

# Lab-on-a-Headset Ocular Monitoring Device

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## A wearable hands-free device for monitoring eye health

Inventors at Georgia Tech and Emory University have created a portable headset for ocular monitoring and analysis that enables imaging both eyes, displaying configurable stimuli, and analyzing imagery for targeted applications.

### Summary Bullets

- Low cost
- Monitor both eyes simultaneously
- Can be remotely configured

### Solution Advantages

- Low cost
- Monitor both eyes simultaneously
- Can be remotely configured
- Compatible with many devices
- Provides algorithms for different targeted applications
- Flexible, capable, adaptive

### Potential Commercial Applications

- Ophthalmology practices such as Pupillary assessment, Extraocular motility and alignment, External examination, and Relative afferent pupillary defect assessment
  - Physician practices and hospitals Traumatic brain injury analysis, and Neurological disorders

### Background and More Information

There are 325 million people in US and 7.53 billion people all over the world who need regular vision screening based on the American Academy of Ophthalmology (AAO) recommendations. On average, an ophthalmologist sees 5 thousand patients per year, which indicates a need for 65 thousand ophthalmologists in US and 1.5 million worldwide. However, current number of ophthalmologists is approximately 20 thousand in US and 214 thousand globally, which indicate a mismatch of three to seven folds that keeps increasing. This mismatch of need and capacity can be eliminated by automated systems that can enable screening of large populations. Regular

screening of subjects can enable early diagnosis and treatment of ocular conditions and early intervention can dramatically reduce vision loss of patients. Proposed platform will transform the screening and diagnosis of ocular conditions by enabling automated examination of patients and progression tracking of monitored conditions. Moreover, objective examination of eyes will eliminate the subjectiveness of current methodologies and lead to consistent quantifiable measurements. Existing ocular technologies are not suitable for screening large populations because of their immobility, cost, lack of automation, and limited capabilities.

## **Inventors**

- Dr. Ghassan AlRegib  
Professor – Georgia Tech School of Electrical and Computer Engineering
- Dr. Yousuf Khalifa  
MD, FACS – Emory University Eye Center
- Dogancan Temel  
Postdoctoral Fellow - Georgia Tech School of Electrical and Computer Engineering
- Melvin Mathew  
Student – Georgia Tech School of Electrical and Computer Engineering

## **IP Status**

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## **Publications**

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## **Images**

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<https://s3.sandbox.research.gatech.edu//print/pdf/node/3599>