark has been absolutely dominant for FPV goggles, evolving the design and feature list, and today having HD capable goggles with built-in DVRs, swappable video receiver modules on different frequencies and the option of plug-in head tracking modules.

One of the most common and popular plug-in modules is the 5.8 GHz video receiver. As 2.4 GHz radios started to dominate, flying 2.4 GHz video became a problem. While some people simply moved over to long range 433 MHz radio systems in order to keep their 2.4 GHz video, others looked towards the 5.8 GHz video band. Originally, you couldn't get people to touch it with a barge pole; expensive, power hungry, bad range, and most of all terrible multipathing issues.

Happily several antenna builders put their heads together to 'rediscover' the skew planar antenna – originally developed in the 1950s for very low-band radio, the circular polarised antenna was scaled down to the 5.8 wavelength and helped reduce the

The popularity of DJI's f450/550 and Naza system can't be understated – as seen from this UK FPV meet in 2012

multipathing issue a great deal. It was a community effort, but one of its most popular developers is Alex 'IBCrazy' Greve, who then went on to develop his own Cloverleaf antenna and form his company: Video Aerial Systems based on making these antennas in 2011.

The FPV Multirotor Story

Whilst one could stop here and say 'the rest is history', we're missing a rather important topic, and that is the FPV multirotor. Where was it?

Well, in the early days, it simply didn't exist. The tiny gyros and accelerometers we see in today's flight controllers, as well as the small inexpensive CPU's hadn't been developed yet. Some people were FPV'ing in nitro-powered helicopters, but it wasn't for years into FPV that we'd see a proper multicopter.

There was actually a commercial quadcopter produced as far back as 1999 called the Draganflyer – although popular in research universities such as MIT and Vanderbilt, it didn't seem to catch on in the wider RC community. It would be another 10 years before, in 2009, Massachusetts RC groups member, signguy posted a build thread on how to build a Tricopter.

A flight controller for mutlicopters still hadn't been developed, so to build this tricopter you would need a radio capable of 120 degree CCPM mixing and the use of 4 separate gyros you'd normally use to stabilise an RC helicopters tail. Material wise, you were looking at some 10 mm square pieces of wood as arms and some whittled out plywood for the body. There was also a servo to put in place in order to tilt one of the motors for yaw control. Very Heath Robinson, but the thread was amazingly popular, and is over 1000 pages in length.

It caught the attention of fellow RC groups user dadde, better known as Swede, David Windestal. David had already been flying FPV planes with great success for a few years, and was an accomplished RC heli pilot and so had no problem in the Tricopter build. He published a much better produced build log with detailed photographs and instructions on his site RCexplorer.se.

David's first FPV of his Tricopter simply blew people away on the thread, and after fooling his GoPro Hero 1 into producing live output (live out wasn't originally an option for GoPro's and they had to be fooled into thinking they were in playback) the Tricopters reputation as an aerial video platform was firmly cemented.

The Tricopter platform didn't go unnoticed by the emerging UK FPV scene. Established fixed wing pilots such as Martin 'B4dlands' Higgins, Simon 'Bignose13' Codd with Gary 'Shikra' Moscardini, perhaps the first to FPV a Tricopter in the UK.

Whilst this was a great step forward in flying multicopters, it still required some in-depth transmitter mixing, and gyro knowledge to get setup anywhere near half-stable. Something more simple was needed, and it came… although its initial release was if anything more complex.

In late 2009, Rolf 'KaptainKuk' Bakke released the plans on how to build his 'KK board'. It wasn't for the feint-hearted, needing a PCB with 2 integrated circuits, a combination of 19 capacitors and resistors, an LED and 3 gyro's ripped out of the same ones previously used in the tricopter build. What was revolutionary about this controller is that (through means of an AVR programming lead) you could flash the firmware to support different types of multirotors. For its initial release KaptainKuk had written in AVR assembler language, firmware for Tricopter, Quadcopter, Hex and Y6 models.

