

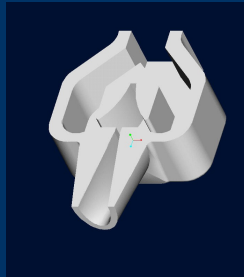
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background



product



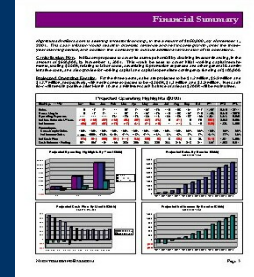
technology



customers



competition



business plan

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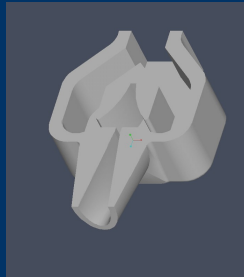
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product



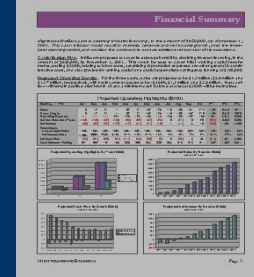
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30 million Americans currently suffer from lung disease

Lung disease is #3 cause of death in the US

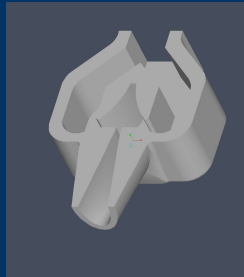
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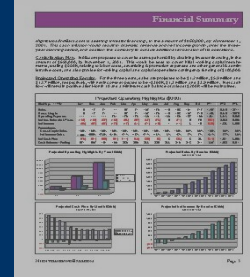
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A spirometer is a medical device used to assess lung function

- Measures velocity of air flow
- Relates velocity to clinically relevant lung parameters

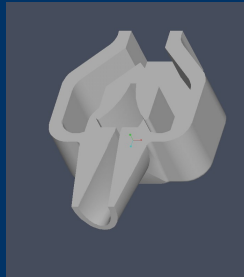
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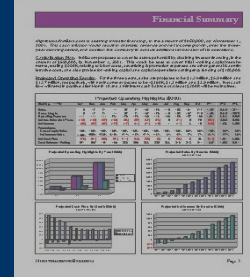
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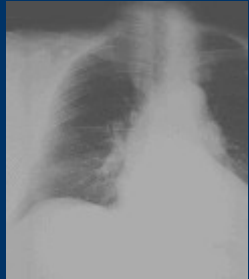
Currently available diagnostic spirometers:

- Expensive capital investment (\$1500 - 3000+)
- Require computer for operation
- Require daily calibration with bulky equipment
- Require separate purchase of mouthpieces (\$2+ per patient per test)

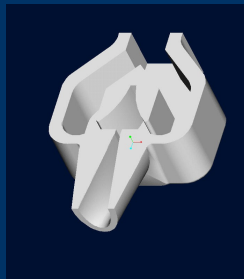
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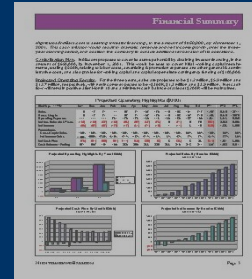
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The IIT spirometer exceeds the capabilities of traditional spirometers:

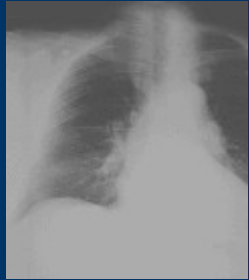
- Lightweight and user-friendly
- Meets or exceeds all ATS standards for spirometry

product

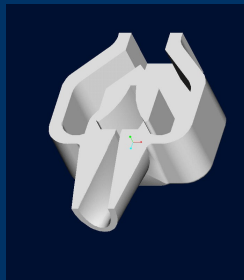
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product



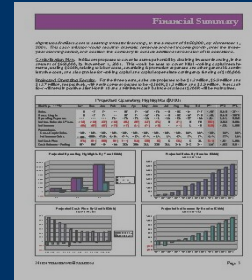
technology



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The IIT spirometer exceeds the capabilities of traditional spirometers:

- Measures and stores diagnostically relevant information
- Measures $FEV_{1.0}$ and Peak Flow

product

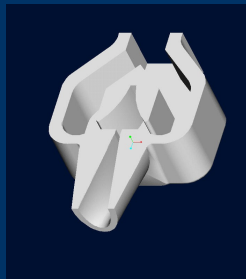
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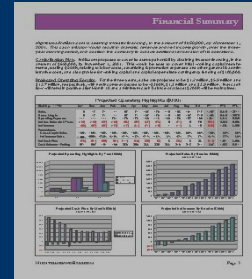
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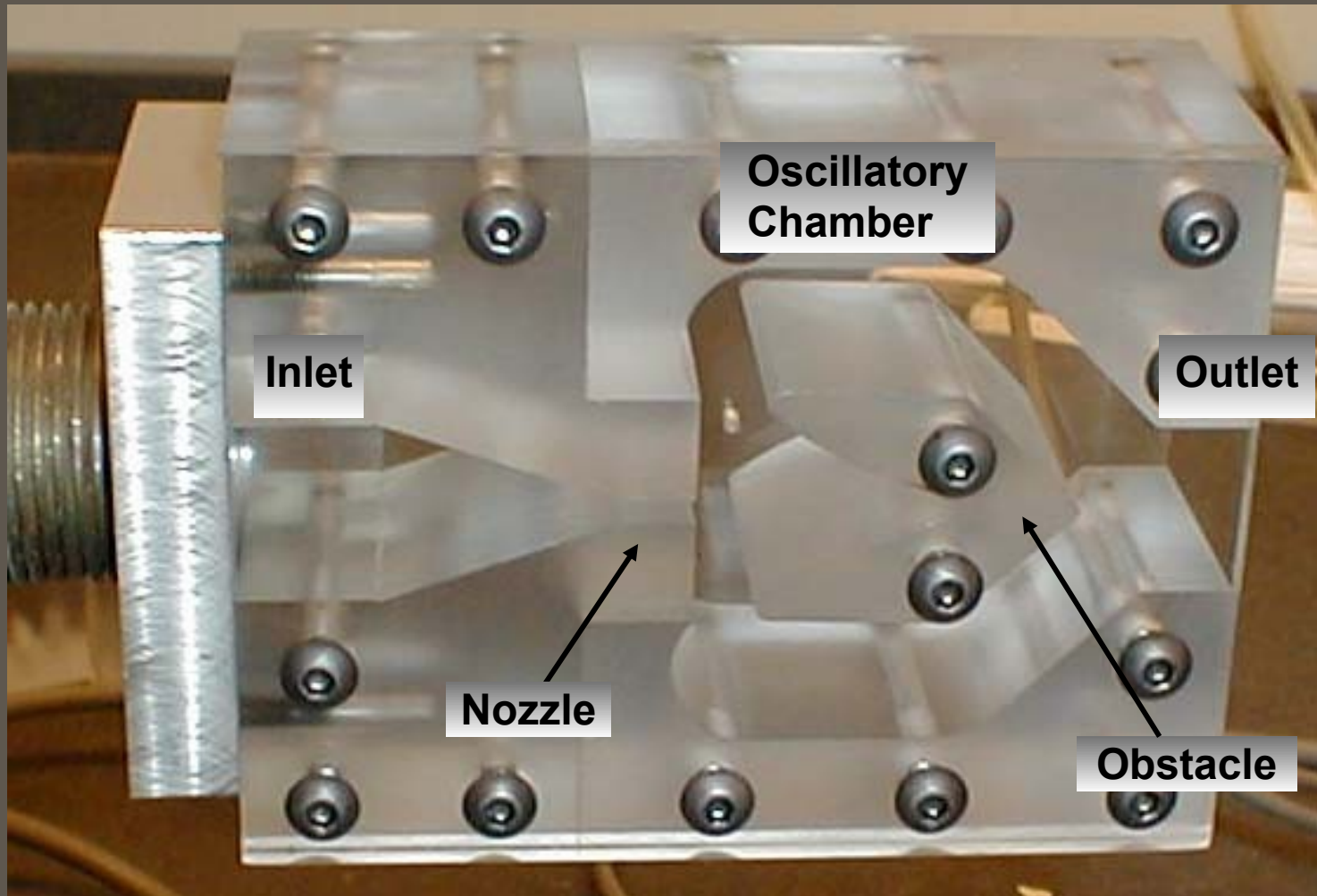


business plan

The IIT spirometer exceeds the capabilities of traditional spirometers:

- Inexpensive
- Easy cleaning and sterilization
- No moving parts design provides durability

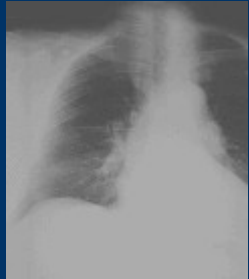
fluidic oscillator



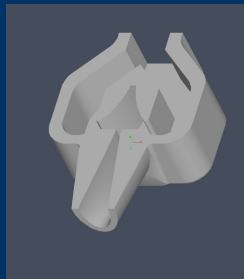
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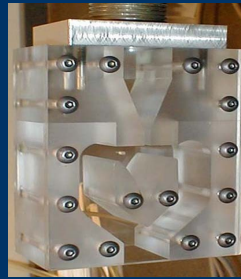
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product



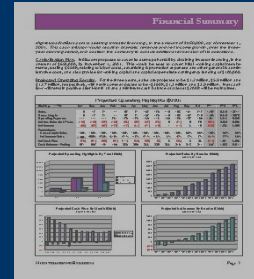
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The IIT spirometer proven for operation under steady-state flow conditions

To proceed to final development:

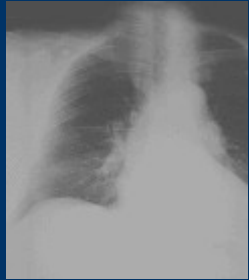
- Must be proven for operation under unsteady flow conditions

technology

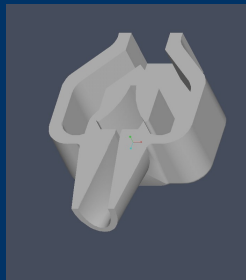
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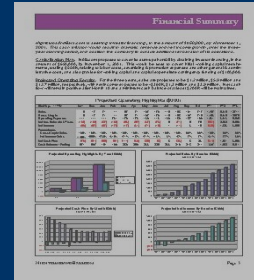
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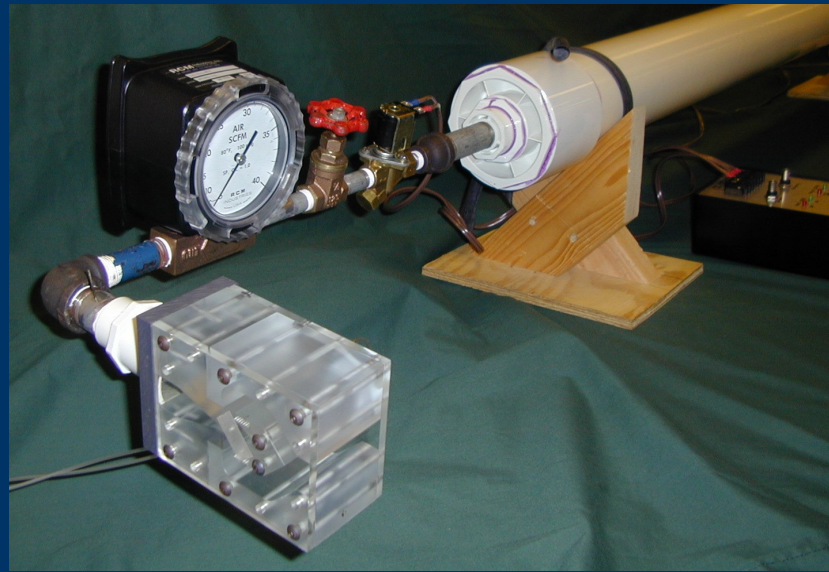


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Experimental approach to prove unsteady flow case

