Video material requirements

for the addition of new license plate types for AutoSDK recognition engine

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vit
raising technologies™

1 introduction

Further requirements and recommendations have been described in this document as a guide to video material collecting and recording, as it consequently will be used as a base for the addition of new license plates types for VIT recognition system.
During all stages of this process (from choosing the place of video material recording and up to a camera installation) the main emphasis should be put on the quality of the license plate image in the frame. The recognition quality directly depends on the quality of the provided license plates images. Also high quality image of license plates decreases the time spent on development/addition of required functionality, optimal settings are being set.

2 video stream requirements

- **Data format:** an uncompressed stream (RAW) or one of supported compression formats (MPEG-4, MJPEG, H.264).
- **Frame size:** 720*576 (2CIF), 800*600 (SVGA) or higher.
  It is necessary that the height of a particular LP symbol after video compressing will remain minimum 20-30 px (depending on compression type and codec, you may find more information on this in the part 2 of this document). Please, be advised to select appropriate resolution of the image for the multiline license plates video material (due to the fact that one symbol of such LPs is 1.5-2 times smaller in a frame than one symbol of one-line LP). Appropriate resolution is the resolution which provides clear and distinguishable image of each symbol of a license plate in the frame.
- **Minimal number of each LP template:** 10.
- **Minimum vehicles recorded:** 1000.

Please, be advised to install the camera to record 2 lanes of oncoming traffic (vehicles move towards and against the camera).

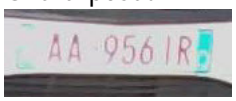
3 image requirements

Image of a license plate should be contrasted enough and fully visible in the frame. Additionally, there is a requirement for minimal height of license plate symbol in the frame (that allows for it to be recognized):

- when cameras with no hardware video compression (analog, machine vision) are used, the minimum height is 16-20 px;
- when IP-cameras (with hardware compression) are used, the minimum height is 30-40 px.

Image should not be:

- Unequally lit.

- Overexposed.

- Blurred.

- Distorted.

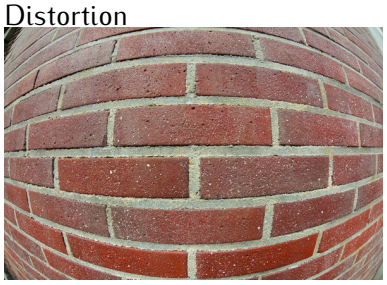
- Interlaced.

- Dirty.


Moreover, the frame should not contain:

- Smearing (visual defect)

- Rolling shutter (visual defect)

- Distortion

- Digital noise

If the camera is installed outdoors, natural noise may be present in the frame due to weather conditions that are not suitable for recognition (snow, rain). To improve video material under such conditions, **it is strongly recommended** to increase the size of LP image in the frame in minimum 1.5 times.

4 high-quality image examples