# Democratizing Health Diagnostics

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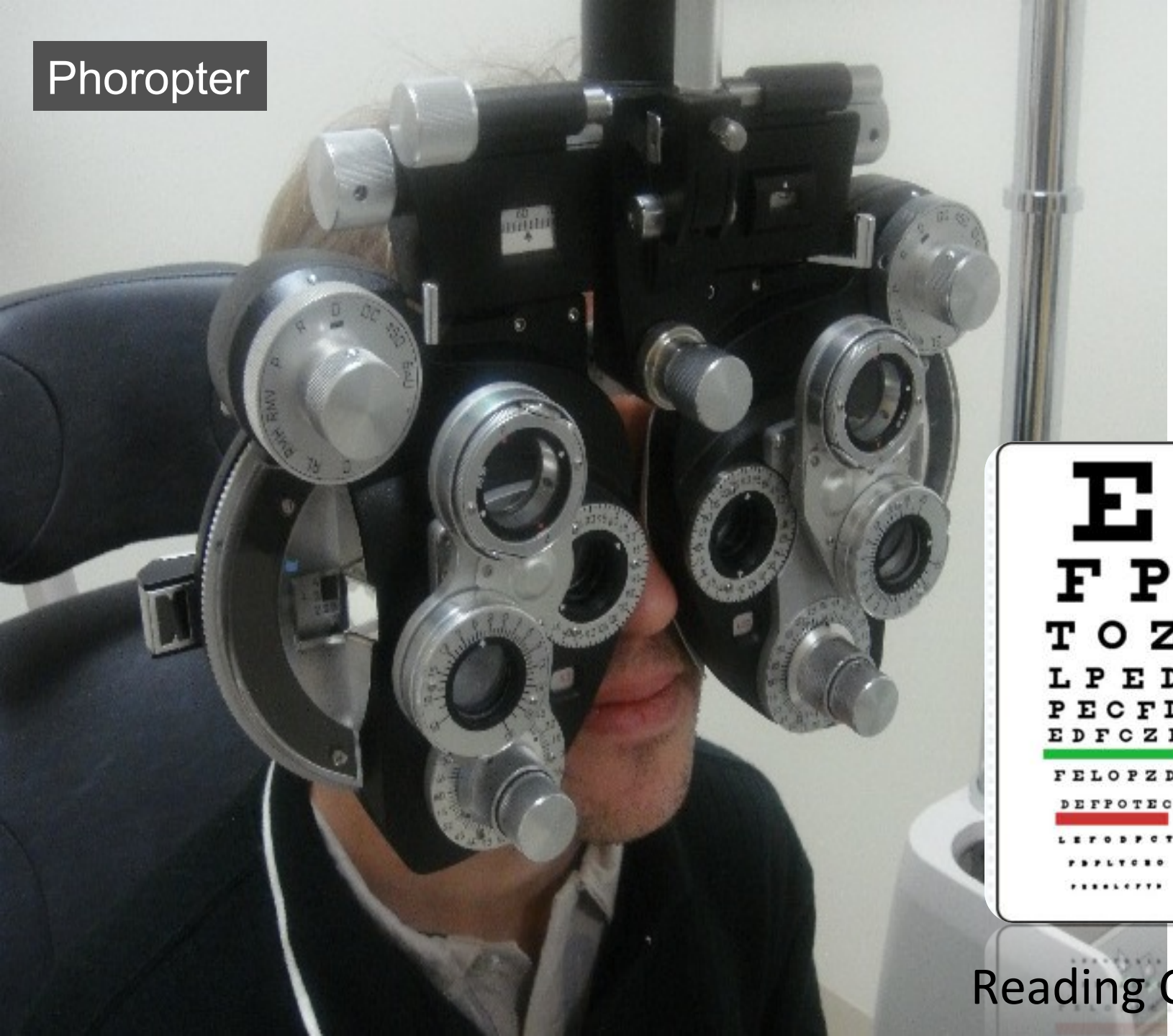
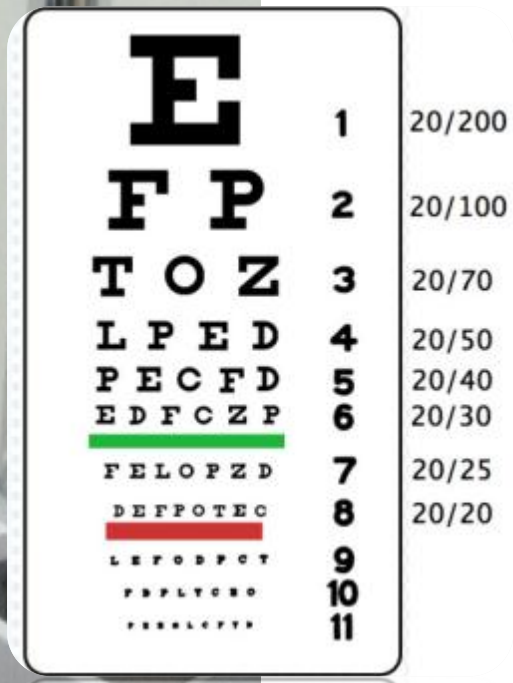
# Medical Diagnostic Devices