It didn't take long for enterprising builders to design and etch their own PCBs, and eventually led to commercial KK boards being sold as complete units with the gyros and atmel CPUs already in place. A ready to fly flight controller had finally arrived, and could be yours for around £80. The setup and tuning was performed by means of turning one of three potentiometers with a screwdriver. There were no fancy flight modes, the basic idea of the KK board – aside from the herculean task of turning your stick inputs into instructions for the motors – was to attempt to keep the attitude of your model the same, unless you changed it yourself. It wasn't the easiest thing to fly, but no fancy radio mixing was needed, and so this made a multicopter build a possibility even for a beginner.

Once again, David Windestal built a Tricopter using a KK board, published brilliantly written and photographed build plans, uploaded some killer FPV videos, and turned people into 'wannabe' FPV Tricopter pilots overnight via YouTube.

But the KK wasn't alone in multicopter flight controllers – shortly afterwards the user Alexinparis took notice of the 3-axis gyro inside the Nintendo Wii motion+ controller. Combining it with an Arduino-mini, he converted it into a flight controller he called the MultiWii. This was more advanced than the KK board in that you could also add the accelerometers from the Nintendo Wii Nunchuk in order to give it an auto-levelling mode. Although the board had a lot of support, and add-ons in the way of basic LCD screens, GPS support and GUI's to help setup, it was complicated, and wasn't an easy build. B4dlands shared his memories about his:

"Multicopter FPV – oh man – we had to make our own flight controllers with trimming pots on board! Buy the blank board, buy a Nintendo Wii remote, disassemble it and remove the gyro board and add it to the FC PCB. Auto-level never really worked, you would always be fighting to keep it in the air."

The charge of the FPV multicopter revolution was unstoppable now. The open source Arducopter was developed by DIY Drones and released in 2010 featuring more advanced flight modes, and even autonomous flight. It did still involve compiling code and flashing it to the controller though.

Another 2010 flight controller was the almost legendary CopterControl board from OpenPilot – featuring a friendly

Many a pilot was hooked on the idea of FPV after seeing the legendary Team Black Sheep mountain proximity videos

GUI for setup and tuning, it was a dream of many a multicopter pilot. The problem with OpenPilot though, is that for many, it stayed a dream – the company just didn't manage to build enough boards to keep up with demand. B4dlands managed to get his hands on one though:

"The Copter Control boards revolutionised multicopters in my opinion – they were open source and adjustable via a PC! Again so expensive and hard to get – I remember watching one go for $300 on eBay once!"

In 2011 the real game changer appeared in terms of getting easy stable flight and aerial video. This came in the form of DJI's Naza v1 flight controller, along side its FlameWheel f450 quad and f550 hex kits.

The whole system was incredibly simple to put together and get flying. The f450 Flamewheel kit had the 4 supplied motors and ESCs already fitted with bullet connectors and could be installed easily on the tough composite legs. On the bottom plate, there were just 10 solder pads to connect the ESCs and power. You then installed the top plate, put a receiver, VTX and camera on and you were ready to go. The Naza controller had its own dedicated GUI and connected via USB. Firmware updates no longer required compiling or special software for flashing.

Most noticeable about the Naza controller was its stability. Auto Level was smooth and trustworthy, and the barometric sensor meant it would also hold its altitude when required as well. It was now very simple to concentrate on your filming subject and practically let the controller fly itself. A year later in 2011, DJI released the GPS add-on for the Naza controller, and at this point it really could fly itself. The GPS gave the controller rock-solid GPS hold, and a return-to-home failsafe.

DJI kept refining its controller, and soon brought out its ready to fly Quadcopter, the Phantom, in 2013. You may be familiar with its subsequent follow-ups – currently at the Phantom 4 with its HD video link and many advanced functions – and the many attempts at similar designs from other manufacturers.

But what of the other big players – what happened to the KK board, OpenPilot and MultiWii? Rolf Bakke teamed up with HobbyKing to release the KK2 board. Perhaps still the easiest to configure board available due to its in-built LCD display and buttons to change any number of parameters. Rolf and HobbyKing fell out later on, and HobbyKing brought out the KK 2.1 board by themselves, where it pretty much died off.

Openpilot didn't fare much better. Although the followup flight controller, the CC3D was held in high regard, the hardware was always difficult to get hold of and interest waned. Openpilot quietly seemed to disappear in August of 2015, with some of its developers forking the project over to Librepilot.

