



# BioMetrics: Gait Analysis For Parkinson's Disease

Adam Li

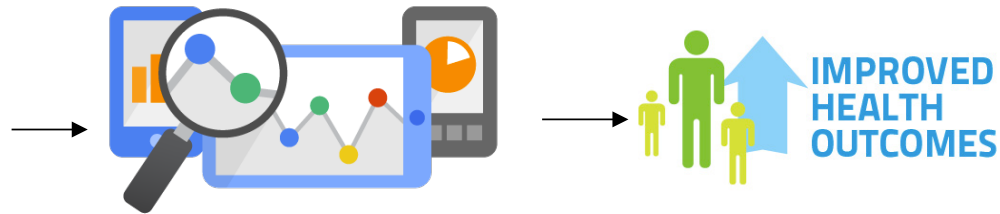
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# Gait Analysis For Parkinson's Disease

- 1 Million people in the US have PD
  - \$19 B health care costs/y
- Physicians have difficulty **objectively tracking** the progression/severity of PD
  - Different 30% of the time across clinicians
- Solution:
  - Quantification of PD symptoms
  - Physician friendly
  - PD translatable



# What do experts think?

*“It would be very helpful to have something that I can have in my clinic to measure the motion, the dyskinesia, and more accurately judge the severity”* - Dr. Irene Litvan, Director of Movement Disorders Center

# Is Parkinson's Disease a Problem?

## Patient Population

- ~1-2 M in USA



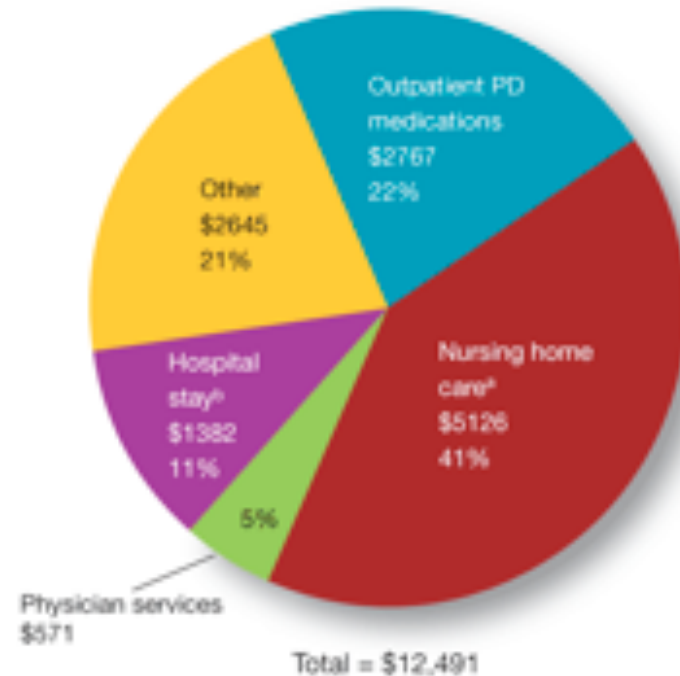
Cost Per Patient  
\$12,491 / year



## Total Cost Per Year

- \$12,491 \* 1.5 M
- -> ~\$19 B/year

## Direct Medical Cost Components



<sup>a</sup> Physician and medication costs are not included.

<sup>b</sup> Physician costs are not included.

Source: <http://www.psychiatrictimes.com/>

# Potential Clients/Customers

## Short Term



☐ Researchers

## Long Term



☐ Clinics

☐ Hospitals

☐ Insurance Companies (indirect)

