Geotate *Kato*

Camera hot-shoe accessory for auto geotagging

Geotagging photos is as simple a clicking a button, using a camera hot-shoe accessory based on Geotate's Kato reference design. Just attach a Kato device to the camera hot-shoe and, each time the shutter is pressed, the location is captured instantly along with the image.

Overview

Traditional GPS solutions are relatively slow and power hungry, resulting in photo geotagging accessories that are bulky and inconvenient to carry and use. It can be minutes before such a device gets a first position fix and a complex, error-prone process may be required to match photos to fixes. Geotate's breakthrough auto geotagging technology overcomes these drawbacks, resulting in Kato - a photo geotagging accessory which is ultra low power, lightweight and easy to use. The Kato device is simply attached to the camera hot-shoe. Each time a photo is taken, raw GPS data is captured too.

When the user has finished taking photographs, they unload their photos and raw GPS data captures onto a PC and run our software. Matching is quick and easy, since the photos and raw GPS data were captured simultaneously. Our server provides historic GPS satellite information corresponding to the times the raw GPS data was recorded. This is used by our PC software to calculate the position fixes and geotag the photos with location information. Geotagging enables new ways to organize, search, visualize, and share photo collections.

geotate
auto geotagging
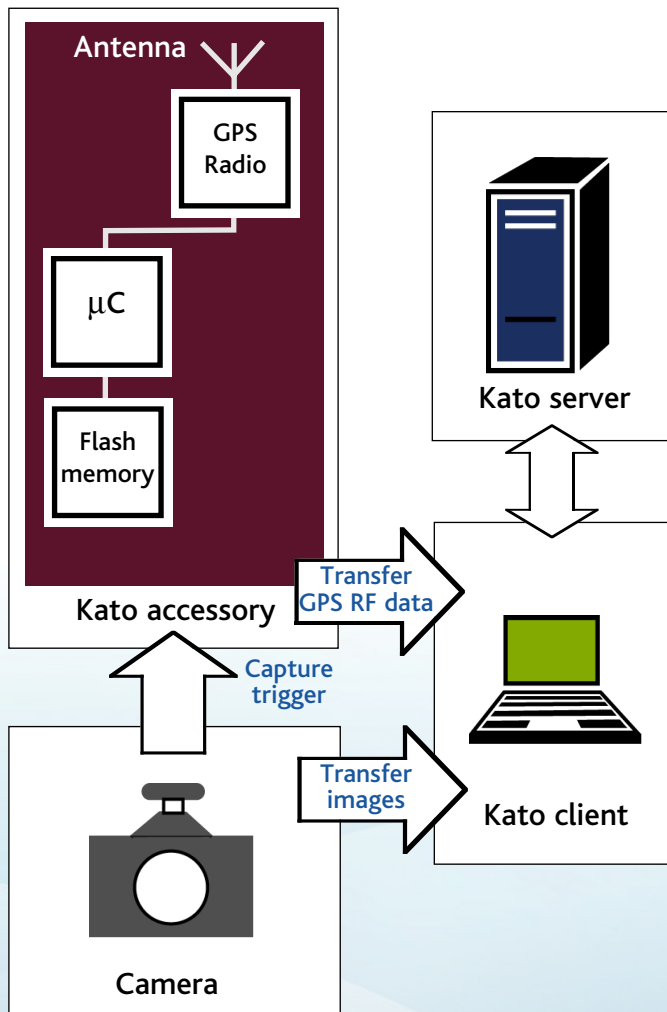
Key Benefits - User
- Simple photo geotagging
- Instantaneous, automatic location capture
- Lightweight, easy to carry and connects via a standard hot-shoe
- Weeks/months of use on a single battery charge
- Exciting new ways to locate, organize, visualize and share photos

Key Benefits - Accessory maker
- Market differentiating photo geotagging accessory
- Complete, tested reference design means low-risk and fast time-to-market
- Evaluation kits available

Product Offering
We provide a complete solution including hardware reference design, firmware and core PC software. The design can be taken as is, and productized by a customer for fast time to market. Alternatively, it can be modified to suit customer requirements e.g. a different form factor. Evaluation kits are available on request.

Antenna
GPS Radio

µC

Flash memory

Kato accessory

Kato server

Transfer GPS RF data

Capture trigger

Transfer images

Kato client

Camera

The components of the Kato product offering are as follows:

Hardware - We provide a reference design for a photo geotagging accessory which connects to a camera via the hot-shoe. This uses the tiny Rakon GPS GRM6510 module (6.0 x 5.0 x. 1.95mm) and includes the firmware for controlling, logging and transferring data to the on-board flash memory and to the host PC via USB. Power requirements are very low and the design supports either rechargeable LiPoly or standard AAA batteries.

Kato client - This software takes the captured GPS data and calculates a position fix (latitude, longitude, altitude, time). Using optimized algorithms a first fix is computed in only 1-2s. Once a good estimate of the photo locations is known, subsequent fixes are computed in a fraction of a second. The client software matches the GPS data to correct photo and geotags the photos with the location information. It has a simple API for easy integration with existing photo applications. The Kato client software is available for Windows XP(32/64 bit) and Windows Vista(32/64 bit) with OS-X and Linux versions coming soon.

Kato Server - This provides historic GPS satellite information which is used by the Kato client to calculate position fixes. It is a highly reliable service, accessible worldwide over the internet.

Geotagging application - For fast time to market we provide an application that manages photo-GPS matching, processing of a fix and the visualization of geotagged images. This application can be re-branded to meet customer requirements. It is available for Windows XP and Windows Vista.

Performance

Accuracy[1]	12m
Average time to calculate fix[2]	0.4s
Fix sensitivity (no estimate)	-143 dBm
Fix sensitivity (with estimate)[3]	-144 dBm
Capture Time	172ms
Capture Size	128 kB
Power per Capture	18 mJ
Storage Capacity[4]	2000+ captures

1. 50% CEP with clear view of sky
2. Running on a single core of a 1.866 MHz Core 2 Duo processor
3. Estimate within 100 Km and 5 minutes time
4. 256 Mbyte flash memory version