# Slit Lamp for Cataracts

# Retinal Scan

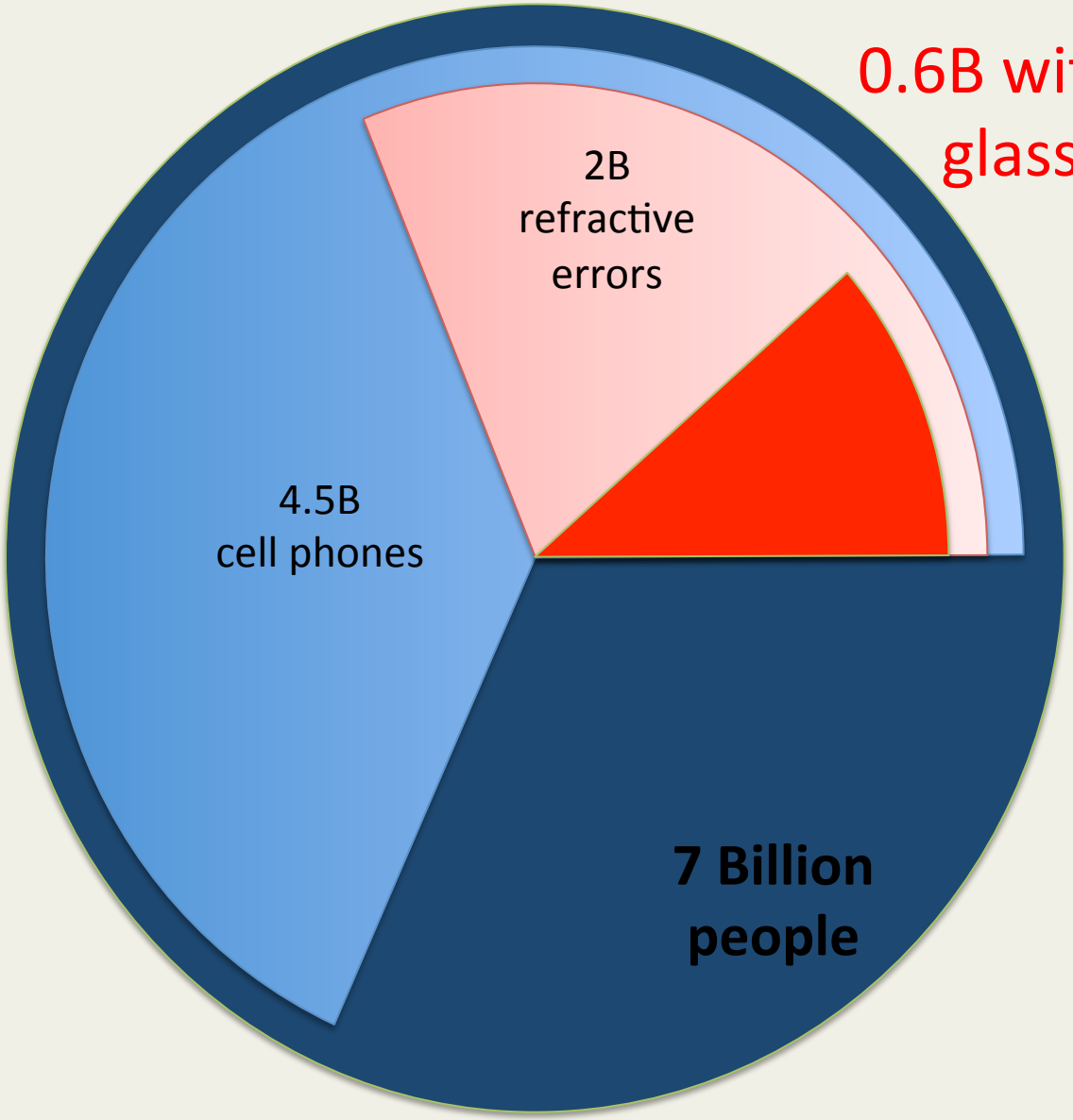



Reading Charts

# NETRA
# **N**ear **E**ye **T**ool for **R**efractive **A**ssessment

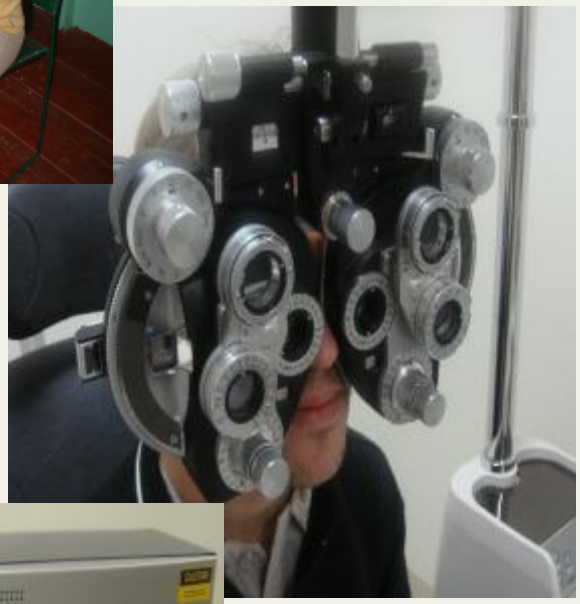
Vitor Pamplona, Ankit Mohan, Manuel Oliveira, Ramesh Raskar SIGGRAPH 2010