- Design and build a lung function simulator

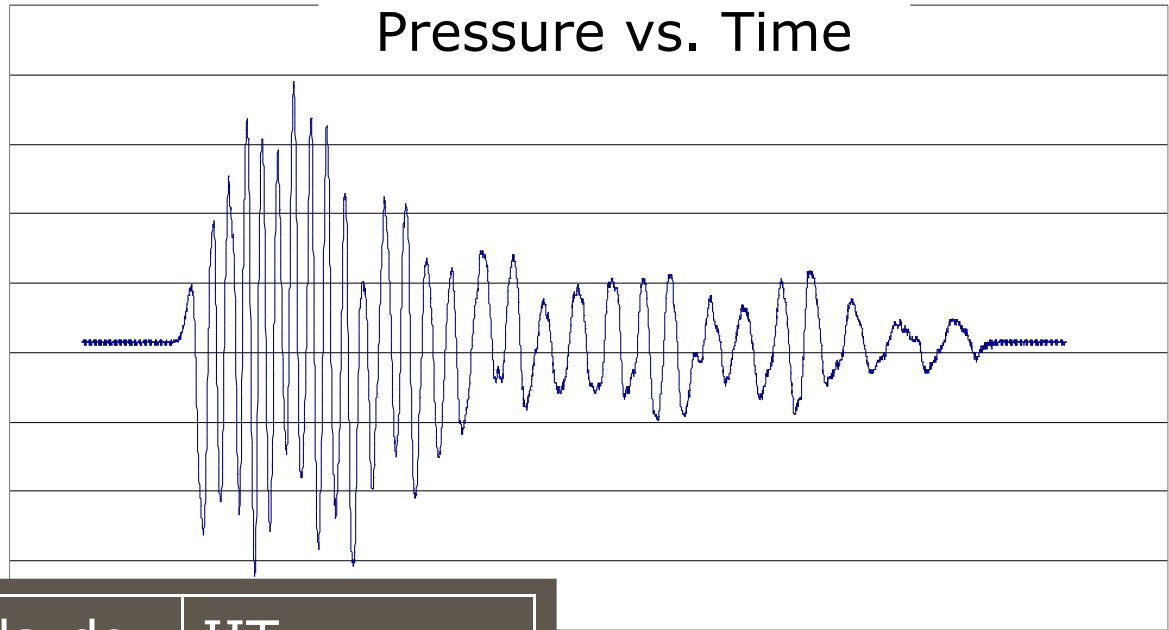
experimental approach



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Dynamic Flow Experimental Data

Pressure vs. Time



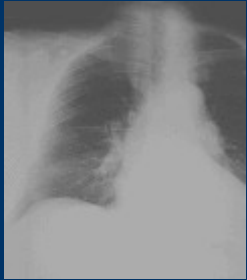
Testing up to 8L	ATS Standards (Diagnostic)	IIT Spirometer
FEV _t	±3% of reading	±0.6%
FVC	±3% of reading	±0.6%
Precision	±3% of reading	±0.95%
Resolution*	0.05L	0.045L

*Monitoring standards

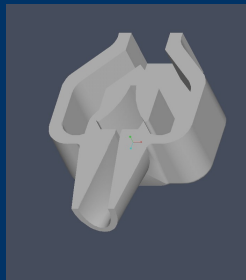
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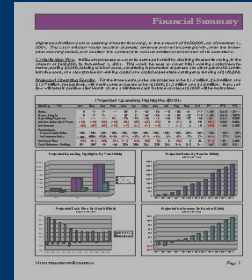
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Primary marketing target:

Physicians who use spirometers

~15,000 pulmonologists

~7,000 allergists

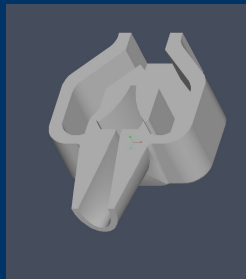
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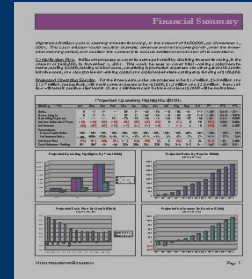
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Secondary marketing targets: physicians who do not currently use spirometry regularly

- will benefit fiscally and clinically
- 8-9,000 spirometry tests performed per year at The University of Chicago Hospitals alone

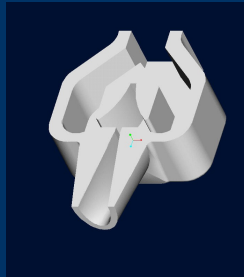
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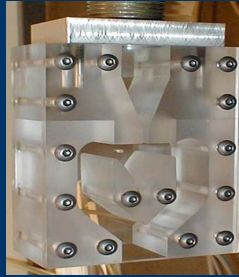
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background



product



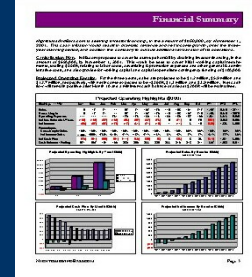
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business plan

Surveys and Interviews:

–Physician

- To gain better understanding of the market
- To seek advice on enhancing the spirometer functions.

