**Blog – Accessibility of Motion Control Cameras for Editors**

**Introduction:**

For those who are in the field of movie making or video editing, the words “Motion Control Cameras” can mean a lot, but to me it means possibility. These cameras open new opportunities for an editor to really try various methods otherwise not possible by standard cameras due to many of their recordings being within +/-0.02mm of accuracy, this is movement almost indiscernible to the human eye.

I think my first noticeable viewership of one of these cameras was in the Kendrick Lamar music video Humble. While this camera motion wasn’t the only amazing filming technique used in the video, this is the one that stood out the most by far, having the second most replayed part in the music video. I believe this is where I saw the possibility of music videos being an art rather than a selling point for a song.

**History:**

However, motion control cameras have been around for years but were securely kept a trade secret not wanting others to know how certain techniques were accomplished. “It wasn’t until Star Wars: Episode IV in 1997 that motion control was widely acknowledged”. Mark Roberts Motion Control (MRMC) are a leading pioneer in the motion control world, first releasing digital rigs in the early 1980s, the *Cyclops* in the early 1990s and *Milo* in 1994.

The *Milo* was a huge step forward in the field, being a “robotic arm that was designed… to facilitate repeated motion… moving at 2 metres per second”. The big drawback to the *Milo* however was its weight, weighing 700kg, it was rather had to manoeuvre around a set as well as transport.

Finally, in 2012 MRMC launched the *Bolt* which can reach speeds of 5 metres per second on the track as well as the camera arm reaching 5 metres per second. In addition to this, the *Bolt* can decelerate almost instantaneously. Although the *Bolt* weighs nearly the same as the *Milo*, being of a slimmer build it can be more easily moved around a studio. Since the introduction of the *Bolt*, MRMC have released smaller, cheaper and more refined models such as the *Bolt Jr+*, moreover, as motion control cameras is an open market, many companies have made their own renditions.

**Examples in use:**

So, what are some modern examples of this in use? Music videos! Here are a few of my favourite examples of a motion control camera empowering an editor to be able to flex their skill set.

Starting with the music video (MV) *MANIAC* by Stray Kids. The MV is shot with numerous camera techniques and not always utilising motion control, however when it is used, it steals the show by forming seamless transitions.

The clever part of this music video is the duplication of members in the shot, while the shot is continuously held. This creates a long shot where it appears members are ‘teleporting’ from one spot to another as there is no other way they could be in two places at once.

This is achieved through rotoscoping and masking which is made easily accessible for editors due to the precise camera movement. Typically, rotoscoping can be rather challenging on a moving background/person and then made more challenging when trying to place your cut out scene into a new one. However, due to the consistent and precise movement of a motion control camera; rotoscoping is almost made to feel like ‘cutting’ and ‘dropping’ into a scene. I will later cover a way you can do something similar at home.

Similarly, in the NCT 127 MV *gimme gimme* we can see how a motion control camera is used to give the editor freedom to showcase their ability with visual effects.

These 15 seconds of freedom the editor has is further enhanced due to the breakdown of the song, leading to what I would call, ‘the killer section’, the part with the most impact and memorability for the whole video. The edit also follows visual and sound cues, with the audience knowing the next sequence is going to begin by two members sharing a quick high-five in the choreography to ground the scene once again.

This MV is a great showcase of how the motion control technology can enable editors to utilise their who arsenal of effects as well as implement CGI when required.

**Cheap Alternatives:**

You may ask, “What is the starting price for a Bolt Motion Camera Rig?” and my answer to you would be, in 2018 the original Bolt cost approximately £200,000. Therefore, this isn’t equipment you can easily acquire and will most likely have to be on a set to even be able to use one. However, there are alternative ways to achieve scenes like this as seen in the Stray Kids *MANIAC* MV.

Firstly, you will need a tripod or a stabilising piece of equipment to hold a camera in place for numerous shots. You will then need to record the base layer or the foundation you are going to build on. This is as empty scene with nobody present. You will then start new recordings of the person in multiple places in the scene.

Quick tip, have the individual wear contrasting colours to the background to make rotoscoping easier later on and keep your shots short as rotoscoping and exporting shots can be a rather long process.

Now with all the footage you will go to your editing software, I personally use Adobe After Effects, so this will follow that method. Using the rotoscope tool, cut out the individual in all the recorded scenes.

Finally, using our base layer shot, we can paste our rotoscope compositions inside the main composition which has the base layer creating a duplication effect.

That is one simple way to create a duplication effect of a person in a shot, this can be further enhanced with effects as well as CGI, the sky is the limit with this technique.

**Conclusion:**

Following recent trends and developments it is clear to motion control cameras are constantly improving and reinventing the filming landscape. As a result, we are seeing more creative transition, effects and creative freedom from editors, especially in music videos.

I hope to see a more affordable version of a motion control camera, however the alternatives mentioned are not bad and allow for good home production, paired with a green screen, it can lead to some great footage.

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