Swift Swipe

New Age Phone Wallet

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04/12/2024

Background

- Trend of moving away from traditional wallets
  - **55% of 18-34** vs **5% 55+** prefer to carry phone in place of wallet (Finextra, 2023)

- However, physical cards still used
  - **Only 100** US universities have fully **digital student ID cards** (Wikipedia, 2024)
  - Public transportation cards

Problem Statement

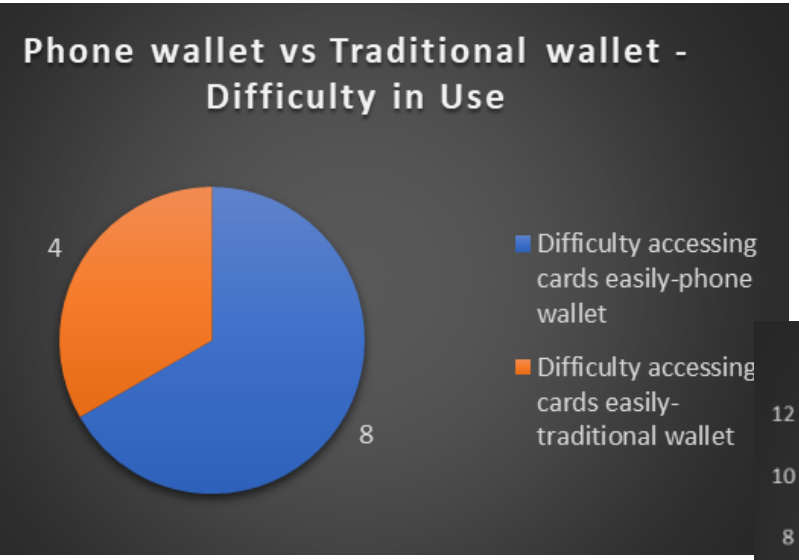
Phone wallets provide an *alternative for the younger generation* moving away from traditional wallet solutions. However, users *report frustrations with the current design.*

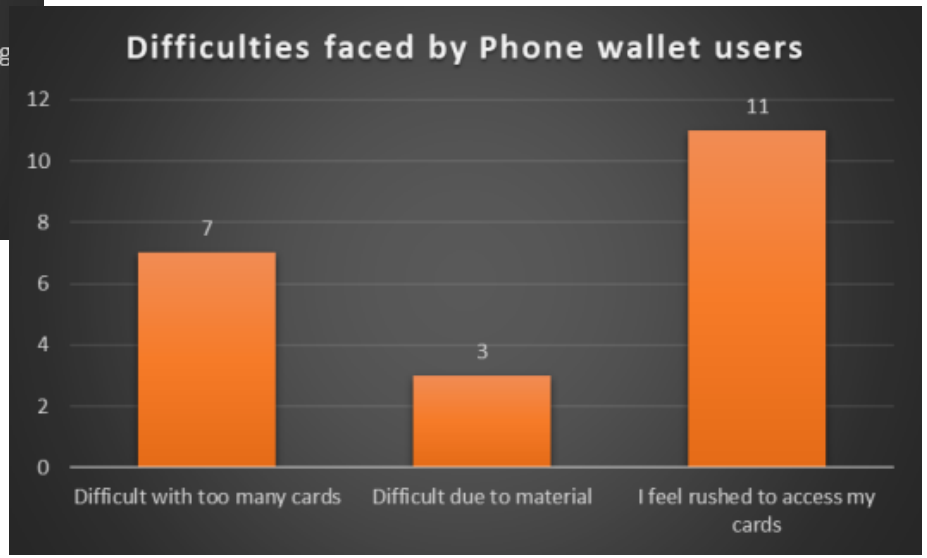
Problem Statement:

- Phone wallets for students and working professionals on the-go do not account for variety in the number of cards they hold.
- With too few cards, the cards can fall out and be lost.
- With too many cards, there is difficulty in quickly accessing cards and the wallet can be damaged.

User Pain Points: How do we know users need a new phone wallet?

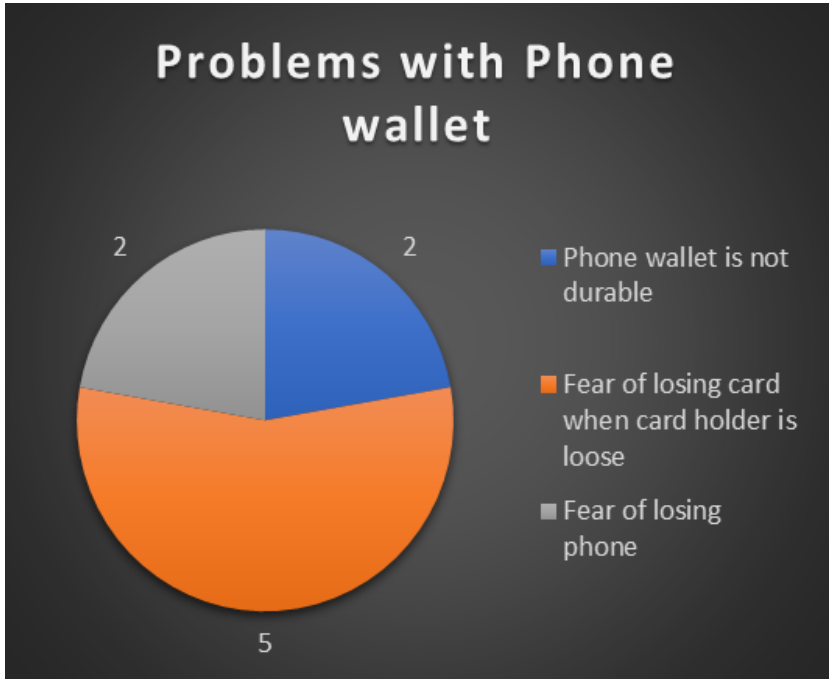
Difficulty accessing cards





Increased difficulty accessing cards, especially when rushed or with many cards

Card loss



Increased fear of losing cards when wallet is loose, phone is lost, or wallet is torn

How do we know we need a new phone wallet?

