Star Trails Timelapse Challenge

Photo Credit: gerlos

Community member Gerlando Lo Savio takes amazing pictures with the RICOH THETA V. Your challenge is to take the existing RICOH Plugin Camera API Sample and modify it to take dual-fisheye timelapse pictures with long exposure. A starter guide and video are available here.

Gerlando is spending the summer at an astronomy observatory, let's send him off with a plug-in.

Challenge

Single plug-in with 3 modes.

Mode 1 - Day to night sequence:
- Shoot dual-fisheye image every 30 seconds
- Auto Exposure
- *Auto ISO*
- *Auto White Balance*
- Unlimited shots

Mode 2 - Bright night sequence:
- Shoot dual-fisheye image every 30 seconds
- 25 seconds long exposure
- *800 ISO*
- *White Balance to Incascendent 1*

- Unlimited shots

Mode 3 - Dark night sequence:
- Shoot dual-fisheye image every 62 seconds
- 60 seconds long exposure
- *800 ISO*
- *White Balance to Incascendent 1*
- Unlimited shots
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Image Number

Take as many images as possible - passing clouds are not predictable and can affect the final result, so the photographer need a lot of shots to be sure to have all the data needed.

Stopping plug-in
- *Manually turning off the camera*
- Manually stop plug-in with *Mode button press*
- Disk storage maximum is exceeded (assume camera is empty and you can use the full 19.3 GB)

Power
- Camera will be powered by an external power bank and USB cable. Battery life will not be a problem.

File Name
- Filename suffix pattern like 2018-11-21_04.35.02-theta-tl

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Metadata

The plug-in does not add in image metadata by default. You can grab the sensor information from the camera and add it to the image metadata.
- PosePitchDegrees
- PoseRollDegrees
- RicohPitch
- RicohRoll

If we make more progress, we'll build an example and post it [here](.).

Advantage of Dual-Fisheye in Star Trail Timelapse

The photographer faced a problem with the camera's automatic stitching "moving" features on the stitch line from one shot to another. When the photographer merged several equirectangular images he got distortions on the stitch line. His workaround so far has been to shoot images with the camera horizontal so that the seam line is along the horizon. Using this technique, the tripod is too visible. An example of the problem is shown in the following picture.

Submitting Your Challenge

Upload the apk to your plug-in to Dropbox, Google Drive, or other file sharing service. Email the link to the file and any usage instructions to jcasman@oppkey.com
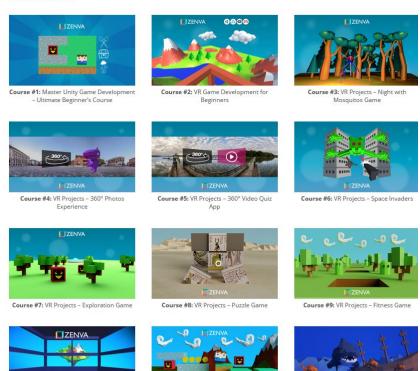
We will test the plug-in as follows:
- Install on THETA V with adb install yourplugin

○ The THETA V will have the newest firmware available from RICOH
- Run timelapse plug-in for 10 minutes in each mode
- Verify dual-fisheye images were saved to camera storage by downloading images using a USB cable with adb pull filename

The first 10 people to complete the challenge will get this awesome Virtual Reality Mini-Degree online course with 237 lessons, 40 hours of video and eligibility for certificate of completion.

Curriculum

Course #1: Master Unity Game Development – Ultimate Beginner's Course

Course #2: VR Game Development for Beginners

Course #3: VR Projects – Night with Mosquitos Game

Course #4: VR Projects – 360° Photos Experience

Course #5: VR Projects – 360° Video Quiz App

Course #6: VR Projects – Space Invaders

Course #7: VR Projects – Exploration Game

Course #8: VR Projects – Puzzle Game

Course #9: VR Projects – Fitness Game

THETA Stitcher and Challenge Starter Kit

Community member Ichi Hirota has built the THETA Stitcher for Android. You can use this application on your Android phone to convert dual-fisheye images into equirectangular.

You should have received a fully-functional trial version of the THETA Stitcher and the Star Trail Timelapse Starter Kit when you registered. In addition to the stitching app, the Starter Kit contains the following:

- sample-apk-for-theta - pre-built apk to install in THETA V using adb. This will take a single dual-fisheye image
- sample-image - dual-fisheye sample image taken with plug-in and an equirectangular PANO sample image after stitching is completed

- sample-code - Sample source code for dual-fisheye plug-in to open in Android Studio