Other potential customers: Patients themselves

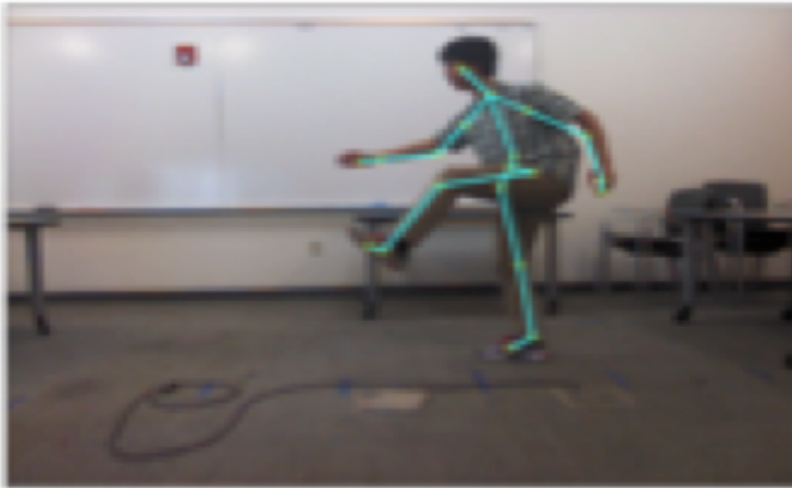
# The Solution

Camera

Software

PD  
Analysis

Physician



## Stake Holders

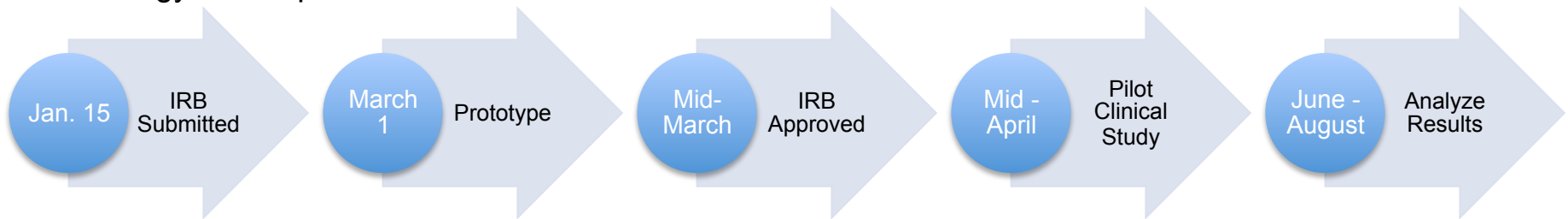
- Physician: Better health outcome for patient
- Hospital: Potential reduced medication costs
- Researchers: Cost effective motion tracking
- Patients: Better treatment options

# The Solution (cont.)

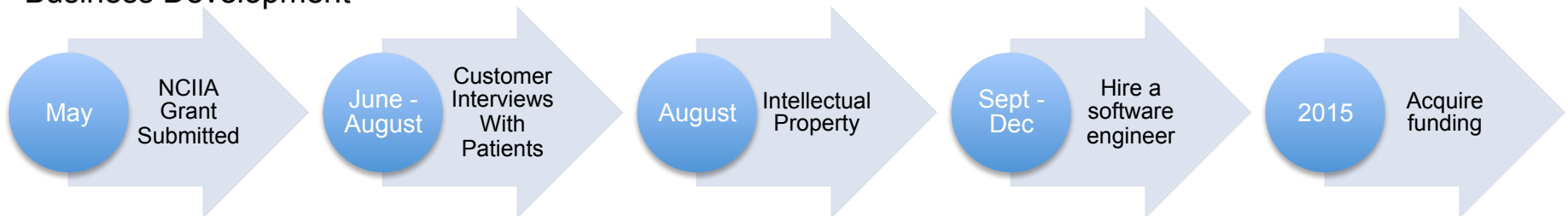
## Working Prototype

- IRB submitted Jan. 15th for pilot patient study (now approved)
  - ~ 20 people
- Will submit provisional application after pilot study (~ 2 months)
  - Will go through Erik Vieira


























