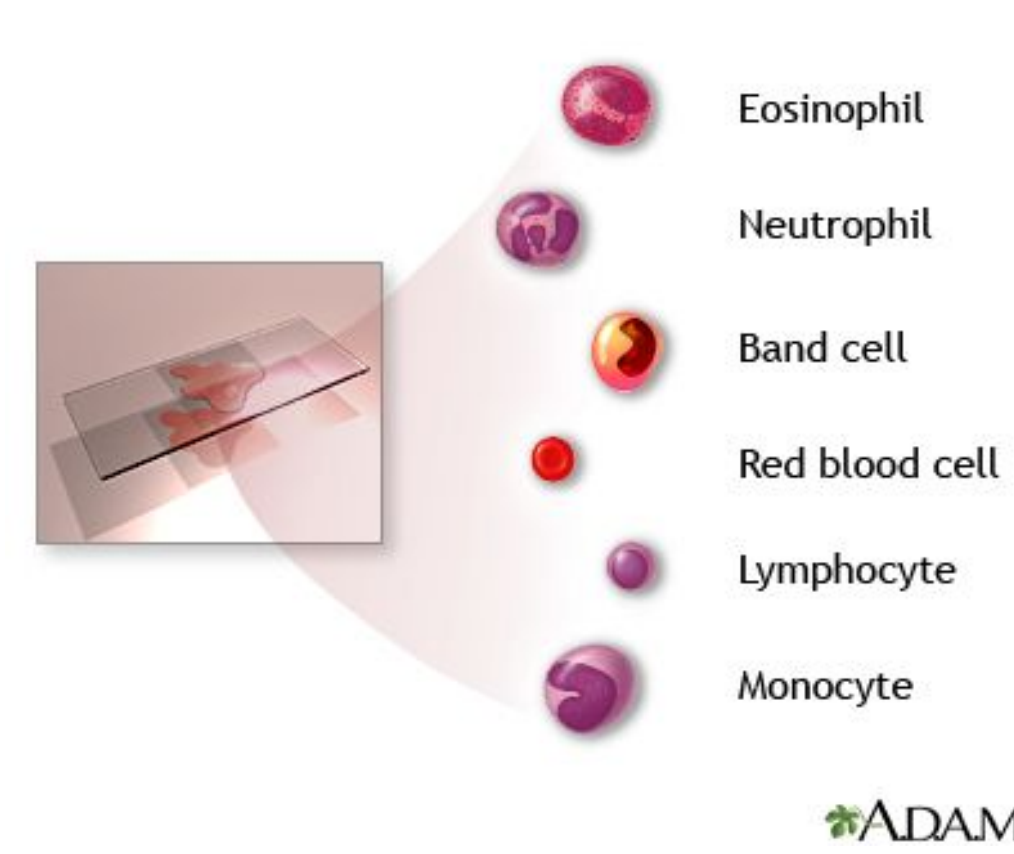


Problem

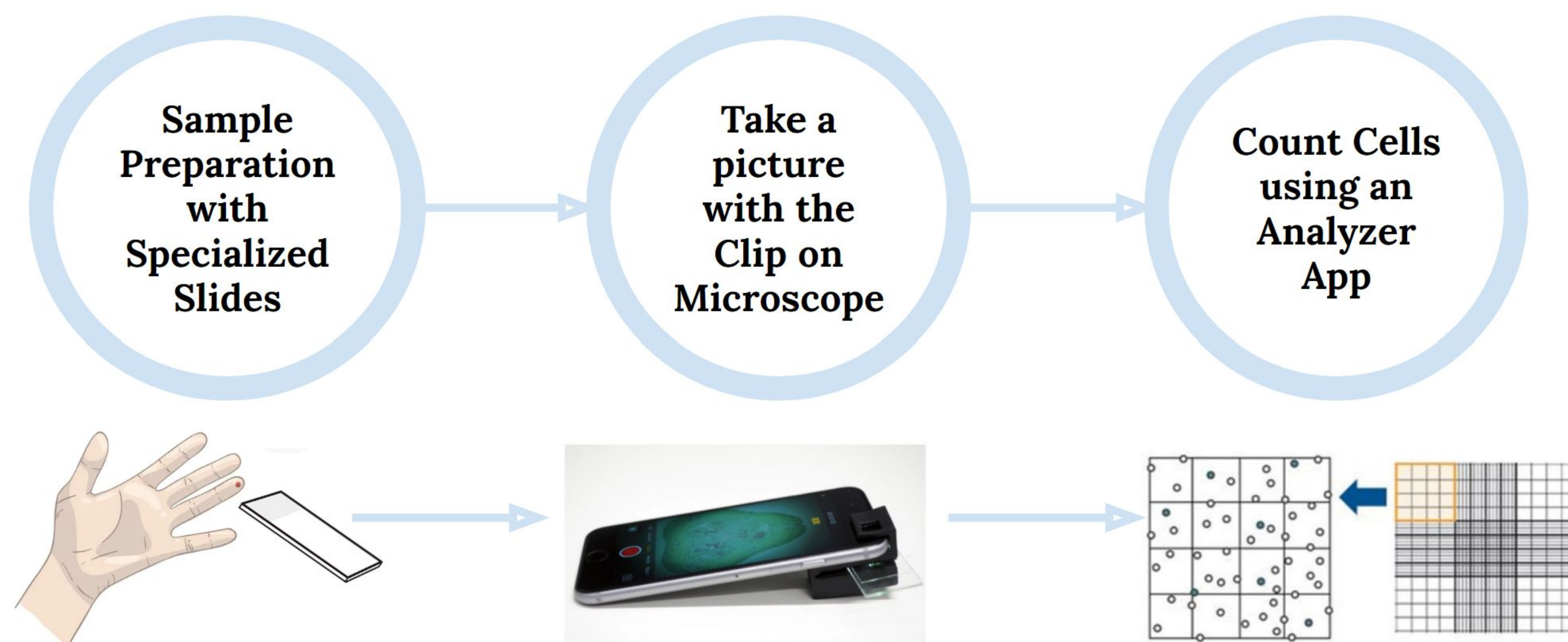
- Complete Blood Count (CBCs) tests
 - Screen for variety of disorders
 - Monitor a medical condition
 - Monitor a medical treatment
- More than **500,000 patients** with blood diseases, like blood cancer, anemia, sickle cell disease etc. need constant monitoring of blood cells to identify relapse and disease progression
- These tests are **expensive** and **time consuming**



Solution

The **Absolute Blood Cell Monitor** analyzes and gives Complete Blood Counts (CBC) from blood samples at home in 15 minutes.

