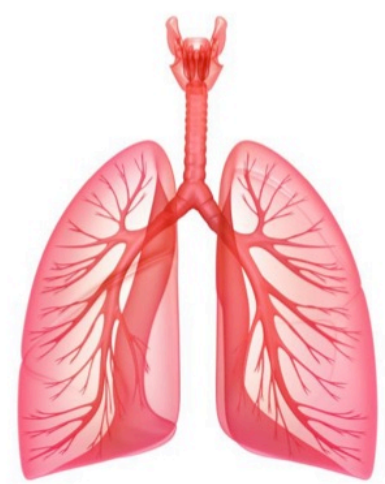


WHAT IS Aeolus?

➤ Aeolus is the first ever non-contact, non-invasive, real-time patient respiratory monitoring system

PROBLEM



- Surgery is painful
- Post-surgical narcotics are prescribed to cope with the pain

- Due to the biochemical mechanism of these drugs, patients are at risk of losing the ability to breathe

- This scenario represents one of the most common preventable problems in anesthesiology
- **Current methods are inefficient and inaccurate**

MARKET SIZE

According to Plunkett Research., the US health care market is currently valued at **\$2.13 trillion.**
Includes hospital care, physician and clinical services, etc.

Number of surgeries each year: **51,400,000**

Number of hospital beds in Surgery Centers: **924,333**

Number of practicing anesthesiologists in US: **30,200**

According to CDC.gov, the American Hospital Association, and Bureau of Labor Statistics

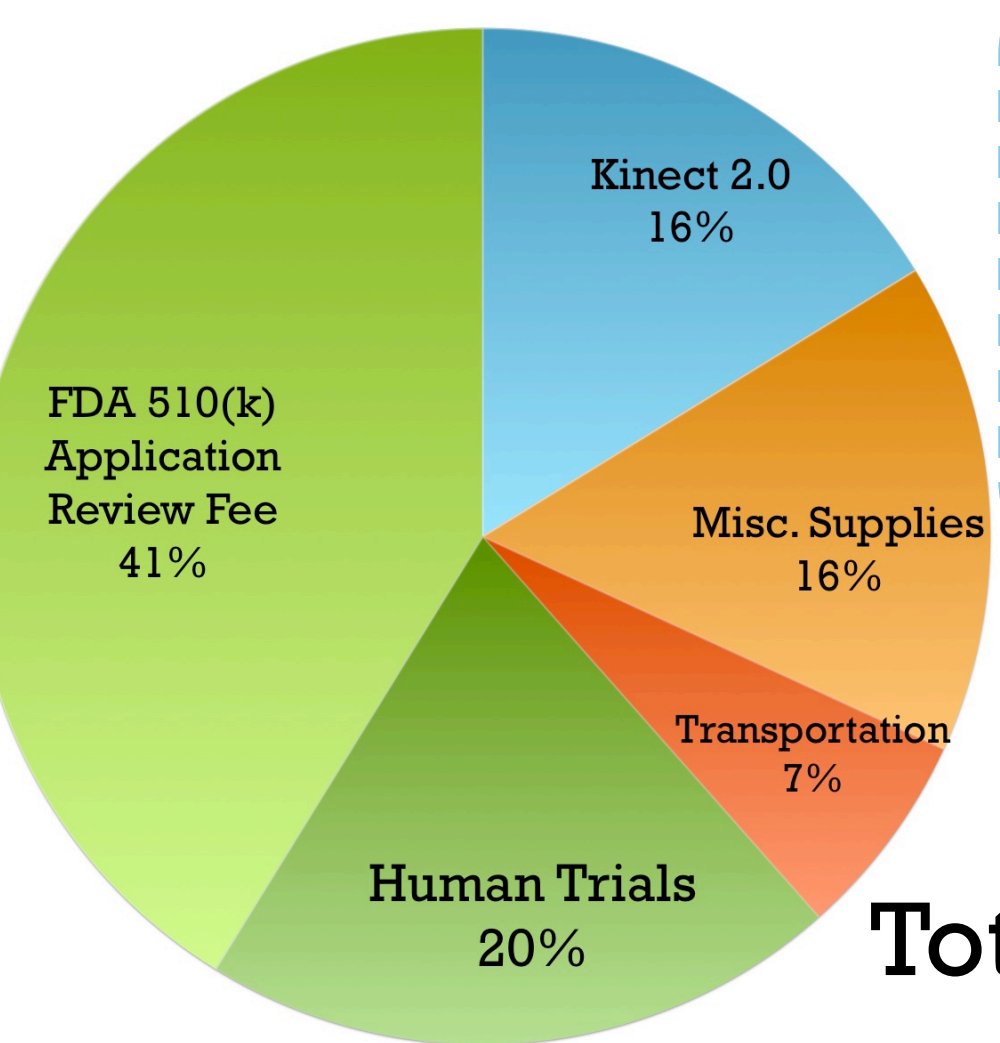
924,333 hospital beds * 10% market penetration
Conservative estimate ≈ 92K users
→ Kinect v2 costs ~ \$400. Add updated SDK. 150% markup

