



INNOVUS

CONTACT

OFFICE: +27 (21) 808 3826

FAX: +27 (21) 808 3913

EMAIL: info@innovus.co.za

PATIENT GUIDED NON-MYDRIATIC FUNDUS CAMERA

PORTABLE LOW COST, USER FRIENDLY
FUNDUS CAMERA FOR PRIMARY
HEALTHCARE USE

Innovus Technology Transfer (PTY) Ltd is Stellenbosch University's wholly-owned technology transfer company. Contact Anita Nel, Innovus Chief Executive Officer, on (021) 808 3826 or send an email to ajnel@sun.ac.za for more information.



INNOVUS

BRIEF DESCRIPTION

A fundus camera is a specialised low powered microscope with an attached camera which lets doctors see inside the back of the eye. The doctors can also see other structures in the eye such as blood vessels and optic nerves.

The application of fundus examination is of great importance for a range of healthcare practices, particularly at primary healthcare facilities. Apart from the need to identify any blindness risk factors in time for permanent damage prevention, it can also be used for the diagnosis and treatment of various clinical ophthalmologic conditions. Among the leading causes of death in South Africa, diabetes and hypertension fall among the top seven. The advancement and treatment efficiency for both of these conditions can be evaluated via proper fundus examination practices. Furthermore funduscopy can be used to identify opportunistic infections related to HIV as well as detect head injuries or brain tumors.

TARGET MARKET(S)

- Ophthalmologists
- Private and public healthcare practitioners
- Mobile clinics
- Paediatrician
- Vets

VALUE PROPOSITION/ BENEFITS

A portable, low cost, handheld, patient guided fundus camera used to screen patients for retinopathy. This technology requires less skilled staff for operation and makes for easier examination of patients that are generally non-cooperative such as infants and animals.

COMPETITIVE ADVANTAGE

Traditional non-mydratic fundus cameras makes use of two illumination systems. One system is in the near-IR- spectrum which is not visible to the human eye and is used to enable the photographer to guide the camera to the target location. The second is a visible spectrum in order to illuminate the fundus for image capturing. This is usually a flash. To get a good image is time consuming as the alignment of the illuminating beam and optical access is critical for a good quality image.

Our technology enables the patient to automatically focus the eye correctly for the camera to image the part of the eye that is of interest. This eliminates the need for IR illumination and in theory the examiner. A nurse can easily perform this test. Elimination of the IR allows for great cut in production cost as there is less need for advanced optical lenses.

TECHNICAL DESCRIPTION

Instead of using a dual spectrum illumination functionality which is the current convention for fundus cameras, the proposed device uses a target image projected onto the optic axis of the camera serving the purpose of directing the patient's gaze as well as forcing the patient to focus on the correct plane, which automatically focusses the camera on the fundus.

PRINCIPAL RESEARCHERS

Wayne Swart
Department of Mechanical & Mechatronic
Engineering, Stellenbosch University

Prof Pieter Fourie
Department of Mechanical & Mechatronic
Engineering, Stellenbosch University

Dr. Dawie van den Heever
Department of Mechanical & Mechatronic
Engineering, Stellenbosch University

A portable, low cost, handheld, patient guided fundus camera used to screen patients for retinopathy



INNOVATION STATUS

A proof of concept and lab prototype has been developed.

A South African Provisional patent has been filed, patent number 2018/02249 – A Fundus imaging device and method.