Low-Cost Non-mydriatic Color Video Imaging of the Retina for Nonindustrialized Countries

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- Bernhard Höher (1) (2) Email author (bernhard.hoeher@fau.de)
- Georg Michelson (3)
- Peter Voigtmann (4)
- Bernhard Schmauss (2)

1. Department of Electrical Engineering, Lehrstuhl für Hochfrequenztechnik, Erlangen, Germany
2. Institute of Microwaves and Photonics, University of Erlangen Nuremberg, Erlangen, Germany
3. Department of Ophthalmology, Interdisciplinary Center of Ophthalmic Preventive Medicine and Imaging, Friedrich-Alexander University Erlangen-Nürnberg, Erlangen, Germany
4. Voigtmann GmbH, Nürnberg, Germany

Chapter
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Abstract

Tele-ophthalmology requires low-cost devices that are easy to use and robust. A new imaging method was invented and applied, which is capable of acquiring wide-field color fundus images with 68 × 18° field of view at pupil sizes of only 2 mm. As a consequence there was no need for pupil dilatation or darkened examination rooms. Furthermore, many images could be taken in immediate succession, and videos could be acquired, which is not possible with many conventional non-mydriatic fundus cameras. We realized a demonstrator that could be produced for about 5,000 US$. It is relatively robust against mechanic shocks, because it internally has only one moving component. The camera was tested successfully at 27 subjects.

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