

# THE SKY'S THE LIMIT



Matt Gladstone, 35, is a freelance cameraman and founder of Cammotion, which specializes in camera control technology. After three years of R&D, Cammotion has launched its first product, the Vortex aerial camera mount system. Matt describes his rollercoaster journey from concept to reality.

"Poetry in motion! You know, as in Toad and Wind in the Willows!" shrieks my wife, spinning in a whirlwind of inspiration. "I've got it! Cammotion. Perfect." she continues. "Hmm. Not bad," I thought, having rejected an exhaustive list of names (including Happy Rock – a pun on the 'Glad-stone' name). Trying to name a company is like trying to name a boat, which is even more difficult than usual when you are dyslexic like myself. I find it fitting that Cammotion is a bad spelling of commotion.

As a freelance cameraman, I had run my own business for a number of years, so the idea of developing my own product did not seem

overwhelming. Youth and an element of naivety added to my bravado. It was just a question of what? I've always been inventive and still own an attic full of Lego Technic. For years I'd been coming back from work saying: "Why don't they have something that can do that? It would be so easy to make...." My wife became an expert at dissipating my ideas. I knew I must have hit on something good, or at least caught her off guard, when one day she said: "OK, make one."

A cameraman tends to have a lot of thinking time. Sitting up on a camera tower at the Open Golf in my thermals, whilst women sunbathed in bikinis below, I wondered if there

was a better way of getting high angle shots without having to suffer the discomfort and risks of working at altitude. I had read about one of those small masts that are strapped to the top of a 4x4 and used for stills photography. I went to see one. It was quick to setup and in a few minutes the guy had great high angle shots. The problem with the stills mast was that it could only take a small payload, it was extremely wobbly and this one was only 20m high. I decided that if such a product were used for television or film then

it would need to take a full size camera, be stable in high winds, be quick to rig, have a small footprint, be as high as possible, and be portable.

On returning home I went straight to the attic. A few hours later I emerged



Matt rigging the camera



with my first prototype complete with guys and spreaders. The yacht mast arrangement seemed to work well to achieve a small footprint and a tall mast. I found a company who had designed the tallest single yacht mast for *Mirabella V* (mast height 88.5 metres) – I thought that they would know a thing or two about masts. Amazingly, they were impressed by my Lego prototype and the design passed their feasibility study.

But the design of the first prototype only allowed the camera to go as low as 5m and was not intended for vertical tracking shots. "Wouldn't it be great to do an on shot tracking move as the mast goes up? What if the camera started from ground level?" I mused. Striving for perfection, the first prototype was tweaked into something a little more complicated – this was the birth of the Vortex aerial camera mount system.

Soon, I was surrounded by a small, but dedicated team. I was introduced to the designer, Andrew Redman (Red3Design) at a sailing regatta. Andrew understands my technical outbursts and magically turns them into CAD drawings. Miles Pinchin, a structural engineer and America's Cup yacht designer, and Dan Emuss (Independent Composites), a carbon fibre expert and former professional

so that we could debug the system as we went along. After many chilly weeks we achieved a fully automated system and one-person operation.

#### Standards issue

Safety was paramount to the design. My wife spent many hours on Google trying to decipher the laws and guidelines that we would need to follow. We soon realised that we needed to employ an expert to guide us through the maze of British standards, machine directives and CE marking. This has proven a valuable exercise but also led to one of the lowest points of the project.

When I started it, the design was simple and I had worked out a budget that seemed reasonable to build a sturdier version of a stills photography mast – I even reckoned that I could get it up and working in a year. I probably could have done, but I was determined to go for the vertical tracking shot. This makes Vortex a unique product, but I underestimated what a massive change in design, strategy and business plan this was.

In an attempt to keep costs down, I designed my own track bearings that would be weatherproof and take the correct loads for the system. I had sourced an amazing composite that is used in marine technology and gets

**"Everyone who had worked on the project or anyone who had seen the Vortex design loved the idea – it was contagious. How could we give it up?"**

sailor, were also up for the challenge. Before long, I had recruited a team of sailors. Perhaps it is no surprise that Vortex resembles a boat on steroids!

