OptiGauge Precision Thickness Measurement

Lumetrics Inc.

National Science Foundation SBIR Phase II

"SBIR Phase II: Fiber-optic System for Fast Non-contact Measurements of Optical Structure of Human eye."

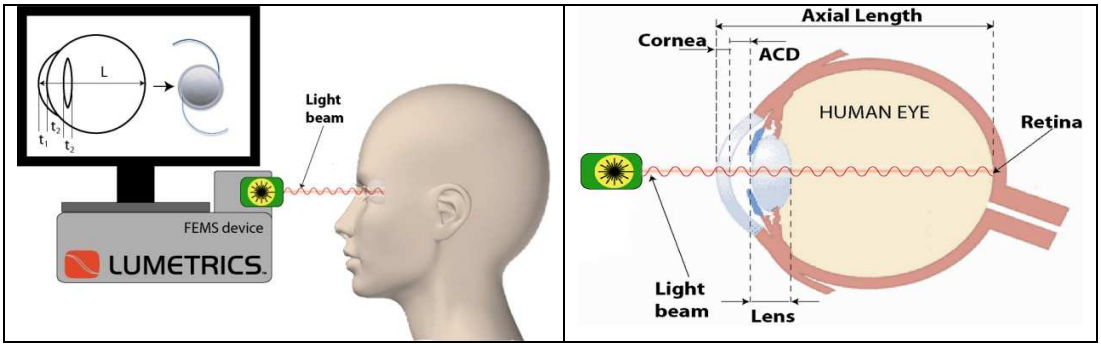
Award ID: 0923963

Effective **August 1, 2009** - **July 31, 2011**.

Summary:

This Small Business Innovation Research Phase II project is aimed at developing a high speed fiber-optic eye measurement system (FEMS) for axial dimensions of a human eye. The project extends the field of long-range time-domain low-coherence interferometry (TD-LCI) to higher speeds and higher sensitivities. This project uses improved optical fiber stretching technology to achieve fast measurement rates at the necessary scanning range, and modified heterodyne detection approach to maintain high sensitivity. By using increased speed and sensitivity of the proposed FEMS, all parameters of the eye can be accurately measured, and therefore the safety and effectiveness of the eye surgery can be dramatically improved.

With the U.S. population of over 65 year old expected to be over 70 million in 2030 and world populations increasing at a similar rate, there is a dramatic need for tools to treat the wave of eye diseases and problems expected with that population. Information about the structure of the eye is required in surgeries for these diseases and those that deal with replacement of the crystalline lens. Choosing a correct intraocular lens (IOL) is a crucial step in this procedure. FEMS will become a critical tool in mapping out the eye for both research and treatment of the diseases in this new ophthalmic endemic that is being brought on by the expanding elderly population. There is a tremendous potential market for FEMS in the U.S. and the rest of the world. A majority of the ophthalmology offices currently own less precise ultrasound and other instruments for eye measurement, but are interested in obtaining improved tools. There are over 20,000 hospitals, ambulatory surgical centers, and offices used by the more than 16,000 ophthalmologists and 32,000 optometrists within the United States that could use these devices, and many more locations worldwide.



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