–Patient-Consumer

- To identify potential customer types
- To define market supportable price range
- To discover ways to improve on current products.

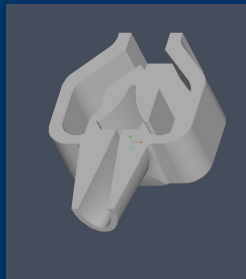
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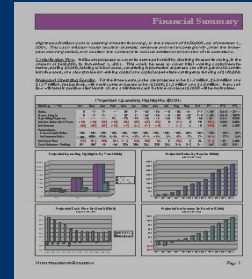
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Spirometry market is crowded

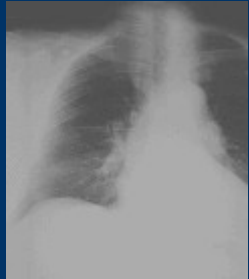
Many companies selling similar products:

- Based on pneumotachigraph technology
- Periodic calibration required

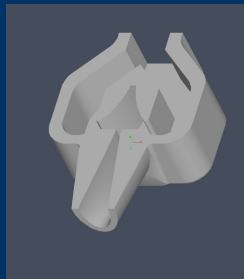
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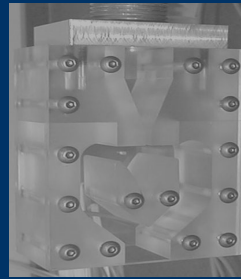
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product



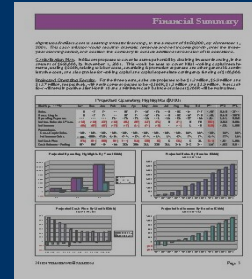
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Many companies selling similar products:

- Disposable pieces required
- PC dependent for operation

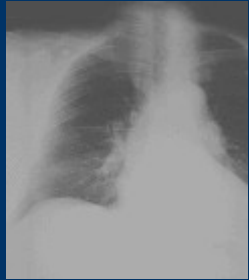
We can compete on the basis of:

- No disposable pieces

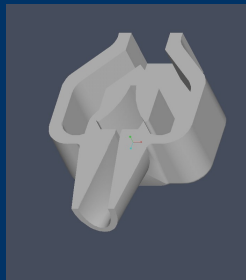
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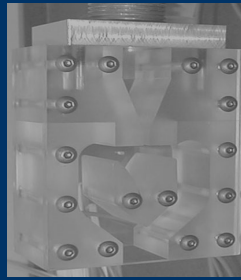
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background



product



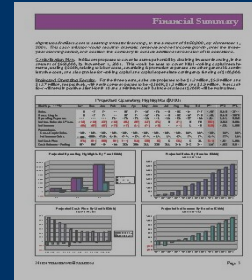
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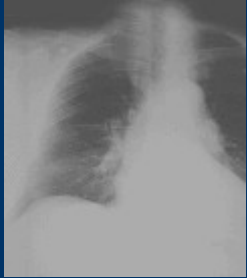
We can compete on the basis of:

- No need for calibration
- PC independent
- Increased accuracy
- Price

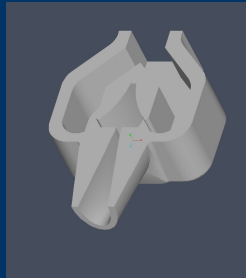
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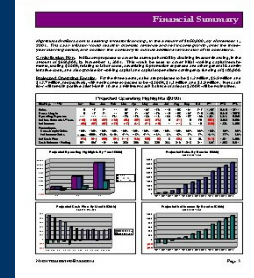
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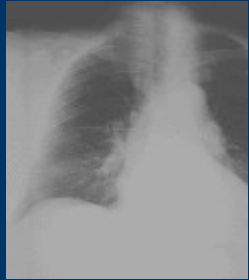
Establish independent company to bring spirometer to market

