



Psyc 609: Automated shopping cart project

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Introduction

- Grocery stores have a limited number of checkout consoles leading to long queues and wait times
- We propose a modified shopping cart that allows people to checkout without having to go through the checkout counter



Market Research



Review Your Order

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Shipping Address: Rachel Rodenberg INSITE SOFTWARE	Billing Information: visa ending in 0486 Change	Gift Cards & Promotional Codes: <input type="text"/> Apply	Place your order
Billing Address: Rachel Rodenberg			Order Summary
United States Phone: 612-367-8685 Change Ship to multiple addresses			Items (2) \$21.91 Shipping & Handling: \$4.98 Total Before Tax: \$26.89 Estimated Tax To Be Collected: \$0.00 Order Total: \$26.89
FREE <small>one-day shipping</small> FREE Two-Day Shipping on this Order: Rachel Rodenberg, you can save \$4.98 on this order by selecting "FREE Two-Day Shipping with a free trial of Amazon Prime" below. » Sign up for free trial!			
Estimated delivery: Apr. 17, 2012 - Apr. 18, 2012			
 Yoga from the Inside Out: Making Peace With Your Body Through Yoga by Christine Sell Quantity: 1 Change Sold by: Amazon.com LLC Add gift options	Choose a shipping speed: <input checked="" type="radio"/> FREE Two-Day Shipping with a free trial of Amazon Prime™ —get it Monday, April 16 Learn more <input type="radio"/> Standard Shipping (3-5 business days) <input type="radio"/> Two-Day Shipping —get it Monday, April 16 <input type="radio"/> One-Day Shipping —get it tomorrow Friday, April 13	Choose a shipping preference: <input type="radio"/> Group my items into as few shipments as possible <input type="radio"/> I want my items faster. Ship items as they become available. (at additional cost)	How are shipping costs calculated? Why don't I qualify for FREE Super Saver Shipping?
 A Year of Living Your Yoga: Daily Practices to Shape Your Life by P.T. Judith Hanson Lasater Ph.D. Quantity: 1 Change Sold by: Amazon.com LLC Add gift options			Place your order



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Advantages of Using Automated Shopping Cart

- **Return On Investment:** Cart around \$750, Application, payment services, Navigation services, prevent shoplifting of items and the cart itself
- **Time to market:** Fewer employees and counters
- **Ability to scale for the store**
- **Savings:** Less number of staff, managers, space and facilities for employees
- **Reduce the number of check out counters**
- **Reduce the time customers have to spend in the checkout lines**

Hardware

- Tablet
- Navigation: Wi-Fi positioning systems, Accuware
- Card Readers: Flagship ROAMpay
- Scanner
- Weighing Scale
- Wheels: Anti-theft vehicle system US 5598144 A
- Power Bank



HIGH CAPACITY

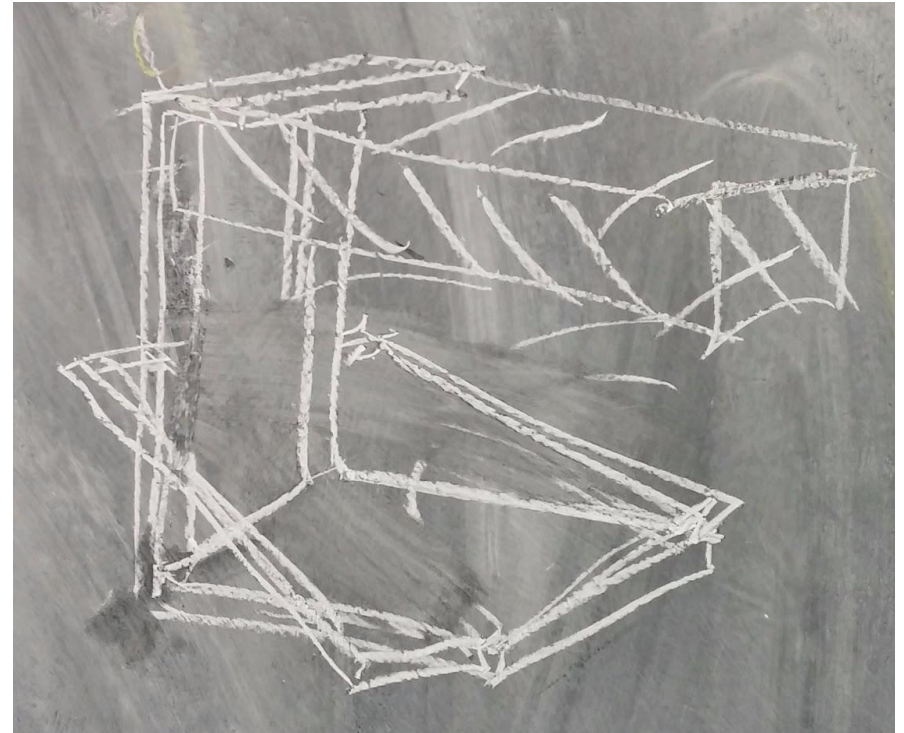
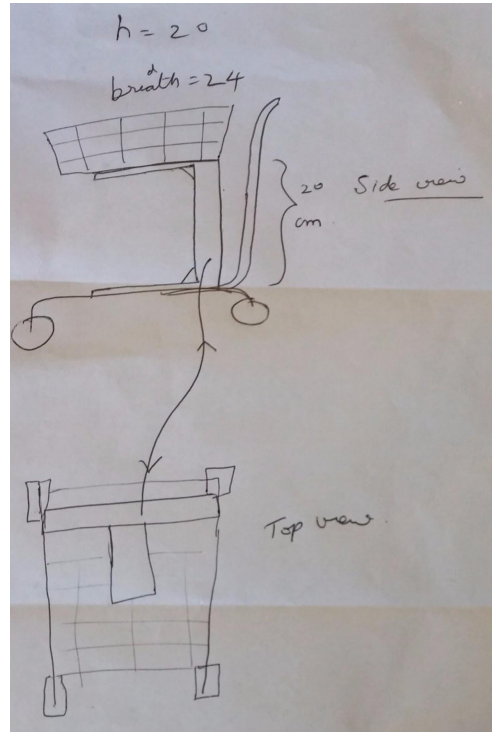
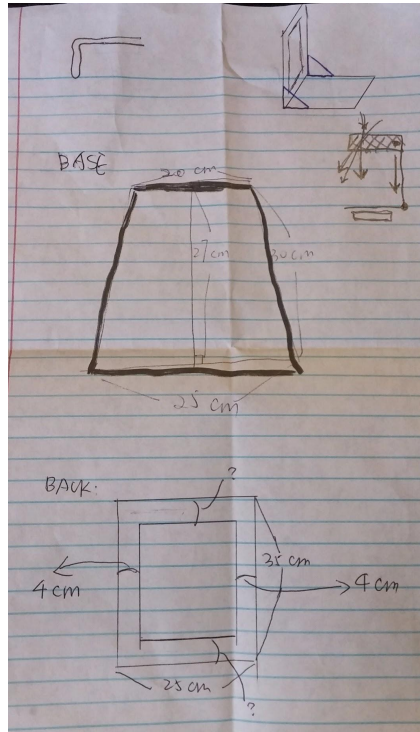
20000 mAh
Made of top-grade cell



