Saranyu Navayot 2011: Real-Time Video Stabilization for Aerial Mobile Multimedia Communication. Master of Engineering (Electrical Engineering), Major Field: Electrical Engineering, Department of Electrical Engineering. Thesis Advisor: Associate Professor Nuttaka Homsup, Ph.D. 50 pages.

This research develops a video stabilization system for First Person View (FPV) in order to reduce the vibration both in vertical and yaw axis of camera motion. Generally, video stabilization system is the technique to improve the quality of video sequences arising from an uncontrollable motion of the capturing camera. The real-time video stabilization scheme is introduced to stabilize video sequences transmitting from Unmanned Aerial Vehicles (UAV) operated in the surveillance mission. Clearly, the multimedia communication system consists of CMOS camera, a video transmitter and a receiver module. A video sequence is transmitted to a receiver at the ground control station, and a raw video is processed and displayed on a ground monitor. Also, this system can be improved for the FPV. However, the shaking image in vertical and yaw axis hardly effects to the pilot. As a result the FPV system has to be stabilized particularly in vertical and yaw axis. This research improves the FPV by using the smart optical flow algorithms, Pyramid Lucas-Kanede. The advantage of this research is to reduce parameters and faster computation. This system can be used as a surveillance video or as a part of the First Person View (FPV) for a RC video control.

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