The surprise winner in the battle of the flight controllers was MultiWii. In it's original incarnation, it was a very difficult board to build and configure. This all changed though when

one developer took the code and converted from the 8-bit atmel chip to the 32-bit STM32 chip under the project Baseflight. A new and vastly improved GUI for configuration and running on a new board, the Naze32. Other projects then came and improved further, Cleanflight and then Betaflight – but the base of the code that runs on the vast majority of racing quads in the world is that MultiWii firmware.

What's really evident when looking at the history of FPV is just how much the community matters. Some of the first pilots to get in the air were fantastically ahead of their time, but were unable to effectively share their discoveries and techniques. As soon as the collective might of many enthusiastic and driven FPV pilots got behind the idea, great advances were made, problems collectively fixed and equipment specifically to help the FPV pilot built. Many people from the early days went on to form successful companies, but almost everyone is still flying – just for fun.

My First FPV Flight

We asked a collection of pilots to describe their very first experience in FPV – you only get to do it the once. Most of them remembered fondly, although it didn't always go to plan…

Raphael 'Trappy' Pirker, Team Blacksheep frontman:
"We started in late 2007, using standard 35 MHz RC and 2.4 GHz for video, modules from security/surveillance systems that we soldered together. Goggles were hacked up ski goggles with displays inserted. In short, everything was very DIY.

My first FPV experience was with a F3J glider, 3.5 m wingspan, 1.5 kg AUW. I got lost and flew 3 km away, before realising and flying back. I was sweating the entire day after, and didn't dare to fly for another week!"

Simon 'Bignose13' Codd, FPV Antenna manufacturer:
"I heard about FPV by doing a YouTube search for a funjet. I was thinking about getting one so wanted to see if anyone was doing a build vid, then up popped a vid of a fella doing FPV above the clouds. After that video, the helis I used to fly took a back seat!
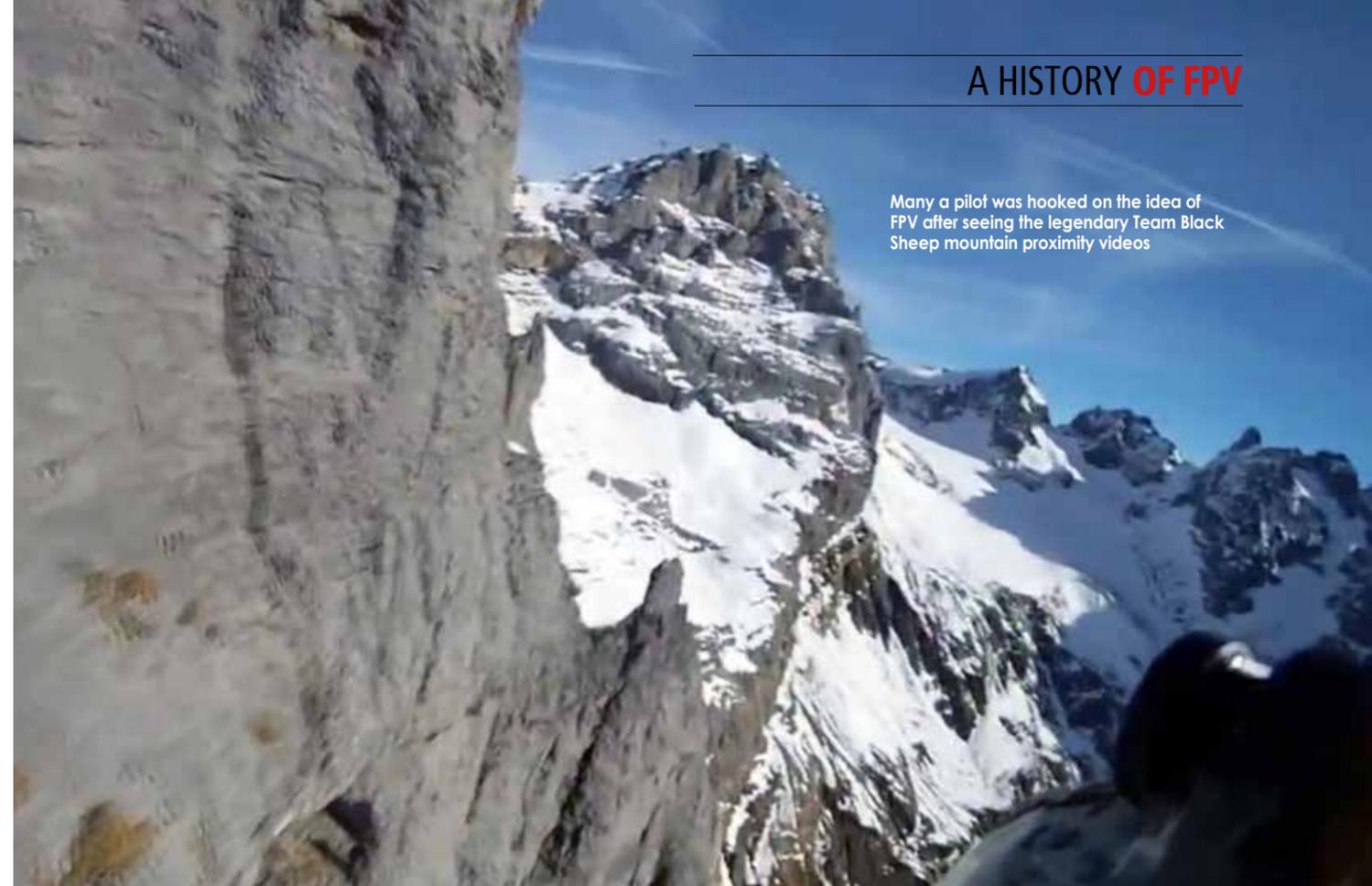
My first experience was my 10 mw 2.4 VTX I had with my first fatshark goggles strapped to a mini showtime plane. I only got about 200 metres before I had to hand over the radio, but that did it for me, the feeling of flying a plane was just too much, so I went and bought a 500 mw VTX 2.4 that afternoon from some company in France."