0.6B without glasses

NETRA at
LVP Eye Institute

# Diagnostics



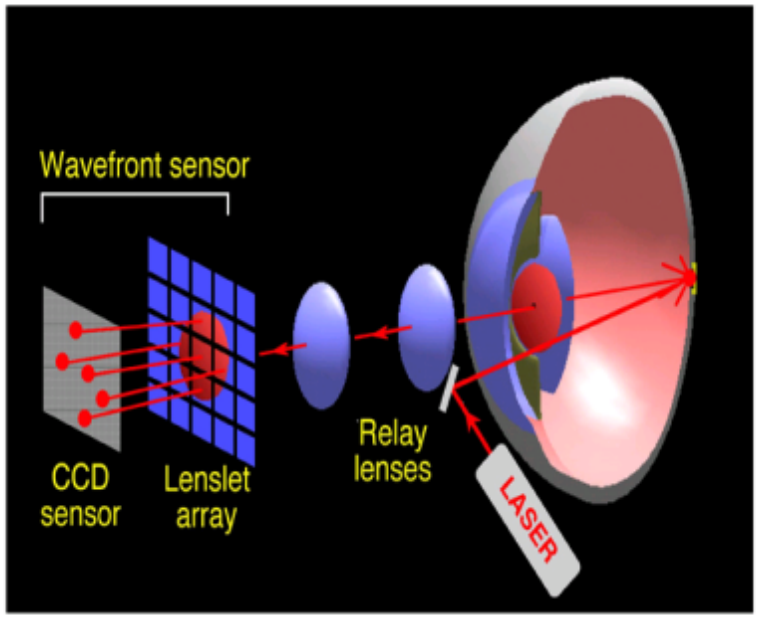
Bulky Equipment , Trained Professionals

# Dispensing Glasses

Increasingly cheap and easy

# Refraction Map using Wavefront Sensor

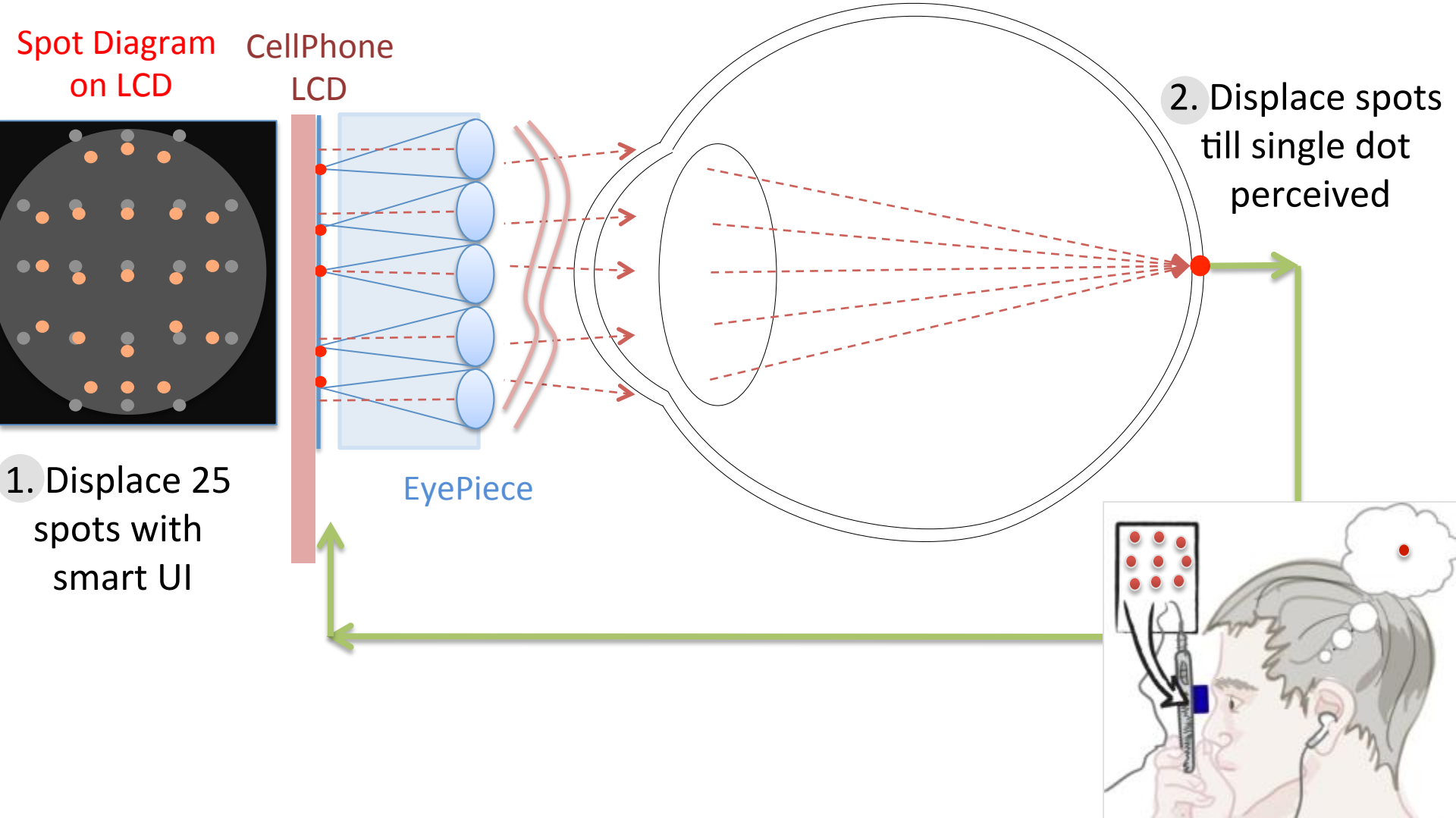
Wavefront aberrometer




Shack-Hartmann WS