Current solutions:

- Slim, simple
- Stretches out/tears leading to card loss

- Mechanism to improve card access
- Bulky
- Lack of usability

bridget

★☆☆☆☆ **have had it for 2 weeks and it is already having my cards fallout**

Reviewed in the United States on March 10, 2024

Verified Purchase

This is a cute phone accessory but it is poorly made and it is already becoming loose after using it for 2 weeks.

Marc serra

★☆☆☆☆ **Waste of money**

Reviewed in the United States on January 8, 2024

Color: Green | **Verified Purchase**

Don't waste your money. Incredibly heavy and bulky and cannot access cc easily

Our solution: Slim and simple phone wallet which provides simultaneous *ease of access to cards* and *decreased chance of card loss* for any amount of cards

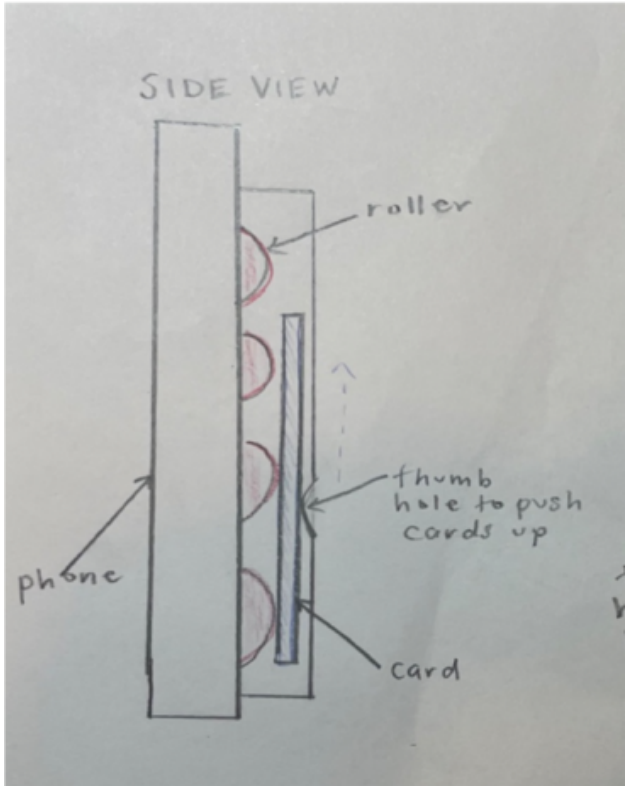
Target Audience

- **Target Audience: Students**
  - **83.3% of students** reported using phone wallets vs **0% of working professionals**
  - **75% of working professionals** cited use of phone wallets **in college**

- **Target Audience Segments**
  - *Graduate students - (22-26 years old)*
    - §Need easy access to school ID and public transportation card – **100% feel rushed** accessing cards while **on-the-go**
    - §Want to hold 4+ cards
  - *Undergraduate students - (18-22 years old)*
    - §Need easy access to school ID when in lines - ex. dining hall, library - **100% feel rushed in line**
    - §Want to hold 1-3 cards

Proposed Solutions

Roller wallet



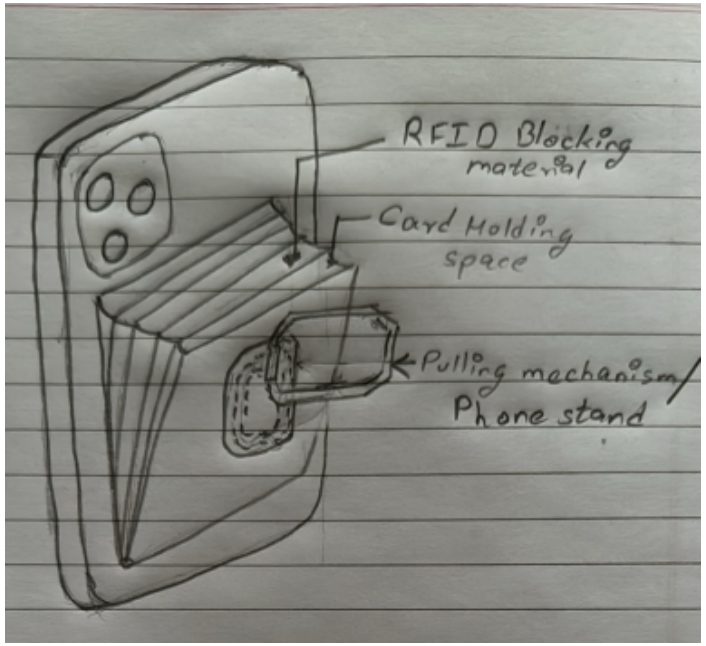
Praises:
- Satisfying rollers
- Intuitive swiping

