Video based analysis of traffic conflicts
A comparison of 3 camera systems

Introduction
The objective of this study is to assess the performance and suitability of three camera technologies for the analysis of traffic conflicts in real world conditions. The compared systems are:
- a high definition network camera
- a thermal network camera
- and an action camera.

Test setup
In order to get video data for this survey, the cameras were tested at two different intersections in Karlsruhe. Both intersections represent typical sources of conflicts between bicycles and cars, e.g. different traffic situations and designs of crossings. In the survey for the “Axis network camera” and the “Flir thermal camera” more than 100 hours of video footage were collected. For the action camera only three hours of video were recorded due to the limited battery capacity. The recorded video footage was analyzed using the software “Traffic Intelligence”, which recognizes road users and classifies them.

Conclusion
- By optimizing parameters, the classification accuracy for cars increased about 30 percentage points (bike: 5-10 percentage points)
- Thermal camera delivers dramatically better results than Axis network camera

Next step/following work
- Based on the results of detection and classification, now focus is set on potential conflicts between vehicles and bicycles