

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

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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 $68 \times 18^\circ$ 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-mydratiatic 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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