Concerns:
- Believability issues

Ratings:
- ***Fulfills need:*** 33% strongly agree
- ***Willing to try:*** 66% *strongly agree*
- ***Differentiation:*** 33% strongly agree

UVP: Swipe cards out with thumb and they easily roll out

Accordion wallet



Praises:
- Enjoy pulling mechanism

Concerns:
- Differentiation from traditional wallet

Ratings:
- ***Fulfills need:*** 0% strongly agree
- ***Willing to try:*** *33% strongly agree*
- ***Differentiation:*** 33% strongly agree

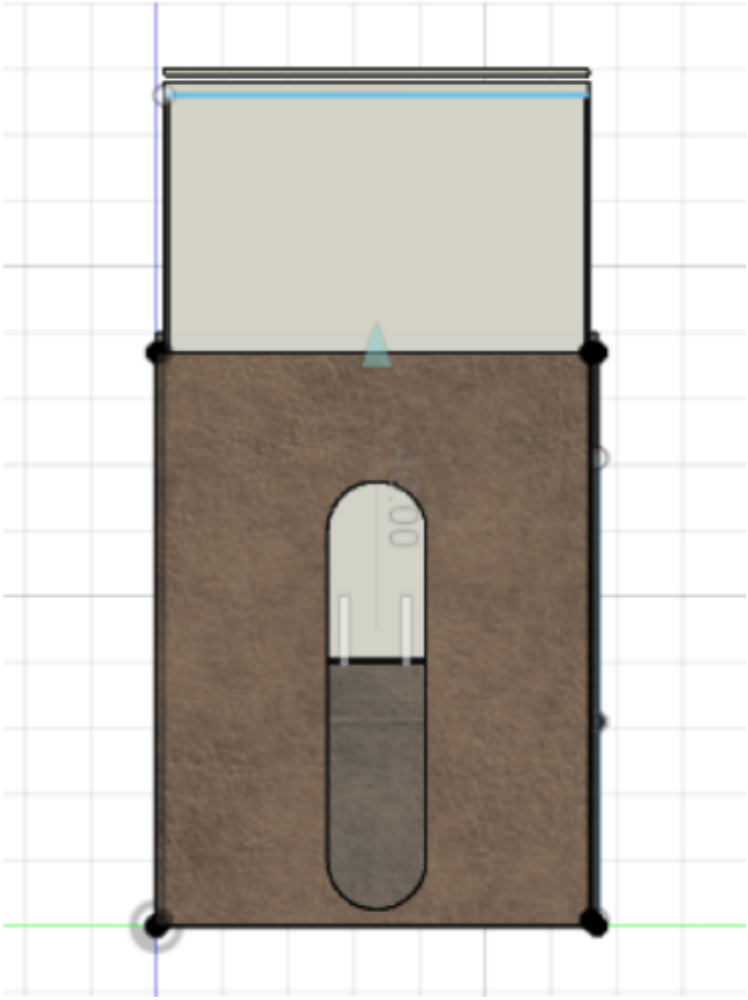
UVP: Wallet stretches or collapses to hold varying amounts of cards

Intended Design After CVT

UVP: Swipe cards out with thumb and they easily roll out

Subsystems:

- *External pocket:* Leather pocket which contains inner pocket, rolling and stopping mechanism with opening for swiping
- *Internal pocket:* Hard plastic-backed wallet with 4 staggered cloth pockets
- *Rolling mechanism*
  - *Ball bearings*
  - *Plastic dowel:* stabilizes bearing so it can roll
- *Stopping mechanism*
  - *Latch:* Stops wallet in place at "rolled out" position to access cards



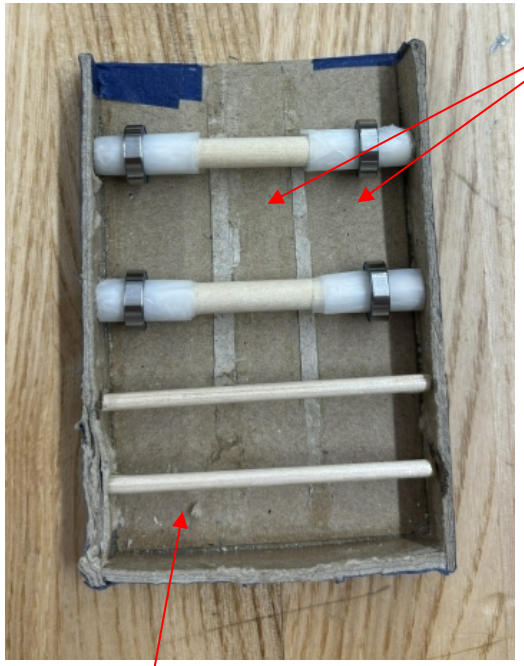
Usability Testing Strategy

Standardized Testing Steps:

1. Have you used a phone wallet? Why/why not?
2. Have you had issues with phone wallets?
3. Put cards in wallet then take them out
4. Why do you think the rollers are there? Do you like them?
5. Do you like that there are 2 separate pockets? Do you want to be able to remove the inner pocket?
6. How do you feel about the overall size and appearance of the wallet? (Looks-like prototype)

Activity	Schedule
Prototype 1	March 22nd - 29th
Usability Testing 1	March 29th
Prototype 2	April 1st - 5th
Usability Testing 2	April 7th - 9th

Protype 1 & Usability Results



Subsystem: External pocket
- 3/3 found it bulky
- 2/3 confused about function of pocket

