MAKE YOUR OWN
CAMERA STABILISER
WITH THE HELP OF A **3D PRINTER**

What do you do when you've been asked to make a promotional video for a library but you don't have a camera stabiliser to counteract the lopsided gait of the camera operator? Why, make your own, of course, with the help of a 3D printer from the same library. ANGUS LIDSTONE recounts how he turned a blob of plastic into a handy camera stabiliser, with the ultimate aim of promoting libraries in Sydney's Sutherland Shire.

When you work in a library you learn to expect unusual enquiries and requests. So I shouldn't have been surprised when a handful of my colleagues and I were recently asked not only to come up with a fun and engaging concept for a video promoting Sutherland Shire Libraries but also to write and storyboard the script; coerce fellow staff members, friends and family to act in the production; coordinate the lighting; operate the camera; arrange an appropriate music track and edit it all together into one finely tuned piece.

Oh, and the video had to be broadcast quality, as it was to be aired repeatedly on the big screens at the Cronulla Beach and Engadine Australia Day festivities, which of course also meant that it needed to be completed post-haste.

And as for a budget? Thankfully there are more than a few talented and creative people who work at

Behind the scenes of shooting our library video

Sutherland Shire Libraries, and together we swiftly got the ball rolling – in between our usual workload, of course.

Our first meeting was very productive and, as we all agreed that preparation was the key to the success of this project, we decided to conduct a practice shoot at Cronulla Library with a handheld camera. We were encouraged by the results, but we found that even with the use of so-called image stabilisation, moving and walking with the camera produced a very wobbly and shaky video. Rather than spending precious time trying to learn how to hold the camera steady while walking, I decided to look into getting a Glidecam stabiliser to smooth out the movement. Investigation into commercial options revealed two things:

1. It was unlikely that I could justify spending over $500 on a high-quality 3-axis gimbal.
2. Many of the more affordable handheld stabilisers are designed to be used on GoPros or equivalent-sized cameras and are therefore unsuitable for the camera and lens I was to use.

I hate rejection, so I didn't consider asking for money I was unlikely to receive. But I did figure that there might be another solution. Not only do I have access to several 3D printers at Sutherland Shire Libraries but I also know how to use them. So why not try to print a camera stabiliser myself?

BUILD

First, I scoured the web for 3D printable files and found a likely candidate on Thingiverse. The MaxGlide by MaximSachs ticked the boxes: it appeared simple to print, used easily obtainable nuts and bolts, and had assembly instructions that could be more or less followed.

Next, I downloaded the files, and while the major components were printing on the 3D printer at Sutherland Shire Libraries, I went to Bunnings to purchase additional hardware. Unfortunately there were a couple of items that Bunnings couldn't supply, such as the appropriate aluminium tube and the centre bearing. The bearing was easily sourced from a skateboard shop, but the tube proved elusive. Eventually, to save time, I simply decided to replace the aluminium tube sleeves with my own 3D-printed versions and this ended up working just fine.

The 3D prints of the camera stabiliser went well and the initial assembly was fairly straightforward, although there were one or two frustrating issues. For example, some of the bolts were slightly longer than suggested in the instructions and the centre bearing turned just a little too freely. Thankfully, with some basic edits and reprints of the problematic 3D files, plus some CAD (computer-aided design) work to custom-build certain pieces, I was able to overcome these concerns.

Five things I learned from filming the promotion:

1. Ramp up the footage speed instead of using hard cuts to fix a lot of the problems in your one-shot video.
2. Pre-plan and rehearse if you want a smooth shoot, especially when working in a public area.
3. Keep things as simple as possible – unless you are Stanley Kubrick. Let's face it, you are probably not Kubrick and you can't fix everything in post-production.
4. The diverse range of skills our library staff possess is amazing.
5. I have a wonky gait.

Finally, when I had the stabiliser operating as desired, I decided to pretty it up a bit to conceal its industrial look. I had to design and print even more parts, slap on some carbon-fibre tube I had lying around, and then it was ready to go.

USAGE

When using the camera stabiliser to film the video, it worked, for the most part, as expected. The main problem was that the roll of my natural gait slightly impinged on the otherwise much steadier video. I had to practise quite a bit to minimise the effect, but I never managed to eliminate it completely. The only other difficulty I found was the physical fatigue experienced from holding and operating the 2.3-kilogram camera and lens with stabiliser at arm's length for an extended period of time.

UPSHOT

The video is now complete, and thanks to the hard work, initiative and ingenuity of the staff at Sutherland Shire Libraries – not to mention a little help from the 3D printer – the resulting promotional clip is something we can proudly look forward to viewing on the big screen on Australia Day. ✻

3D-printed Glidecam

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