# NETRA = **Inverse** of Shack-Hartmann wavefront sensor

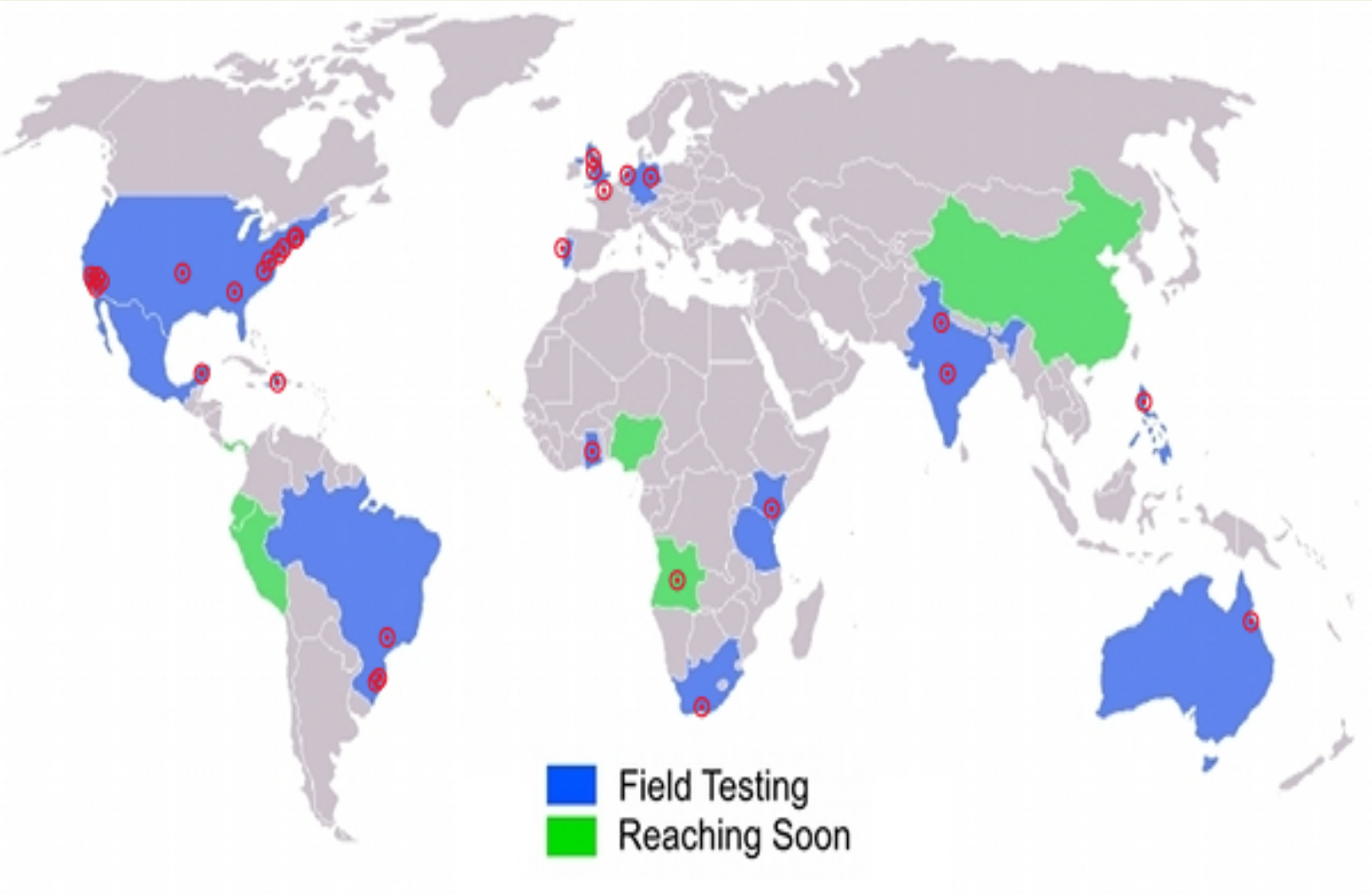
## User interactively creates the Spot Diagram



WARNING
Potential for fire or burning. Do not disassemble, puncture, crush, heat, or burn.
Li-ion Polymer Battery
3.7V 5.25Whr
APN: 616-0520
VPN: GB-510-423482-0100
Assembled in China
Li-ion

# 300+ DPI LCDs

# NETRA Worldwide




SIGGRAPH2010

AMERICAN ACADEMY of OPTOMETRY

ARVO2011

FRONTIERS IN OPTICS 2010
LASER SCIENCE XXVI

mHealthSummit
TECHNOLOGY • BUSINESS • RESEARCH • POLICY

CNN BBC

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New Scientist The Economist

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NASA USAID OneSight Giving the gift of sight Tufts Medical Center THE WORLD BANK LVPEI LV Prasad Eye Institute