Subsystem: Rollers
- 2/3 understood purpose of rollers
- 3/3 liked rollers
  - Easy
  - Satisfying/fidget

Subsystem: Internal pocket
- 3/3 wanted more pockets
- 3/3 liked ability to remove as separate wallet

Subsystem: Stopping mechanism
- Magnet used to stop instead of latch
- 3/3 able to get pocket in and out of locked position without instruction

User Experience:
- 3/3 pulled inner pocket out from top rather than swiping

Possible reasons:
- Outer pocket too big relative to inner
- Need signifier for swiping

- 2/3 struggled with card removal

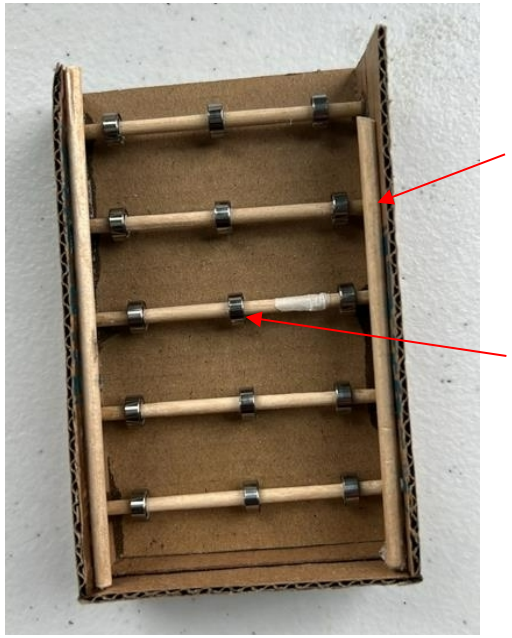
Possible reasons:
- Silicone
- Outer pocket too big so inner pocket unstable side to side

Key Iterations

Subsystem	Features to keep	Features to change
Outer pocket	Ability to protect/enclose cards entirely	Reduce bulk, reduce size relative to internal pocket
Inner pocket	Shallow pocket for easy card removal, slim design	More pockets, non-grippy wallet material
Rollers	Smooth rollers for swiping and fidgeting	Smaller rollers to reduce bulk
Stopping mechanism	Ability for internal pocket to lock in place at top for card removal Ability to remove internal pocket entirely	Stronger magnet to stabilize pocket for card removal

Prototype 2: Works-like

Outer pocket- internal view

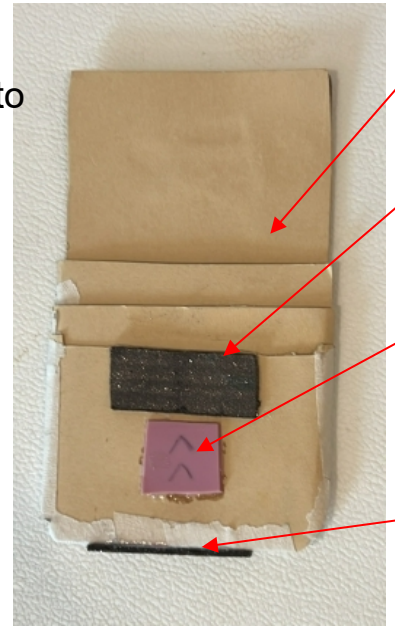


Bars to prevent side to side movement of inner pocket while rolling

Smaller rollers for thinner wallet

- 4/4 understood purpose of rollers
- 4/4 liked rollers

Inner pocket



Additional pocket (3 total)

Stopping mechanism to keep wallet "open" when swiped out

Silicone grip for swiping with signifier

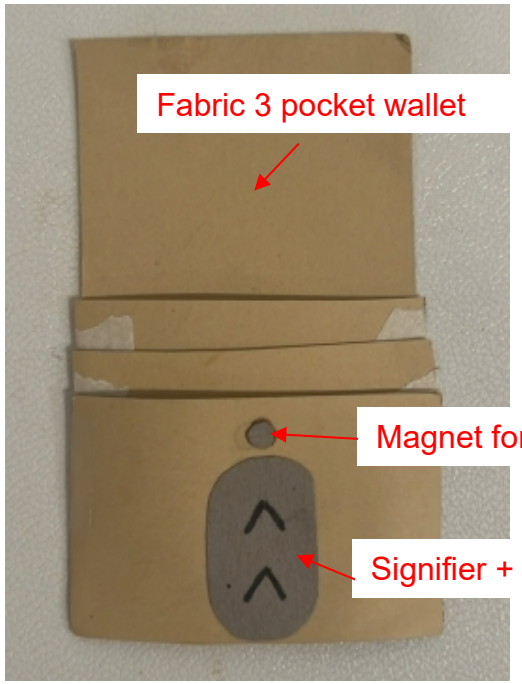
Stopping mechanism to keep inner pocket from falling open on its own

