
New Photography Equipment for Mapping, Analysis & Design (MAD)

Student name

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Dept: Knowledge Integration

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UNIVERSITY OF WATERLOO
FACULTY OF ENVIRONMENT



PROPOSED BENEFITS

The Faculty of Environment's Computing Lab, Mapping, Analysis, and Design (MAD) offers "equipment loans to Faculty of Environment students, staff and faculty for short-term borrowing." However, the camera equipment available for loan is aging and has technical limitations such as not being able to easily shoot 360 degree video, a format becoming increasingly popular. This proposal is for a 360 degree digital camera kit that will meet this need and remain useful for many years.

The equipment in this proposal has the potential to be used in a wide range of applications. For students, this could be for academic purposes, such as geographers recording their field work in 360 degrees or planning students documenting a site visit for their classmates who are unable to make the trip. Professor Rob Gorbet of the Department of Knowledge Integration has indicated his support of this proposal for documenting his course, the program's third year museum design project. The cameras may also be of use to professors doing spatial analysis, such as Geography and Environmental Management's Derek Robinson as they can be mounted on unmanned aerial vehicles.

However, the benefits of the 360 camera go beyond the students and professors using them; it would be of benefit to the faculty as a whole. Imagine prospective international students being able see an immersive tour of the Environment buildings before coming to the March Open House. This tour could even be guided in real time through a live streaming capability on certain cameras. Another exciting use of the 360 camera would be in creating Environment's annual holiday message. An innovative faculty like Environment needs a creative medium to display their message. Since virtual reality is the new burgeoning medium, creating a 360 degree video for the holiday message would be a novel way to showcase the faculty's commitment to the cutting edge.

COST BREAKDOWN

The cost is for a camera kit, software if needed, and useful accessories. The first option is the preferred choice, but a second option is included as it has its own benefits. If feasible, funding both options would maximize the potential as different applications would benefit one camera over another.

Option 1: GoPro Omni

The favoured option is the GoPro Omni, a high-quality, all-inclusive kit that includes the cameras, spherical hardware, and professional editing software. It is the favoured option both for the

quality of images and video it can produce, the ease of use of the editing software, and its versatility.

Its versatility is advantageous as the GoPro Omni consists of 6 GoPro Hero 4 Black cameras which can be removed and used independently if desired. This means if the 360 functionality is not needed, the individual cameras can be used as normal action cameras which can be loaned out individually. MAD does not currently have any GoPros or other action cameras currently in its inventory.

Also requested is a power adapter which will enable the cameras to take time lapse video beyond the internal battery's maximum of 3 hours. Additionally, a monopod is needed to record images and video without having some of the shots blocked by the legs of a standard tripod. Finally, large capacity microSD cards are needed for content storage in ultra high definition (4K).

For the GoPro Omni and Power Adapter, ordering must be done through the GoPro website as the Omni is not available in retail stores. Pricing for the Monopod is direct from the manufacturer, Manfrotto. Pricing for the SD Card is done with price in mind, and thus sourced from Amazon. Should buying local be a priority, expect an increased cost of about 15%. Please note pricing is converted to CAD as the GoPro purchase is in USD. Currency conversion rates are accurate as of March 19, 2017.

Unit	Price in USD	Estimated Price in CAD
GoPro Omni - All-Inclusive Kit ¹	4999.99	6558.22
Power Adapter for GoPro Omni ²	249.99	327.90
Manfrotto Monopod ³	N/A	399.95
6 x 128 GB SD Card ⁴	N/A	6 x 129.80 = 778.80
Shipping	14.99	19.72
Taxes		153.24
Total in CAD		8238.31

¹ GoPro Omni webpage:

<https://shop.gopro.com/International/virtualreality/omni---all-inclusive/MHDHX-006.html>

² Power Adapter for GoPro webpage:

<https://shop.gopro.com/International/virtualreality/power-adapter-for-omni/MAEPA-001.html>

³ Manfrotto Monopod webpage:

<https://www.manfrotto.ca/xpro-4-section-video-monopod-w-fluid-head-fluidtech-base>

⁴ 128 GB MicroSD Cards:

https://www.amazon.ca/Samsung-128GB-Adapter-MB-MD128DA-AM/dp/B01CO48M36/ref=sr_1_1?s=electronics&ie=UTF8&qid=1486484338&sr=1-1&keywords=samsung+pro+plus+uhs-i+128gb

Option 2: Ricoh Theta S

Some advantages of this option are the lower cost and smaller size, its ability to stream live video and less complicated software. However, since the camera shoots in lower resolution (Standard High Definition vs Ultra High Definition) and has less sophisticated image processing, it means the resulting video will be less professional.

Also, the camera is limited to its 8GB of internal storage on the device, limiting the amount that can be recorded on the device. However, this should not be a problem since content can be downloaded periodically from the camera. And further, since loans are limited to 48 hours with MAD, content on the device will not be on the device for very long.

Lastly, although the Theta is limited to only being used as a 360 camera, it's low price point means that more than one can be purchased if desired. Also requested is a specific monopod, and an extension that allows for use of the monopod while connected to its USB and/or HDMI ports, essential for shooting from a remote location so to not be in the picture frame.

Unit	Price in CAD
Ricoh Theta S ⁵	449.99
Monopod for Ricoh Theta ⁶	199.99
Ricoh Theta Extension ⁷	24.99
Shipping	10.00
Taxes	89.05
Total in CAD	774.02

TIMEFRAME

Funding is requested as soon as possible or by Fall 2018. The sooner funding is provided, the more content students, faculty, and staff will be able to produce!

ADDITIONAL INFORMATION

In a meeting with Don Duff-McCracken and Mary Burden of MAD on Tuesday, February 7th, they voiced their excitement and support to add one or more 360 degree cameras to their inventory. Also, in several meetings throughout the Winter 2017 term and in writing on March 21st, Professor Rob Gorbet of the Department of Knowledge Integration indicated his enthusiastic support of the proposal.

⁵ Ricoh Theta S webpage: <https://theta360.com/en/about/theta/s.html>

⁶ Ricoh Theta Monopod: <http://www.us.ricoh-imaging.com/index.php/accessories/theta-22/tm-1>

⁷ Ricoh Theta Extension: <http://www.thecamerastore.com/10339-Ricoh-Theta-TE-1-Extension-Adapter.aspx>