Kenya
Thermometer for Eye

India

Brazil
iPod

EyeNetra.com

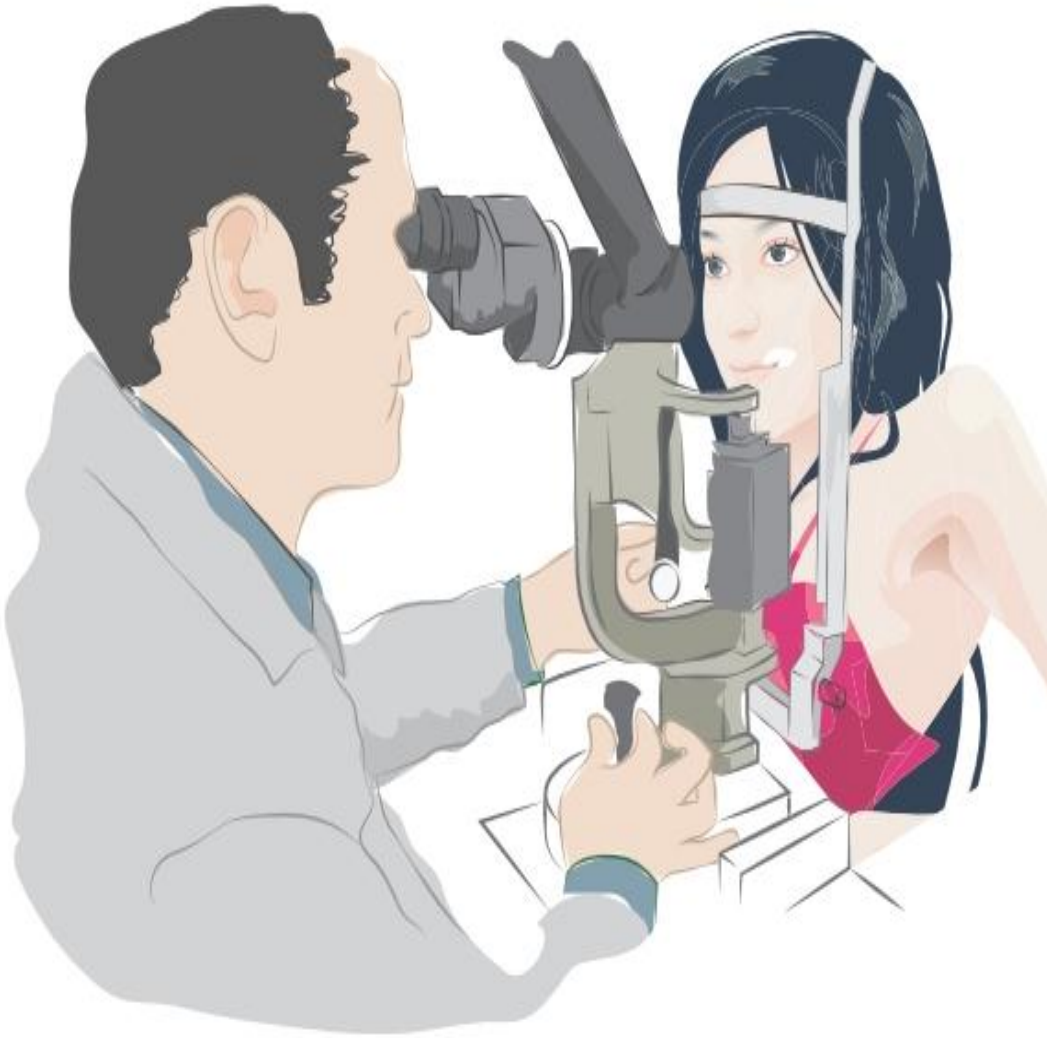
# App Store

# Hardware App Store

# Mobile Mates for Health

# Cataract

# Slit Lamp Exam



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