**An Advanced Moving Object Detection Algorithm for Automatic Trafﬁc Monitoring in Real-World Limited Bandwidth Networks**

**Objective:**

A motion detection approach for traffic surveillance systems with variable bit-rate video streams over real-world networks with limited bandwidth.

**Domain:**

Networking, Image Processing

**Synopsis:**

In this Paper Automatic motion detection technology is an important component of quick transportation systems, and is particularly necessary for management of traffic and maintenance of traffic surveillance systems. Traffic surveillance systems using video communication over real-world networks with limited bandwidth repeatedly come across difficulties due to network congestion and or unsteady or low bandwidth. This is particularly difficult in wireless video communication. This has necessitated the development of a rate control system which alters the bit-rate to match the available network bandwidth, in this manner producing variable bit-rate video streams. However, complete and accurate detection of moving objects in variable bit-rate video streams is a very difficult task. In this paper, we propose a technique for motion detection which utilizes an testing-based radial basis function network as its major component. This approach is relevant to not only in high bit-rate video streams, but in low bit-rate video streams, as well. The proposed approach contains set of a various background generation stage and a moving object detection stage. During the various background generations (VBG) stage, the lower-dimensional Eigen-patterns and the adaptive background representation are recognized in variable bit-rate video streams by using the proposed technique in order to contain the properties of variable bit-rate video streams. At some stage in the moving object detection, moving objects are extracted via the proposed technique in both low bit-rate and high bit-rate video streams; detection results are then generated through the output value of the proposed approach or Scheme. The detection results produced through our technique indicate it to be highly effective in variable bit-rate video streams over real-world limited bandwidth networks. In addition, the proposed method can be easily achieved for real-time application. Quantitative and qualitative evaluations show s that it offers advantages over other state-of-the-art methods. For example, and accuracy rates produced via the proposed approach were up to 86.38% and 89.88% higher than those produced via other compared methods, correspondingly.

**Existing System:**

* In existing System approaches for motion detection in traffic surveillance systems can be divided generally into the three categories are
  + temporal difference
  + optical flow
  + background subtraction
* Optical flow approaches are employed to identify moving objects by using the projected motion in the image plane with proper estimate.
* Background subtraction approaches are applied for the detection of moving objects due to their ability to realize accurate detection of moving objects though only moderate computational difficulty.
* This is achieved by comparing the differences between pixel features of the current image and those of the reference background model of the previous image.

**Limitations:**

* This method generates insufficient detection results in certain complex environments.
* Unfortunately, these methods predictably result in the generation of noise and excess computational load.

**Proposed System:**

* In Proposed System the Gaussian Mixtures Models (GMM) method is employed for the detection of moving objects.
* It accomplishes this task by extracting and modelling each pixel value independently through a mixture of Gaussians of a particular allocation.
* The pixels which are determined as belonging to the background category within the current frame are then described in the distribution
* In this paper we propose a new scheme which uses the Principal Component Analysis-based Radial Basis Function Network (PCA-based RBF network), in order to detect moving objects in variable bit-rate video streams over real-world networks with limited bandwidth.

**Advantages:**

* PCA-based RBF network is completely and accurately detect moving objects in variable bit-rate video streams over real-world networks with limited bandwidth.
* Very Efficient
* It supports real time applications

**System Architecture:**

Traffic Monitoring System

Video Input

Video Encoder

(variable-bit-rate-stream)

Wireless Networks

Traffic Control Station

Decoder

(variable-bit-rate-stream)

Motion Detection

(PCA Based RBF Network Approch)

Detection Results (Based on video quality)

Frame n

Farame2

Frame1

**Hardware:**

* 1 GB RAM
* 80 GB Hard Disk
* Intel Processor
* Data Card
* Web Camera

**Software :**

* Windows OS
* JDK 1.7
* Apache Tomcat 7
* Eclipse or Netbeans IDE