- Portable**
- Affordable**
- Instant Results**
- 3 Part, Easy to Use Design**



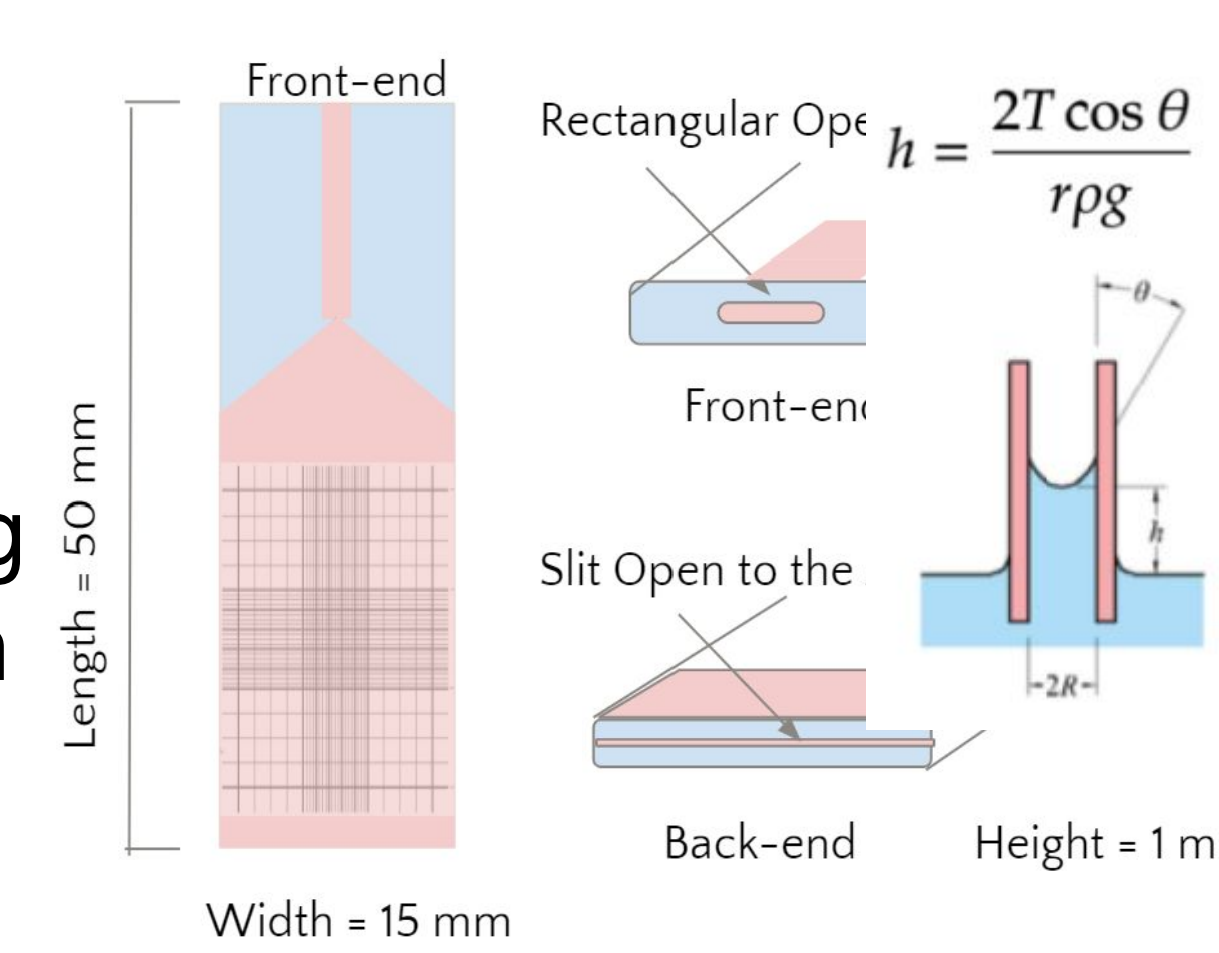
Market and Competition

Product	Hospitals	Quest Diagnostics	Athleas	ABsolute Blood Monitor