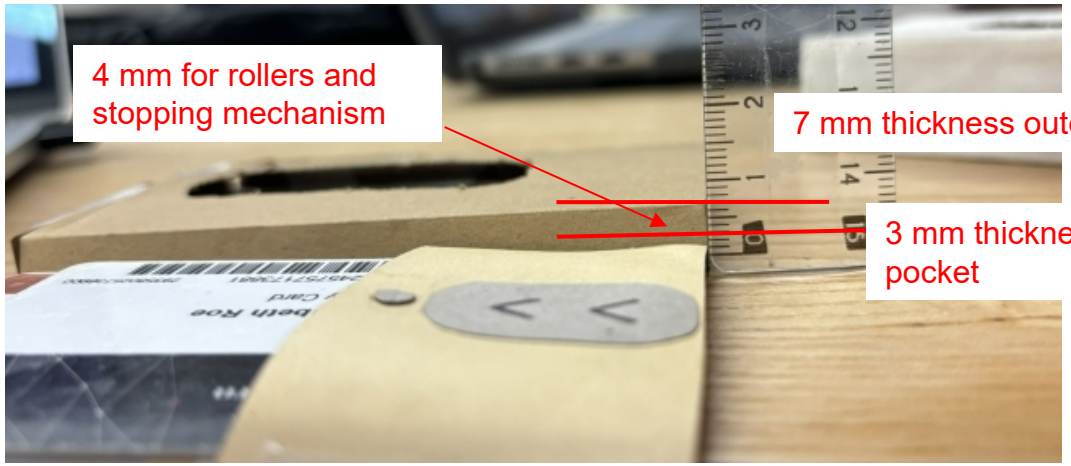
- 0/4 asked for more card slots
- 3/4 liked having 2 separate pockets
  - "Feels secure"
- 4/4 liked ability to remove internal pocket
  - 4/4 able to remove without instruction

User Experience

- 3/4 swiped internal wallet in and out with thumb to access cards
- 1/4 struggled with removing cards
  - Not letting wallet lock in place at top

Prototype 2: Looks-like

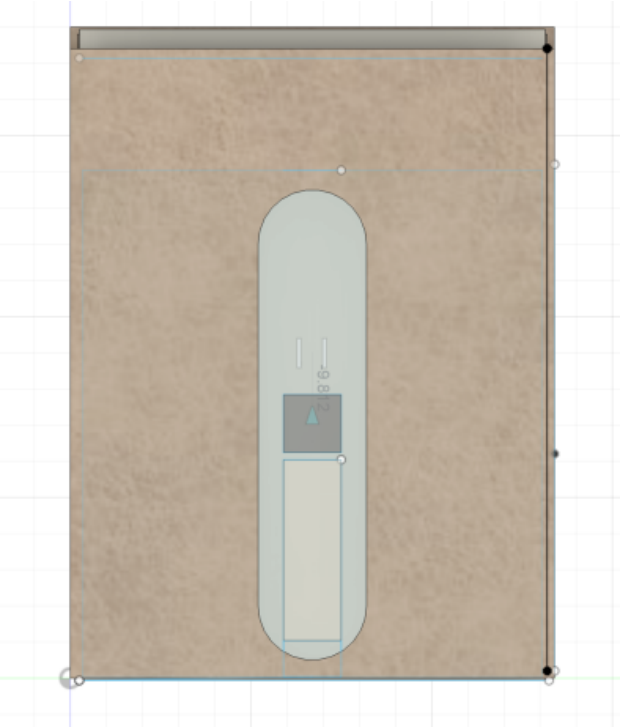




Design characteristic	Specifications	User Feedback
Total wallet thickness (outer pocket)	3mm thicker than average competitor	• **1/4 found it too bulky** "Afraid it won't fit in my pocket" • **3/4 find thickness acceptable**
Aesthetics – outer pocket	Faux leather	• **4/4 find appearance acceptable** "Fancy"
Aesthetics – inner pocket	Magnet and grip pad visible	• **1/4 do not like appearance** " Would not like this if it was not necessary for functionality" • **3/4 find appearance acceptable**

Theoretical Next Steps for Final Real-World Design

- User testing with **combined works like and looks like prototype** to see if this reduces any confusion about wallet functionality
- User testing to find **ideal magnet strength** for balance between firmly locking wallet in place and being able to swipe past wallet
- Testing functionality of even **smaller rollers**

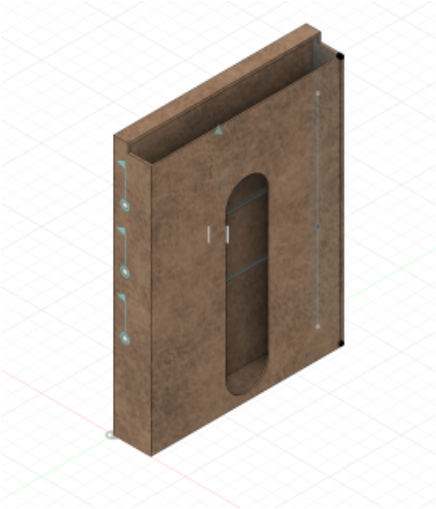


Favorite UX Elements

- **Rollers**
  - Creative solution for easy access to cards
  - ***All users*** reported liking them for ***all iterations***

- **Signifier for swiping**
  - Before signifier – no swiping ⟹ After signifier- all but one swiped
  - Draws on information from first week of class

Final Subsystems: Outer Pocket



- Function: To cover the entire assembly and act as protective shield for outer environment
- Materials used: Leather, Adhesive
- Material cost: $ 0.177
- Total parts: 2