Gary 'Shikra' Moscardini, developer of the MWOSD firmware:
"My first experience was 2008. I came across a video by accident on YouTube and the moment I saw it I thought wow – I have to do that. In those days there were one or two guys in the world who were starting out selling parts from their homes.

Everything was DIY and it was great fun, 35 MHz with 4 m trailing antenna. Cameras out of old CCTV systems etc. No RTH, OSD, long range systems or anything unless you made it yourself. It was a real thrill. Just about then the first OSD's started to appear you could buy off the shelf. It made life alot easier but some were a little crude.

I was quite lucky in that my flights went really well. I started by being sat in boot of a car looking at a laptop screen connected to an Rx on top of the car, trying to fly LOS and then FPV from the screen.

The buzz was absolutely incredible, especially after all the work to get a plane in the air (in those days almost everyone was flying Multiplex Easy Star gliders. I opted for Twinstar). There were no FPV planes around, everything had to be hacked.

I put together my first video and I had maybe 50 people in a mini cinema to watch it, complete with Top Gun music!"

Martin 'B4dlands' Higgins, drone racer:
"Back in 2010, I taught myself to fly RC planes and wanted to photograph myself from the air. A quick Google on this and it not only showed up how to take photos but how to get live video streaming!

I was using 900 MHz gear I added to a Supercub plane. After I added a Dragon OSD (with RTH) I could start to venture out. The gear worked well as long as you were away from any mobile phone towers.

The first FPVer I watched was a guy called Gabriel – he was using baby monitor hardware. Then Trappy stuck a GoPro 1 onto his wing and started surfing down mountains. It was a game changer!"

Alex 'IBCrazy' Greve, Inventor of the Cloverleaf Antenna:
"How did I discover FPV? Like many people: Trappy's videos. Well, indirectly at least. Those got HappyKillmore interested in FPV, he let me fly his rig once and I was hooked.

In my first FPV flight, I crashed HappyKillmore's plane. After 10 minutes of cruising around his Easy Star in a park (nervously) the receiver locked up and died. Plane went nose-in hard. It is still on his shelf…broken." **RCFCA**