

CLAIMS

1. An automated slit lamp system with computer program parts, comprising:
 - imaging optics comprising an optical system and an imaging device, the imaging optics configured to automatically acquire an image of an eye of a patient;
 - imaging optics control connected to the imaging optics and configured to control position of the imaging optics;
 - microcontroller comprising a microcomputer interface configured to instruct and control automated movement of the imaging optics control;
 - a first computer program module configured to provide instructions to the microcontroller thereby effecting the automated movements of the imaging optics control and automatic image acquisition;
 - lighting optics comprising illumination sources, the lighting optics configured to direct light from the illumination sources towards the eye of the patient;
 - and
 - lighting optics control connected to the lighting optics configured to control illumination of the eye of the patient during an eye screening.
2. The automated slit lamp system according to claim 1, further comprising a second computer program module configured for eye screening.
3. The automated slit lamp system according to claim 1, wherein the imaging optics comprise a plurality of objective lens and a plurality of tube lens.
4. The automated slit lamp system according to claim 1, wherein the imaging optics control is a 3-axis control, comprising:
 - a lead screw with roller on rails for z axis and y axis;
 - timing belts with rollers on rails for x axis;
 - at least one stepper motor for controlling movement of imaging optics along x axis, y axis and z axis, and
 - a stepper motor driver for controlling the at least one stepper motor.

5. The automated slit lamp system according to claim 1, wherein the first computer program module comprises a computer program for pupil detection and iris detection.
6. The automated slit lamp system according to claim 1, wherein the lighting optics comprises:
 - a LED light source;
 - a collector lens acting as a LED collector;
 - an adjustable mask for a spot or a slit for profiling light for an eye examination;
 - a field lens for creating a magnified intermediary image of aperture stop;
 - a condenser lens for condensing or collimating light, and
 - a beam splitter for making light coaxial with the imaging device and removing glares from an acquired image.
7. The automated slit lamp system according to claim 3, wherein the lighting optics further comprises a field diaphragm locating between the collector lens and the field lens.
8. The automated slit lamp system according to claim 3, wherein the lighting optics further comprises a brightness control aperture.
9. The automated slit lamp system according to claim 3, wherein the lighting optics further comprises a lens for posterior imaging.
10. The automated slit lamp system according to claim 1, wherein the lighting optics control comprises a stepper motor to rotate slit lighting at different degrees for controlling the lighting optics.
11. The automated slit lamp system according to claim 2, wherein the second computer program module for eye screening comprises a computer program for eye screening.
12. A method of eye screening with an automated slit lamp system with computer program parts, comprising:

conducting different eye examinations for detecting different eye conditions on each eye of a patient by using the automated slit lamp with computer program parts system of claim 1;

acquiring images from the different eye examinations;

processing the images by using the computer program parts to obtain gradings for the different eye examinations, and

generating a report of eye conditions that the patient is suspected of having by consolidating all the gradings from the different eye examinations.

13. The method of eye screening according to claim 12, wherein the different eye conditions are cataract, glaucoma, Age Related Macular Degeneration, Diabetic Retinopathy or other eye conditions.

14. The method of eye screening according to claim 13, wherein glaucoma is Narrow Angle Glaucoma or Open Angle Glaucoma.

15. The method of eye screening according to claim 12, wherein the method further comprises determining whether the images are gradable before processing the images to obtain gradings.

16. The method of eye screening according to claim 15, wherein the method further comprises adjusting focus, centering the images and positioning light at a correct position for adjusting the images as gradable images before processing the images to obtain gradings.