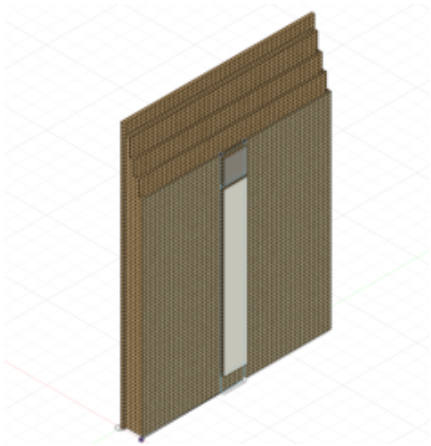
Subsystem	Part	Material	Manufacturing process	Tooling/machine
Outer pocket	Hollow outer pocket	Faux leather	Cutting	Cutting machine
			Sewing	Sewing machine
Outer pocket	Back of wallet adhesive	Adhesive	Die cutting	Die cutter

Cutting machine

Sewing machine

Die cutter

Final Subsystems: Inner Pocket



- Function: To hold cards and support the rolling function
- Materials used: Lycra fabric, Hard Plastic, Silicone
- Material cost: $ 0.0083
- Total parts: 3

Subsystem	Part	Material	Manufacturing process	Tooling/machine
Inner pocket	Hard back for pocket	Hard plastic	Plastic injection	Plastic Injector
			-	Mold
Inner pocket	3 tier inner pocket	Lycra fabric	Sewing	Sewing machine
			Cutting	Cutting machine
Inner pocket	Silicone patch for swiping	Silicone	Cutting	Cutting machine
			Glue	Fixture clamp

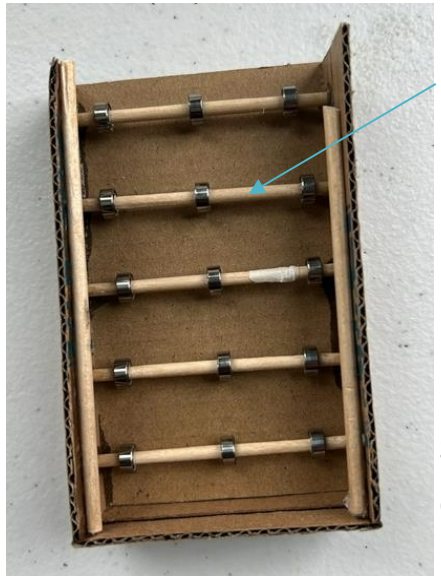
Plastic injector

Sewing machine

Cutting machine

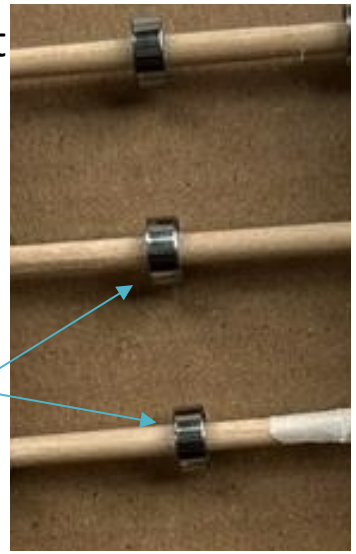
Clamp – secure product for hand work like glueing

Final Subsystems: Rolling Mechanism



Shaft: To support Bearings

Bearing: To support sliding of inner pocket



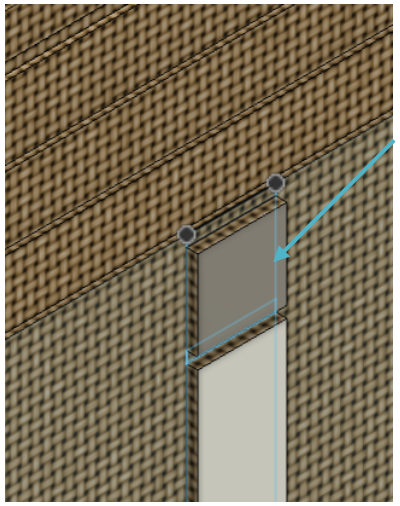
- Function: To support sliding motion of inner pocket
- Materials used: Plastic, steel
- Material cost: $ 0.27
- Total parts: 2

Subsystem	Part	Material	Manufacturing process	Tooling/machine
Rolling mechanism	Bearing	Alloy steel	Press-fit	Fixture clamp
Rolling mechanism	Shaft for bearing	Hard plastic	Glueing	Fixture clamp
			Cutting	Cutting machine

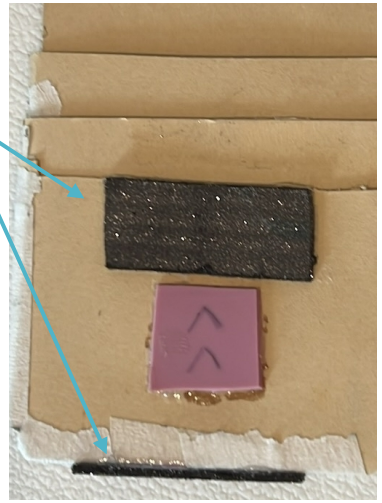
Clamp – secure product for hand work like glueing

Cutting machine

Final Subsystems: Stop Mechanism



Strong magnets to prevent pocket from rolling out



- Function: To stop the pocket from coming out of outer pocket and hold the pocket in extended form.
- Materials used: Iron
- Material cost: $ 0.578
- Total parts: 2

Subsystem	Part	Material	Manufacturing process	Tooling/machine
Stopping mechanism	Thin bar magnet	Iron	Glue	Fixture clamp

