

**ABSTRACT****Video surveillance system installed on board of a rail vehicle**

The invention relates to a video surveillance system (1) on board a rail vehicle, comprising a plurality of video surveillance cameras ( $4_1, 4_i, 4_N$ ) on board the rail vehicle, each camera ( $4_1, 4_i, 4_N$ ) having a spatial position and an associated field of view, each camera being capable of capturing a video stream made up of a succession of digital images, the system (1) further comprising an on-board electronic calculation device (10) comprising at least one calculation acceleration device (14). Each camera is connected to the on-board electronic calculation device and is capable of transmitting captured video streams to said electronic calculation device, the electronic calculation device (10) being capable of obtaining a breakdown of the plurality of video surveillance cameras into a sequence of groups of cameras ( $G_1, \dots G_N$ ) to be processed successively over time, on a circular repetition basis. The device comprises modules that are capable, for each group of cameras, of obtaining (20) video streams, applying (22) a digital image analysis to calculate descriptors values, and applying (24) at least one situation analysis algorithm.

Figure 1