The last to join the team was the big man behind the electronics, Tim Oxtoby MCS. I wanted Vortex to be quick to rig and de-rig. Imagine yourself at the end of a long day, in a field and it's raining. All you want to do is get to the bar. Vortex had to be as automated as possible to achieve this. Tim set up all the motor operation on Vortex with smooth programming for ten motors, 30+ sensors, 25 relays and so on. I assisted Tim on many occasions in a draughty warehouse where I stored Vortex – it was so cold that Tim made himself a hat from bubble wrap for these visits. I learnt to program the touch screen

more slippery under load and when wet. Having managed to negotiate an enormous discount on the track I was feeling rather smug. It was my safety consultant who reminded me that I would need to test the new bearings thoroughly. I spent many weeks (and much money) on designing and building the parts for the test. The test day came and we set up the rig with care. With everything in place, we started to put load into the system. It was a total disaster. The test failed.

Now severely over budget and heavy-hearted, we had to make the biggest decision of our lives. Do we give up and waste all that investment or do we inject more money into the project and see it through to completion? We had come so far. We had built up a team of consultants. We had



sourced most of the materials and started manufacturing parts of the prototype. We had even become experts in patents and standards. In hindsight we had made a big mistake, but we also learnt a valuable lesson. Everyone who had worked on the project or anyone who had seen the Vortex design loved the idea – it was contagious. How could we give it up?

There have been many more ups and downs along the way. I have been confronted with technical problems

strong, efficient – all of the things you find in aerospace technology.

### High and mighty

The biggest milestone and most nail-biting moment was the first time we raised Vortex. We had a bet on where we thought 30 metres would be relative to the trees. It was higher than any of us expected. It looked awesome. Everything functioned as planned and I was able to get some crude shots with my Sony Handycam. It felt like we

with the hydraulic outriggers and we soon had Vortex rigged.

The most amazing thing about this project has been the overwhelming generosity, enthusiasm, help and support offered by people in the industry (Stuart Bush, Rob Karr, Ian Keown and Rolling Stock Ltd to name a few). Simon Livingstone of Griptech turned up on location the day after his wife had given birth to spend a morning filming Vortex promo shots with his Jimmy Jib – I am indebted!



## FACT FILE

Matt Gladstone is a freelance cameraman and founder of Cammotion, a company specializing in camera control technology. Cammotion's first product is an innovative piece of grip equipment, the Vortex aerial camera mount system. Vortex has the potential to provide unique shots at heights and in places inaccessible to other vertical tracking equipment (cranes, helicopters, wire systems etc.).

Vortex tracks on shot vertically from ground level up to 30 metres (or the 12th storey of a building) using a small footprint. The self-supporting system is compact in transport, no bigger than a 4x4, and can be used on uneven ground or slopes, making ground-to-high-angle vertical tracking shots possible in unusual and relatively confined outdoor locations. Vortex takes about 30 minutes to set up and can easily relocate several times in a day.

A showreel demonstrating the types of shots possible (including a vertical tracking + simultaneous 360° shot) can be viewed at [www.cammotion.co.uk](http://www.cammotion.co.uk). Vortex is now available for hire with a lightweight gyro-stabilized head.

Contact Matt Gladstone at Cammotion on 01628 477270 for more information or visit the website at [www.cammotion.co.uk](http://www.cammotion.co.uk).

"With a few more tweaks to the top section, we got our first solid shots – over three years since I built my Lego prototype."

that my team of consultants said were impossible to overcome. But with no formal training in engineering I seem to have an ability to see the answers without knowing how I got there. I also believe that nothing is impossible and I won't give up until I have found a solution. I also find it hard to control my creative urges to continually improve the system. I once found Tim and Andrew with their heads together, "remember, say NO when he asks can we just....". I think I have pushed the whole team to the limits. Vortex had to be lightweight,

were ready to launch, but it would be several more months before we were ready to film a showreel.

Using a standard pan and tilt head, we put together a showreel that shows the type of shots that Vortex can do. One shot involved edging Vortex down to the riverbank at the local rowing club. My wife couldn't watch as I calmly steered Vortex towards the river using the inbuilt hydraulic drive system. It was quite a slope in a tight location. Levelling was no problem

Naming the product had been just as difficult as naming the company. Being an industry of creatives, it was important to find a name that would hook, rather than be replaced by the insipid 'mast cam' or something worse. The name Vortex seemed to appropriately portray the height, vertical and spinning motion of the system, as well as being foolproof over talkback. It has been a rollercoaster journey, but worth it to hear those long-anticipated words: "Cue Vortex!"

