

Suchart Khunthong 2007: Development of Video Compression Algorithm for Airborne Forward Looking Infrared (FLIR) Equipment with Tactical Targeting Capability. Master of Engineering (Aerospace Engineering), Major Field: Aerospace Engineering, Department of Aerospace Engineering. Thesis Advisor: Assistant Professor Pahron Sanguanbhokai, Ph.D. 75 pages.

The purpose of this research is to compress a video for military tactical requirement by maintaining the quality of the data of moving objects. Other objects are compressed by conforming to Moving Picture Expert Group (MPEG) compression standard. Royal Thai Air force are developing the Unmanned Aerial Vehicle (UAV) with an infrared camera as the tactical payload. This research supports the development of video compression to minimizes data transmission without losing tactical value.

The experiment isolates between moving objects and background objects by using the MPEG-4 compression standard that performs objects separation before compression. Each object is called Video Object Plane (VOP). Each VOP is compressed with different quality according to tactical value and then recombine together.

After object separation, we compressed disinterested object using MPEG-4 compression standard. First step is to use Discrete Cosine Transform then apply the Quantization to the result and encode data by using Entropy encoding. We have to convert 8x8 matrix to 1x64 matrix, apply the differential encoding method and run-length encoding. The last step is to recombine each object together.

Student's signature

Thesis Advisor's signature

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