## Technology Development



## Business Development

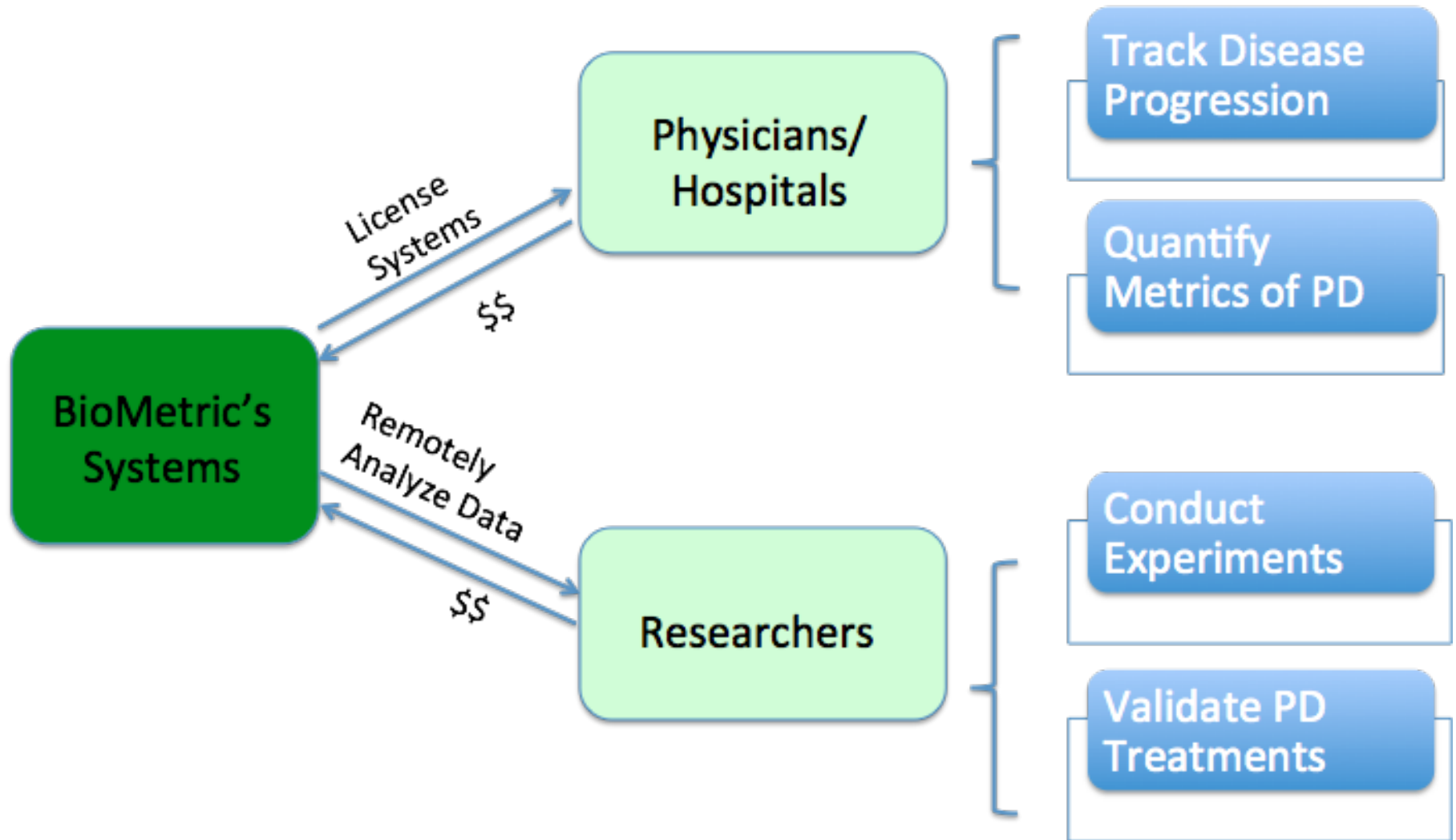


# Competition Matrix

	Neurocom	Motek Medical	Reflexion Health	Rem Park	BioMetrics (us)
PD Specific					
Full Body					
Space Efficient					
Physician-Friendly					
Cost Effective					



# Revenue Model Diagram



# Summary

- Interdisciplinary approach to solving a clinical problem
- Computing analytics specific to Parkinson's Disease
- Giving physicians a tool to make better decisions for their patients



# Lessons Learned and Recommendations

- Technical Milestones:
  - Development will require further work and partnership with patients and physicians
- Customer Interviews:
  - Having difficulty tracking down regulatory personnel that would help as a good customer interview
  - Decided to also schedule in patient interviews and more physicians
- Mentor:
  - Michael Krupp helped us with NCIIA, thinking through potential business models, what is important to think about in healthcare startup, FDA approval
  - Great resource for future pivots/startups

# Thanks!

- Rosibel
- Mike
- Jay
- Janny
- All Mentors/Professionals
- Other VLC Teams

# Appendices: Startup Cost Projection

## One-Time Start-Up Costs

1	Purchase price or downpayment if buying a business	
2	Office furniture (using incubator)	0
3	Computer hardware and software	4500
4	Kinects (4)	600
5	Business cards and stationery	500
6	Decorating and remodeling	0
7	Fixtures, counters, equipment & Installation	4500
8	Legal and other professional fees	5000
9	Business licenses and permits (C-corp)	5000
10	Advertising and promotion for opening	5000
11	Rent & security deposit (often equals 3 months rent)	9000
12	FDA Approval	10000
	<b>SUBTOTAL ONE TIME COSTS</b>	<b>44100</b>

37	Estimate the number of months needed to find customers and get established	12
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## Calculate Total Start-up Funds

<b>Your one-time cost</b>	<b>44100</b>
<b>Monthly expenses for that many months:</b>	<b>213840</b>
<b>Your Total Startup Cost</b>	<b>257940</b>

## Ongoing Monthly Expenses

17	Salary of owner-manager (amount you need to pay yourself)	5000
18	All other salaries, wages, & commissions	5000
19	Payroll taxes or self-employment tax	500
20	Rent	3000
21	Equipment lease payments	0
22	Advertising (print, broadcast and Internet)	0
23	Postage & shipping costs	200
24	Supplies (inks, toners, labels, paper goods, etc.)	500
25	Telephone	20
26	Utilities	0
27	Internet connection	200
28	Website hosting and maintenance	100
29	General business insurance	200
30	Business vehicle insurance	0
31	Health insurance	100
32	Interest & principal on loans & credit cards	500
33	Inventory, raw materials, parts	500
34	Legal and other professional fees	2000
35	Franchise fee	0
	<b>SUBTOTAL OF MONTHLY COST</b>	<b>17820</b>

# Appendices: Revenue Model

- Other Models:

- Patients:

- Home therapy for PD patients to provide continuous data to the physician without the need for coming into the clinic

- Gait therapy

- Low cost gait analysis for physical therapy, concussion treatment and other disorders related to movement

# Appendix: Business Model Canvas

- Business Model Canvas
  - Value proposition:
    - Provide quantitative metrics that are physician friendly for tracking the disease/progression of Parkinson's Disease
  - Customer segments:
    - Insurance Companies, Hospitals, Physicians, Researchers
  - Channels:
    - Sales team - direct marketing, word of mouth, collaboration
  - Customer relationships:
    - Working with physicians and industry experts
    - Making prototype user friendly
  - Revenue streams:
    - Licensing systems
    - Provide remote contract work for analytics