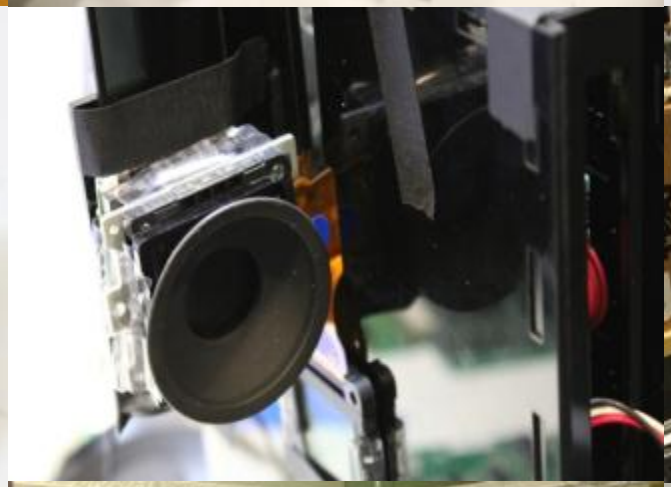
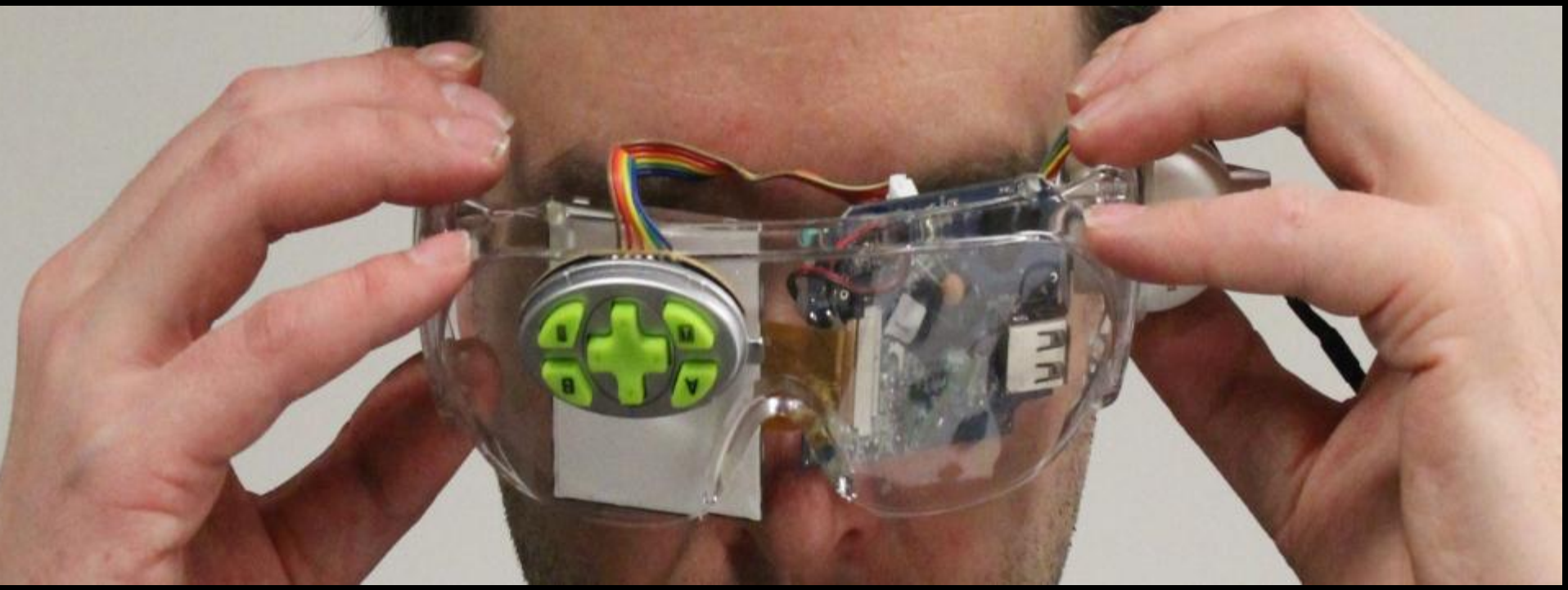


# CATRA: Cataract Screening Tool

Vitor Pamplona Erick Passos Jan Zizka Manuel M. Oliveira
Everett Lawson Esteban Clua Ramesh Raskar