
- Master/Diploma thesis - In-Camera Image Integrity Protection

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Motivation & Goal

Proofing the integrity of digital images is vital for their acceptance as evidence at court. And due to the increasing amount of Internet-based news distribution for a future information society the question whether to trust images or not will become common. To ensure the authenticity and integrity of an image it should be protected at the most early stage possible, during its creation within a digital camera. Only then one can be sure that no manipulations have taken place before adding the security information. The goal of this work is to utilize an open firmware for digital cameras called CHDK allowing to execute own scripts within the camera. First approaches have shown that watermarking can be achieved with this firmware. The next step now is to implement an integrity protection watermark based on existing algorithms. This will result in an integrity verification mechanism allowing localizing and rating changes in an image.

Tasks are:

- Analysis of image processing capabilities of CHDK
- Design of image integrity watermark based on CHDK
- Implementation of design as CHDK script
- Evaluation of embedding performance and detection reliability

Requirements

- Basic knowledge of image file formats
- Interest to learn programming CHDK scripts in uBasic

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