PRICING MODEL: \$1000 per device

92,000 users (beds) * \$1000 =

\$92 million

Total Project Expense: \$9839



VISION

- **Decrease risk** of patient death due to 'dead in bed' syndrome

- **Provide uninterrupted** patient respiratory monitoring

- **Real-time alert** system and patient readout for medical staff

- **Stealth mode:** non-contact, non-invasive, and wireless

Disrupt the current gold standard of care:

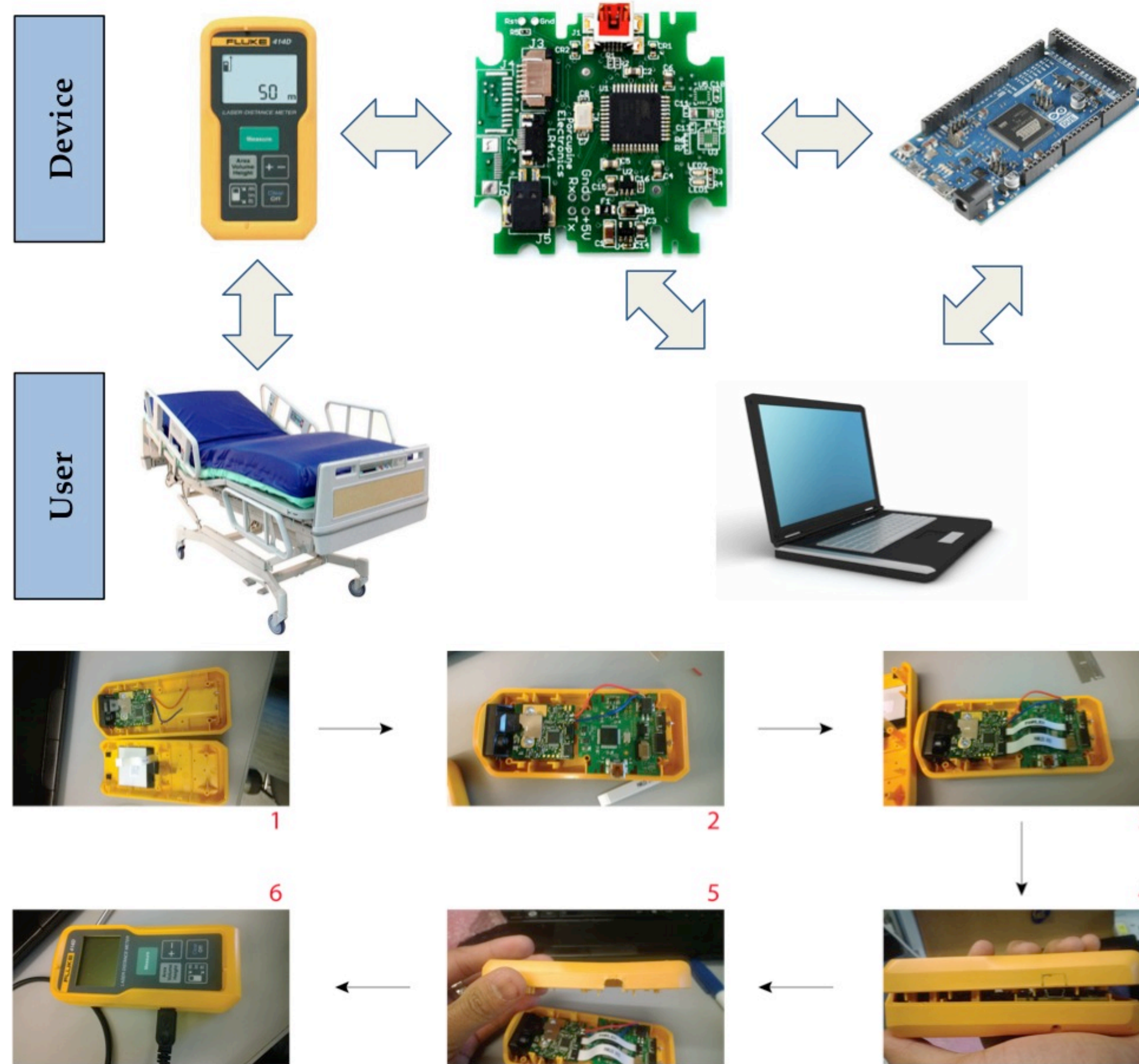
Nurse Surveillance

- Reported minimum of 7% US surgical patients die within 30 days due to poor nurse surveillance
- 1: 8 Nurse:Patient ratio

Pulse Oximetry

- Changes in oxygen saturation can take as long as two minutes to develop and stabilize after a change of breathing has occurred

