This paper presents a database of iris images collected from disease affected eyes and an analysis related to the influence of ocular diseases on iris recognition reliability. For that purpose we have collected a database of iris images acquired for 91 different eyes during routine ophthalmology visits. This collection gathers samples for healthy eyes as well as those with various eye pathologies, including cataract, acute glaucoma, posterior and anterior synechiae, retinal detachment, rubeosis iridis, corneal vascularization, corneal grafting, iris damage and atrophy and corneal ulcers, haze or opacities. To our best knowledge this is the first database of such kind that will be made publicly available. In the analysis the data were divided into five groups of
samples presenting similar anticipated impact on iris recognition: 1) healthy (no impact), 2) unaffected, clear iris (although the illness was detected), 3) geometrically distorted irides, 4) distorted iris tissue and 5) obstructed iris tissue. Three different iris recognition methods (MIRLIN, VeriEye and OSIRIS) were then used to find differences in average genuine and impostor comparison scores calculated for healthy eyes and those impacted by a disease. Specifically, we obtained significantly worse genuine comparison scores for all iris matchers and all disease-affected eyes when compared to a group of healthy eyes, what have a high potential of impacting false non-match rate.

Słowa kluczowe: iris recognition, eye conditions, iris image databases, performance evaluation

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