

PROJECT

AViMon

ASFiNAG Video Quality Monitoring

ASFiNAG Video Qualitäts Monitoring

Funding: National (Austria)

Duration: Jul 2017 - Feb 2019

Status: Complete



Objectives:

ASFiNAG operates one of the largest networked video systems in Austria encompassing currently 6500 cameras. This video system substantially supports the daily operation of the Austrian motorways. Today the quality assessment of the transferred pictures is carried out by pure manual inspection of operators. Due to the high number of cameras it is not possible to guarantee a permanent and complete quality assessment. The goal of the project is to automate the picture quality assessment in the ASFiNAG video system.

The main innovation in the AViMon project is that for the first time an automated, picture-based prototype system for the detection of visual disturbances in large scale video camera installations is developed. The prototype system records camera pictures detects relevant short term disturbances (analogue and digital camera disturbances und transmission problems, misaligned viewing direction, blocked camera view etc.) and long term disturbances (aging of camera sensor and lens, recurring transmission problems, soiling etc.) and reports them. Rolling camera picture analysis allows for real-time operation.

For the automated detection of short-term disturbances picture based algorithms are researched and developed for black/monochrome frames, macro blocking, block dropouts, analogue horizontal and vertical synchronisation problems, misaligned viewing direction, blocked camera view and flickering. The algorithms for misaligned viewing direction, blocked camera view and flickering will be developed from scratch, the other algorithms (existing ones which have been developed for the broadcast application domain) are integrated in AViMon and their applicability for the new surveillance application domain is evaluated. For long term disturbances (e.g. blurriness due to shift of the lens focus, stronger noise due to camera sensor aging or bad low light behaviour, reduced picture contrast due to lens soiling etc.) new algorithms are researched and developed which robustly examine picture properties over a longer period of time. Early reported long-term disturbances are relevant for pre-emptive maintenance actions.

Based on the data gathered during the test operation, the AViMon prototype system allows to generate new knowledge about large networks of video cameras. Knowledge about the frequency of short-and long-term disturbances, about the aging of camera sensors and lenses, about the applicability of picture defect detectors from the broadcast to the surveillance domain and about the potential of fusing information from the existing network based disturbance detection and the picture based disturbance detection developed within the project.

Parent Programmes:

[MOTF - Mobility of the Future](#)

Institute type: Public institution

Institute name: FFG - Die Österreichische Forschungsförderungsgesellschaft

Funding type: Public (national/regional/local)

Other programmes: VIF 2016

Lead Organisation:

Joanneum Research Forschungsges M.b.h.

Address:

Steyrergasse 17
GRAZ
Austria

Organisation Website:

<http://www.joanneum.at/>

Partner Organisations:**Siemens Ag****Address:**

SIEMENSSTRASSE
93026 REGENSBURG
Germany

Organisation Website:

<http://www.siemens.com>

Technologies:

Road and traffic management systems
Visual and data analysis of traffic

Development phase: Demonstration/prototyping/Pilot Production

STRIA Roadmaps:

Cooperative, connected and automated transport, Network and traffic management systems, Infrastructure

Transport mode: Road transport

Transport sectors: Passenger transport, Freight transport

Transport policies: Digitalisation

Geo-spatial type: Infrastructure Node