PROTOTYPING

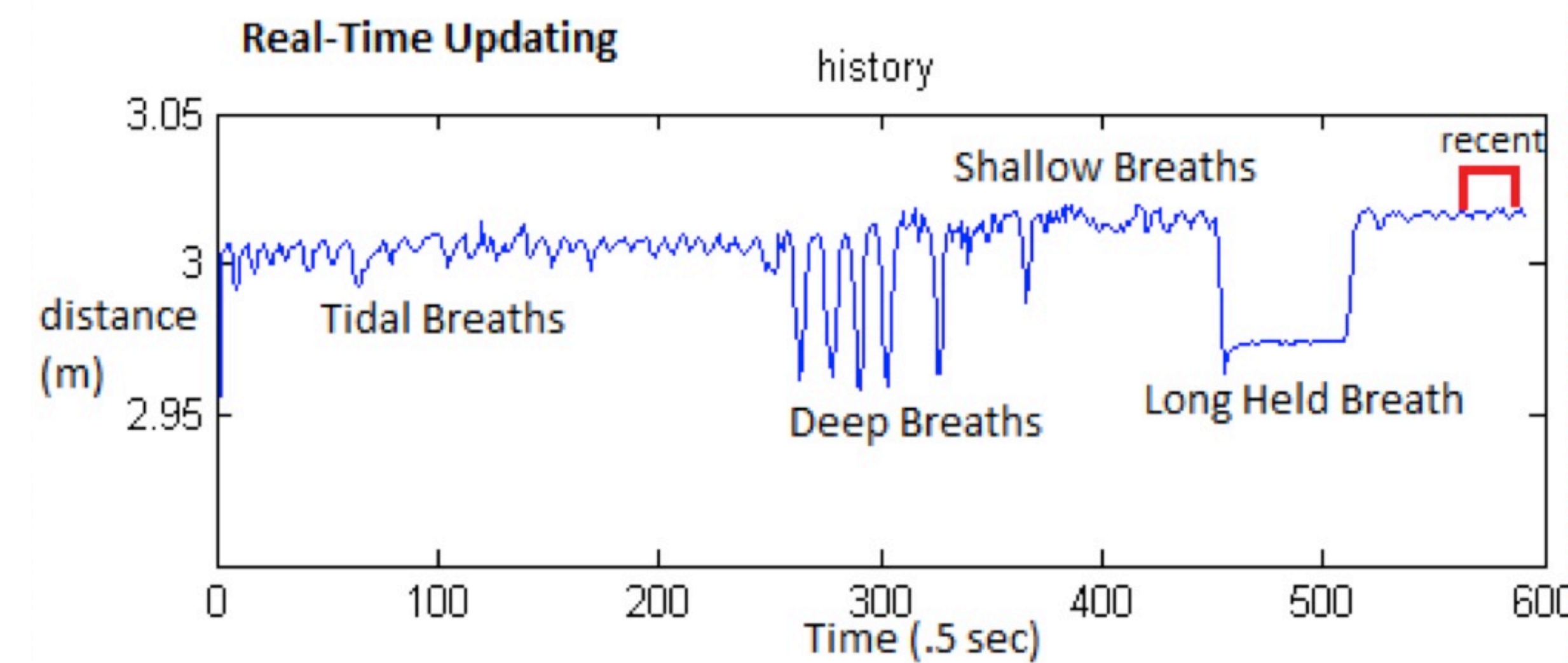


- For proof-of-concept, laser rangefinding (LRF) was used to determine the movements of the chest as a person breathes
- LRF detects how long a light wave takes to reach a distant target
- Changes in this time-of-flight when the target moves can help locate the target's changing position

Brian Dick, Yumi Suh, Adrian Tabula, Vinay Viswanadham

IMPACT EVALUATION

PROOF OF CONCEPT



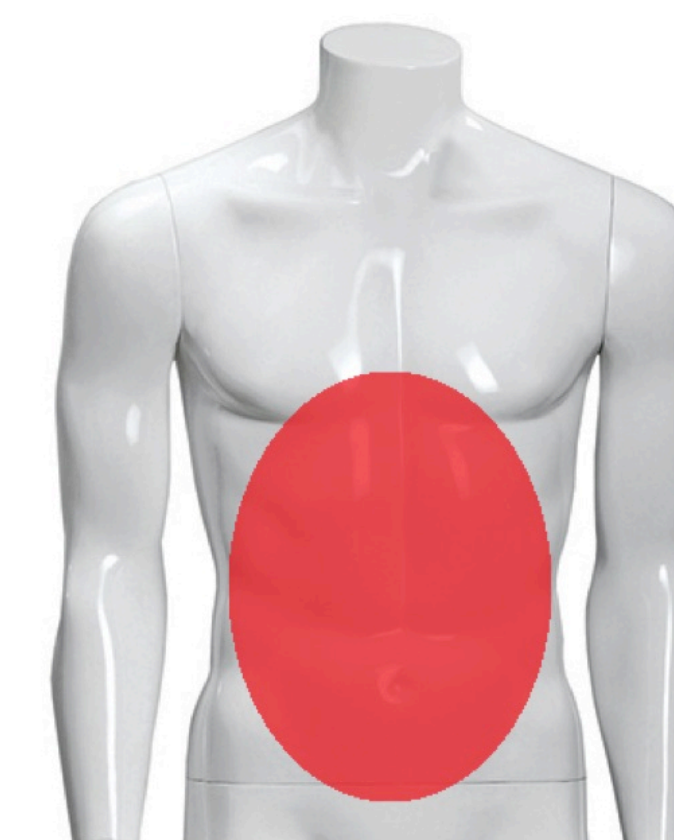
4 Types of Breathing

The LRF is able to identify unique breathing patterns...

- Tidal Breaths
- Deep Breaths
- Shallow, Rapid Breaths
- **Lack of Breathing**

Accuracy

- Range of accuracy limited by single detection point
- Lateral detection range of thoracic cavity
- Vertical detection range of sternum to pelvic cradle



SHORT-TERM MILESTONES

	Sept - Dec	Jan - Jun	Jul - Aug	Sept - Dec
Iteration 1: Initial Research				
Identify primary needs to be addressed	✓			
Identify benchmark competitors and current market	✓			
Survey and meet with healthcare professionals	✓			
Concept generation	✓			
Iteration 2: Prototype Development				
Concept prototyping and initial user interface design		✓		
Discussion and advice from professional mentors		✓		
Testing, bug fixes		IP		
Iteration 3: Clinical Trials				
Evaluate prototype performance with healthy patients			IP	
Evaluate prototype performance with targeted patients			IP	
Bug fixes			IP	
Iteration 4: Go-to-Market Strategy				
Establish patents				
Expansion through hospital partnerships				
SEO/PPC and big data integration to expand users				

" I am sick of losing patients to such a preventable problem! Why doesn't this technology doesn't already exist? **WE NEED AEOLUS!** " -Arthur Wallace, MD PHD