Complete Blood Count	Y	Y	-	Y
Direct Communication	Y	-	-	Y
Portable	-	-	Y	Y
Covered by Insurance	Y	Y	-	-

Design Specifications

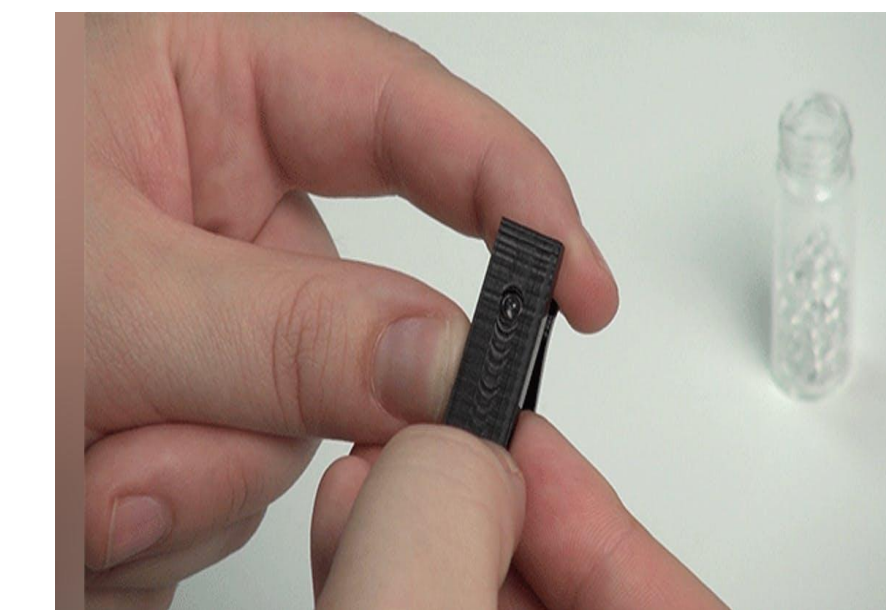
Specialized microglass slides:

- Cavity between two slides with openings on two ends
- Blood rise determined by Young Laplace Capillary Rise Equation
- Collects a minimum of 1 uL volume of blood



Clip on Microscope:

- Designed at RMIT University and University of Adelaide
- Glass bead in a 3D printed clip forms a tube lens with phone camera lens
- Resolution high enough to image 1 um – 8 um cells



Slide Prototype

Prototype Preparation:

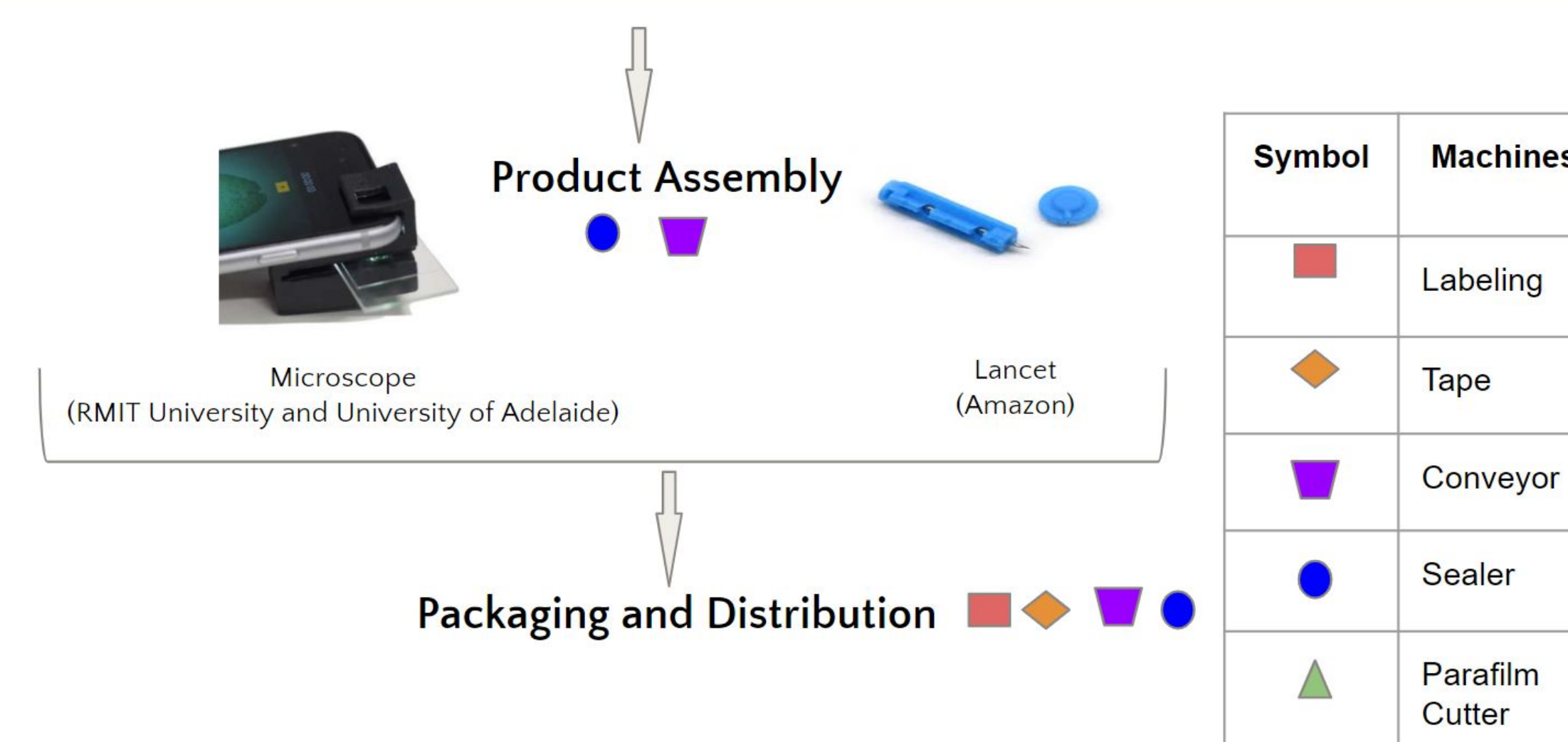
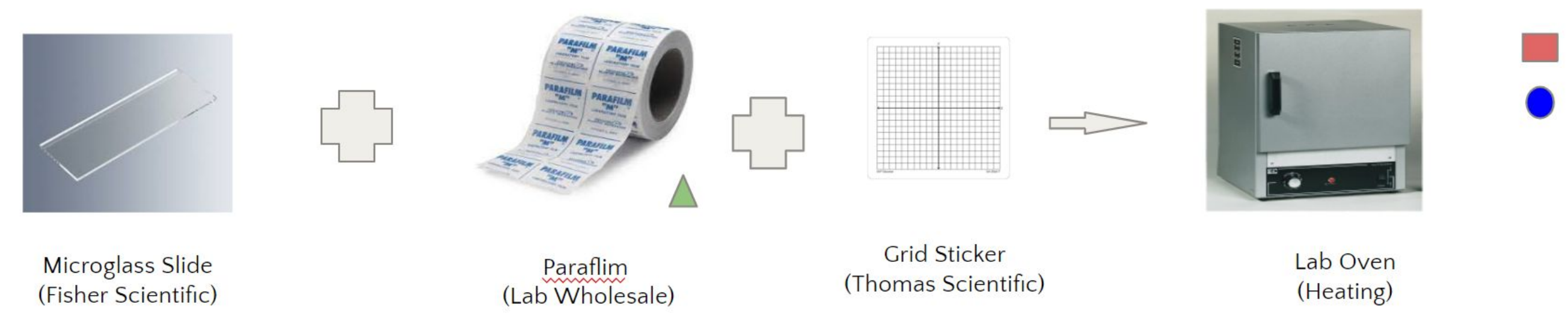
- Parafilm with a cavity cut out is sandwiched between two slides
- The slides are heated for 45 seconds. The parafilm melts and forms a seal.