Clamp – secure product for hand work like gluing

Total Bill of Materials

Subsystem	Part	OEM	UOM	QYT	Description	Material	Possible Supplier	Production process	Cost
Outer pocket	Hollow outer pocket	Yes	ea	1	9.7x5.5x0.7cm leather pocket	Faux leather	Wento	Cutting and sewing	$0.0568
Outer pocket	Back of wallet adhesive	Yes	ea	1	9.7x5.7cm adhesive for back of wallet	Adhesive	3M VHB	Die cutting	$0.1200
Inner pocket	3 tier inner pocket	Yes	ea	1	9.5x5.5x0.2 cm wallet with 3 tiered pockets	Lycra fabric	Fabric wholesale direct	Cutting and sewing	$0.0070
Inner pocket	Hard back for pocket	Yes	ea	1	9.5x5.5x0.1 cm hard plastic backing	Hard plastic	Suzhou Huiyuan Plastic Products Co	Injection molding	$0.0011
Inner pocket	Silicone grip patch for swiping	Yes	ea	1	3.8x1.5 cm oval patch of silicone	Silicone	Shenzen Laimeisi Silicone Industry	Cutting and glue	$0.0003
Rolling mechanism	Bearing	No	ea	8	1.5 mm diameter bearing	Alloy steel	Jinan Maolei Bearing Co.	Press fit	$0.1200
Rolling mechanism	Shaft for bearing	Yes	ea	4	1.5 mm diameter dowel to stabilize bearing	Hard plastic	May shop Us	Cutting	$0.1500
Stopping mechanism	Thin bar magnet	No	ea	4	10x5x1 mm bar magnet	Iron	Magnum	Glue	$0.4280

Total: $0.883 material cost/unit

Manufacturing Cost Analysis

Operations	Tooling/ machine	Subsystem	Part	Machine cost	# of machines	Labor/ employees required	Labor cost/ unit
Cutting Operation	Cutting machine	Outer pocket, Inner pocket	Hollow outer pocket, 3 tier inner pocket, Silicone patch for swiping	$275	3	3	1.59
		Rolling mechanism	Shaft for bearing		1	1	0.53
Sewing operation	Sewing machine	Outer pocket, Inner pocket	Hollow outer pocket, 3 tier inner pocket	$449	2	2	1.06
Plastic molding	Plastic Injector and mold	Inner pocket	Hard back for pocket	$2212	1	1	0.53
Assembly process	Fixture clamp	Inner pocket, Rolling mechanism, Stopping mechanism	Silicone patch for swiping, Bearing, Thin bar magnet	$20	1	1	0.53
	Die cutter	Outer pocket	Back of wallet adhesive	$90	1	1	0.53
			Total	**$4501**		**9**	**$ 4.73 ***

Non-machining specific costs

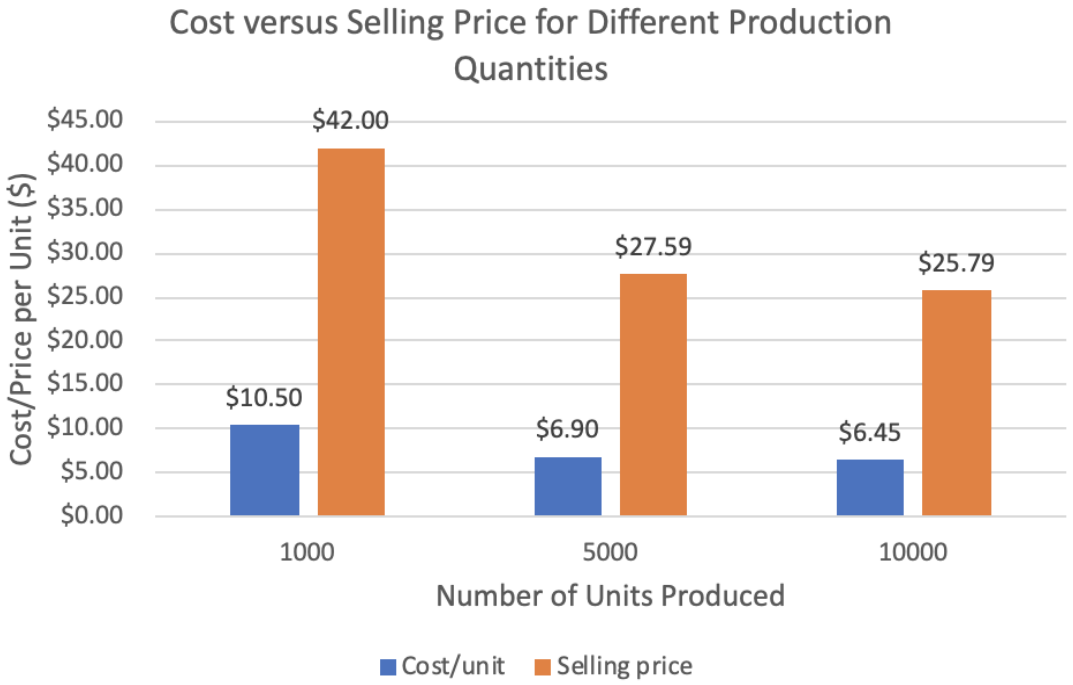
Inventory cost
Assume 200 sq ft warehouse for 1000 units
- $1.50/sq ft to rent warehouse
- $0.50/sq ft for operations (NextSmartShip, 2023)

$400 total per month

Total costs:
1000 units: **$10,499**
5000 units: **$34,491**
10,000 units: **$64,482**

