**OUR PRODUCT**

Empowering glaucoma patients to track disease progression with routine self-monitoring of intraocular pressure at home

- **Low-Cost**
- **Noncontact**
- **Accurate**
- **Intuitive**

**OcuSound Acoustic Tonometer Model**

**<$50 USD**

OcuSound is an inexpensive hardware and software innovation that increases patient access.

OcuSound uses sound waves and the acoustic properties of the eye to evaluate IOP.

OcuSound outputs an intuitive result of IOP measurement for timely follow-up to prevent irreversible vision loss.

**SIGNAL PROCESSING**

- Peaks of signal determined from the IR sensor output
- Linearized logarithm of peaks is taken to obtain a negative slope
- Negative slope represents the speaker decay rate
- \( \zeta = \lambda/\sqrt{\lambda^2 + w^2} < 1 \) solves for the damping ratio which has a polynomial fit with IOP
  - \( \zeta \) = damping ratio
  - \( \lambda \) = decay rate
  - \( w \) = angular frequency

**REFERENCES**

2. Swati Upadhyaya, DOMS, DNB; Jasdeep Sabharwal, M.D., Ph.D
3. Nicholas Durr, Ph.D., Neha Rajan
5. Signal from IR sensor output
6. Logarithm of Peaks
7. Team: Valerie Wong (Team Leader), Benjamin Miller, Hyun Seo Lee, Ashish Nalla, Maria Giannakopoulos, Elliott Leow, Nancy Yan, and Ivan-Alexander Kroumov
8. Clinical Mentors: Ian Pitha, M.D., Ph.D; Kunal Parikh, Ph.D; Swati Upadhyaya, DOMS, DNB; Jasdeep Sabharwal, M.D., Ph.D
9. Faculty Mentors: Nicholas Durr, Ph.D; Neha Rajan
10. OcuSound uses sound waves and the acoustic properties of the eye to evaluate IOP.
11. OcuSound outputs an intuitive result of IOP measurement for timely follow-up to prevent irreversible vision loss.