Prototype Testing:

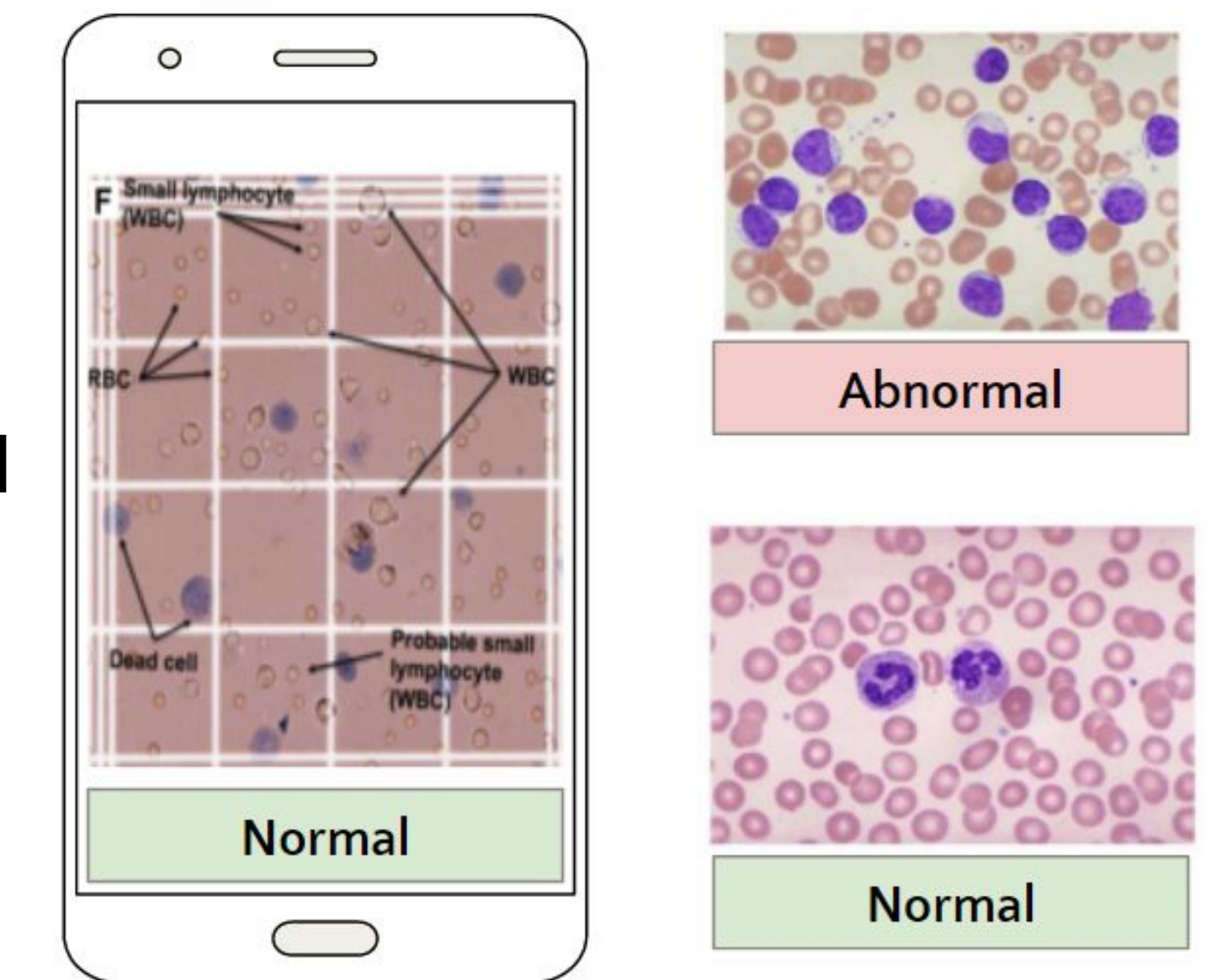
Soy-sauce rose up the slide cavity within 10 seconds.

Manufacturing



Analyzer app:

- Counts cells of each type from images taken by camera
- AI is used to compare shapes and sizes of the cells
- Grid sticker on slide is used to count the number of cells in a specific volume of blood
- Compares cell counts to medically referenced range of values
- In case of abnormality, alerts the patient and prompts them to contact their physician



Test	Value*	Reference range
White blood cell count	$8.91 \times 10^9/L$	3.70-11.00
Red blood cell count	$5.16 \times 10^{12}/L$	3.90-5.20
Hemoglobin	14.6 g/dL	11.5-15.5
Platelet count	$251 \times 10^9/L$	150-400

Color	Size	Volume
Blue	0.0025 mm ²	0.25 nl
Yellow	0.04 mm ²	4 nl
Green	0.0625 mm ²	6.25 nl
Red	1 mm ²	100 nl