*Based on total operation time of ~12 mins/unit at $23/hr pay

Selling Price & Markup

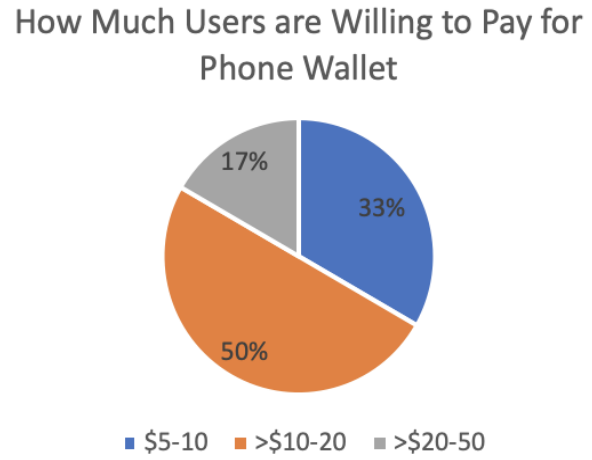


- Selling price approximated by 4x manufacturing
- Between **5000 and 10000 units a year is feasible**
  - Selling price between **$27.59 & $25.79**
  - Current operations estimation allow for 5 units/hr = ~12,000 units/yr

Final selling price: $27.99

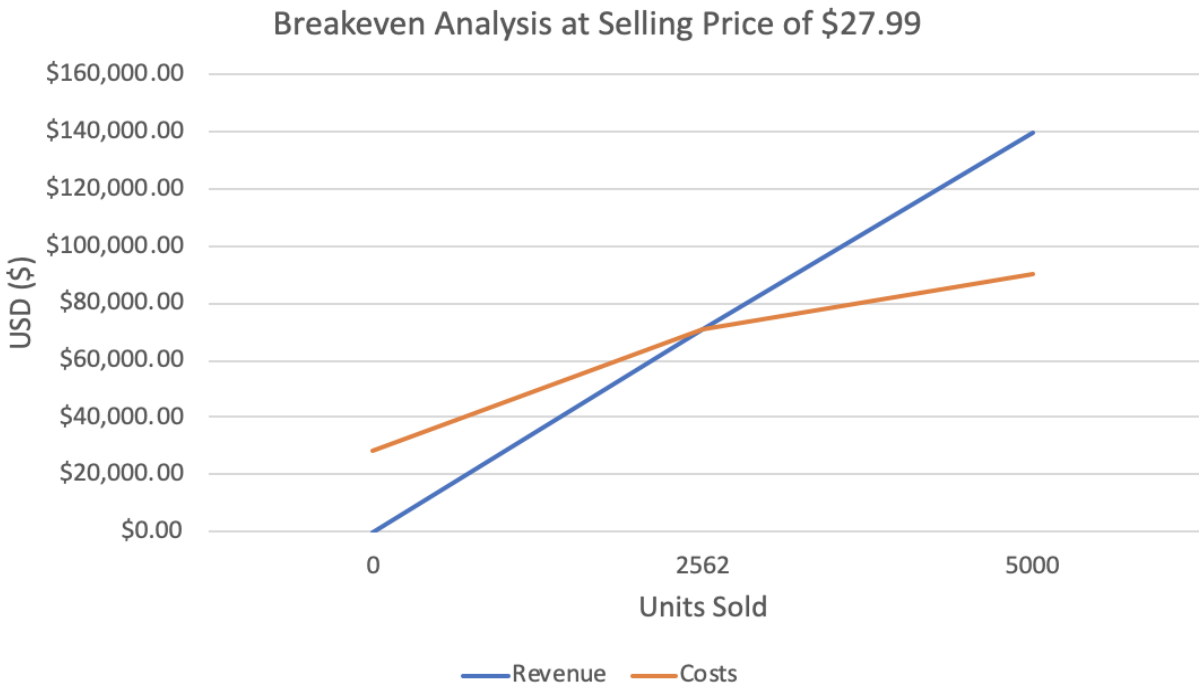
- Based on conservative demand of 5000 units/yr (~400/month)
  - 2k "standard" phone wallets sold/month on Amazon
  - 100-1k "experimental phone wallets sold/month on Amazon

- Added functionality compared to competitors but **only 40 cent markup**
  - 67% of users want phone wallet $<20



Overall Cost & Breakeven Analysis

Product produced	1000	5000	10000
Total Revenue	**$42,067.40**	**$139,950.00**	**$258,638.00**
Net Loss in production(20%)	$8,413.48	$27,990.00	$51,727.60
Marketing Cost (5%)	$2,103.37	$6,997.50	$12,931.90
R&D cost(15%)	$6,310.11	$20,992.50	$38,795.70
Manufacturing cost	$10,499.10	$34,491.50	$64,482.00
Shipping/taxes	Shipping cost will be paid by customer, so not included in total revenue		
Total Cost	**$27,325.96**	**$90,471.50**	**$167,937.20**
Total Profit	**$14,741.44**	**$49,478.50**	**$90,700.80**



Need to sell **2562 units** to breakeven

Video Ad

What We Learned

- Thorough user testing reveals important differences in user groups who seem similar from the surface
  - Ex.) Graduate students vs. undergraduate students
    - *Graduate students* – Carry more cards, require professional appearance
    - *Undergraduate students* – Carry 1 or 2 cards, require convenience

- Believability is a big barrier for attracting new users
  - Common theme in CVT

- A concept whose functionality is not deeply considered before deciding on a final design is difficult to create
  - Between user testing and final design, research and test functionality – had issues with rolling mechanism!

Thank you!

Questions?

References

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