Initial business model will follow SBIR plan

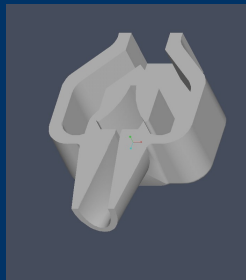
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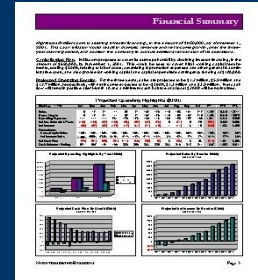
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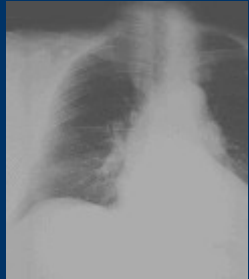
Investments in a series of 6-9 month phases

- Phase I: Evaluation (\$100,000)
 - Solve technical issues
 - Complete spirometer development
 - Define manufacturing protocol
- Goal: Increase value of business 2-3 times

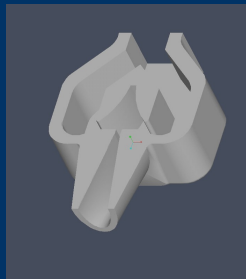
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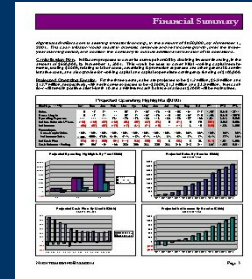
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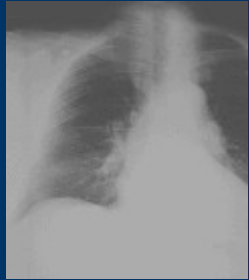
business plan

- Phase II: Testing and Market
 - Clinical trials
 - Initial product sales
 - Build client list
- Goal: Establish \$1-2 million business

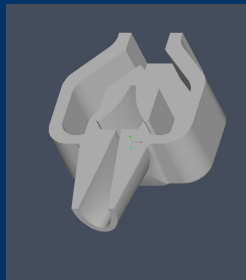
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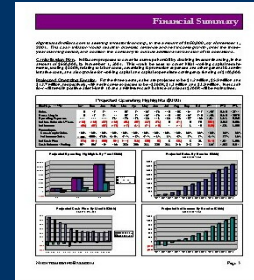
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Formal consulting relationships being formed with prominent physicians at:

- National Jewish Research and Medical Center
- The University of Chicago Hospitals

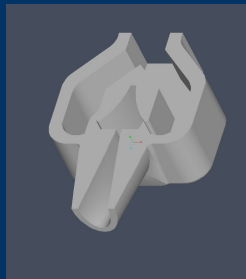
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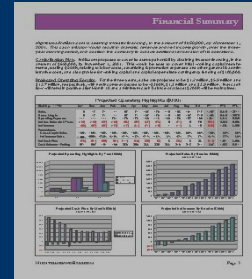
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Humanitarian Benefits

Capitalist Benefits

- Existing Market
- Ease of Use
- Retail Price
- Low Risk

Return on Investment!

Spring 2002



Reji Attupurath	Undergraduate, Molecular Biochemistry, Biophysics
Steven Chen	Undergraduate, Molecular Biochemistry, Biophysics
Albert Choie	Undergraduate, Molecular Biochemistry, Biophysics
Bhargava Gannavarapu	Undergraduate, Molecular Biochemistry, Biophysics
Zachary Goossens	Undergraduate, Aerospace Engineering
Jacob Huske	Undergraduate, Electrical Engineering
Senthil Jayarajan	Undergraduate, Computer Science
Adit Panchal	Undergraduate, Computer Engineering
Ankur Patel	Undergraduate, Computer Science
Jooman Shim	Undergraduate, Molecular Biochemistry, Biophysics
Michael Shye	Undergraduate, Molecular Biochemistry, Biophysics
Nicole Wilson	Ph.D. Candidate, Biomedical Engineering
Kevin Meade	Professor, Mechanical, Materials and Aerospace Engineering
David Williams	Professor, Mechanical, Materials and Aerospace Engineering