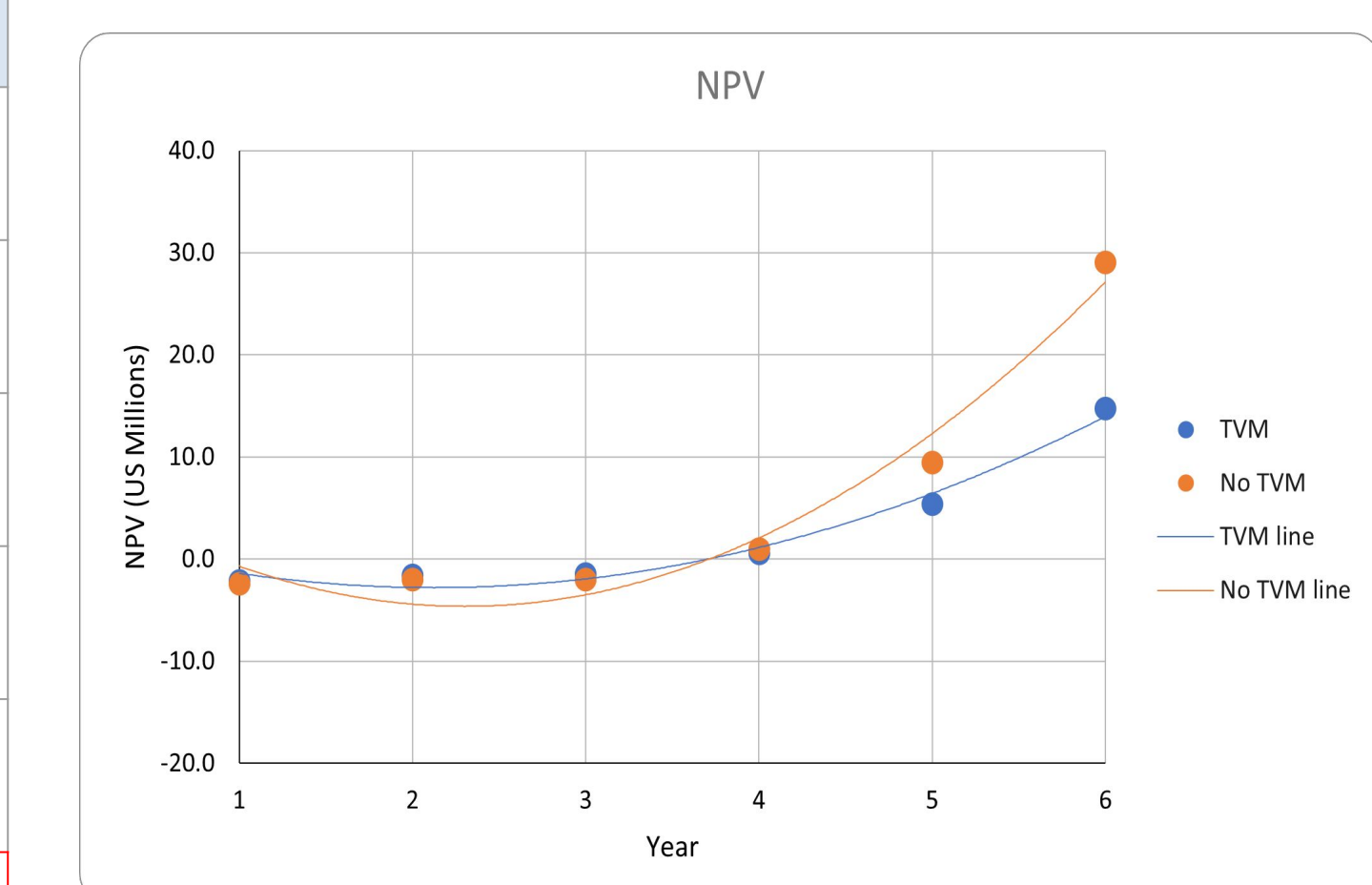
Business Model and Financials

- Aim to reach **250,000** patients with blood cancer after 8 years
- Provide patients with product, app subscription, slide subscription
- Aim to alleviate patient contribution in the future through deals with insurance and primary care providers

Product Sale	\$100
App Subscription	\$17 /month
Slide Subscription	\$25 /month

Financial Estimation After 8 Years

Development Cost	\$6,000,000
Capital Cost	\$300,000
Business Cost	\$68,000,000
Operating Cost	\$14,000,000
Sales Revenue	\$278,000,000
Net Income	\$189,000,000



References

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