

APPARATUS, SYSTEM, AND METHOD FOR ANNOTATION OF MEDIA FILES WITH SENSOR DATA

ABSTRACT

Embodiments of methods for multimedia annotation with sensor data (referred to herein as Sensor-rich video) includes acquisition, management, storage, indexing, transmission, search, and display of video, images, or sound, that has been recorded in conjunction with additional sensor information (such as, but not limited to, global positioning system information (latitude, longitude, altitude), compass directions, WiFi fingerprints, ambient lighting conditions, etc.). The collection of sensor information is acquired on a continuous basis during recording. For example, the GPS information may be continuously acquired from a corresponding sensor at every second during the recording of a video. Therefore, the acquisition apparatus generates a continuous stream of video frames and a continuous stream of sensor meta-data values. The two streams are correlated in that every video frame is associated with a set of sensor values. Note that the sampling frequency (i.e., the frequency at which sensor values can be measured) is dependent on the type of sensor. For example, a GPS sensor may be sampled at 1-second intervals while a compass sensor may be sampled at 50 millisecond intervals. Video is also sampled at a specific rate, such as 25 or 30 frames per second. Sensor data are associated with each frame. If sensor data has not changed from the previous frame (due to a low sampling rate) then the previously measured data values are used. The resulting combination of a video and a sensor stream is called a sensor-rich video.

(FIG. 1)