

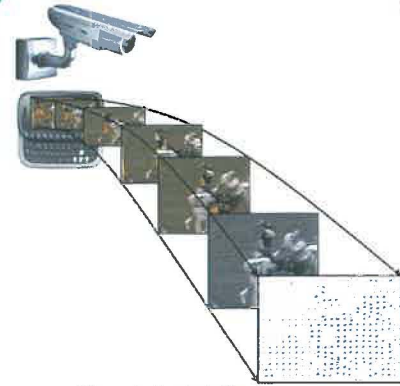
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LOW ENERGY FAST MOTION ESTIMATION ALGORITHM TO COMPRESS VIDEO DATA



Video motion is extracted from image sequence.

PROBLEM STATEMENT

- High demand for better quality and a lower bitrate has resulted in better video compression standards from time to time.
- However, these improvements increase computational time and energy consumption.
- ME consume majority of the total encoding time (70% - 90%).
- To overcome this problem, a low-energy ME architecture is proposed in this invention.

NOVELTY

The product prediction video motion with 60% energy saving compared to existing product with the same prediction accuracy. This is achieved through two novel techniques:

- QBMO
- Adaptive Bit Selection (ABS).

These techniques reduces motion prediction computational load while maintaining high motion prediction quality.

ADVANTAGE

- Save 60% electric energy compared to existing product.
- Reduce work load with adaptive computation method.
- High prediction accuracy with adaptive search range.
- Easy integration into existing video system

POTENTIAL MARKET

- Smart phones
- Portable video surveillance system
- Portable video camera

PUBLICATION LIST

- Patent Specification: Adaptive Pixel Bit Selection For Low Energy Motion Estimation
PI No: 2013 000351,
Date Of Filing: 4 February 2013
- Asral Bahari Jambek and Arief Affendi Juri, "Low-Energy Motion Estimation Architecture Using Quadrant-Based Multi-Octagon (QBMO) Algorithm", accepted for publication on 20 August 2013 to Journal of Real Time Image Processing
- Asral Bahari Jambek, Lai Yoong Yee, Arief Effendi Juri, "Design And Analysis Of Fast Search Motion Estimation Architecture For Video Compression", International Conference On Intelligence Of Advance System 2012 (Icias 2012), Kuala Lumpur, Malaysia
- Arief Effendi Juri And Asral Bahari Jambek, "Umhexagons Based Motion Estimation Architecture Comparison", International Conference On Intelligence Of Advance System 2012 (Icias 2012), Kuala Lumpur, Malaysia.

60% Energy Saving