Full charge for
9.1 times iPhone 5
7.4 times iPhone 6
4.6 times iPhone 6 Plus
4.8 times Galaxy S5

Physical Cart Prototype

Evolution

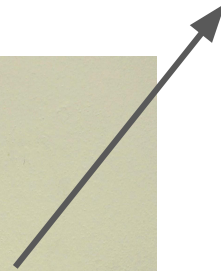


Physical Cart Prototype

Evolution

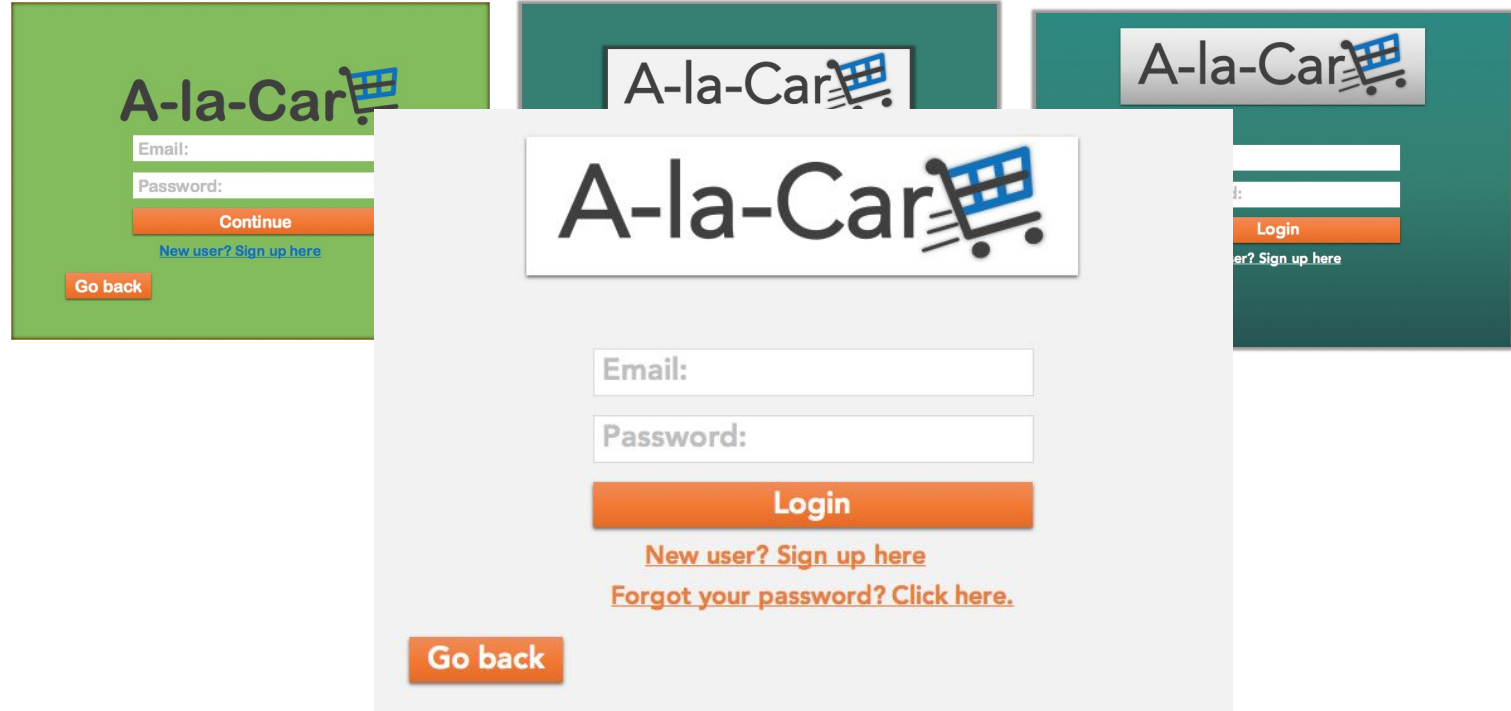


Paper frame mockup



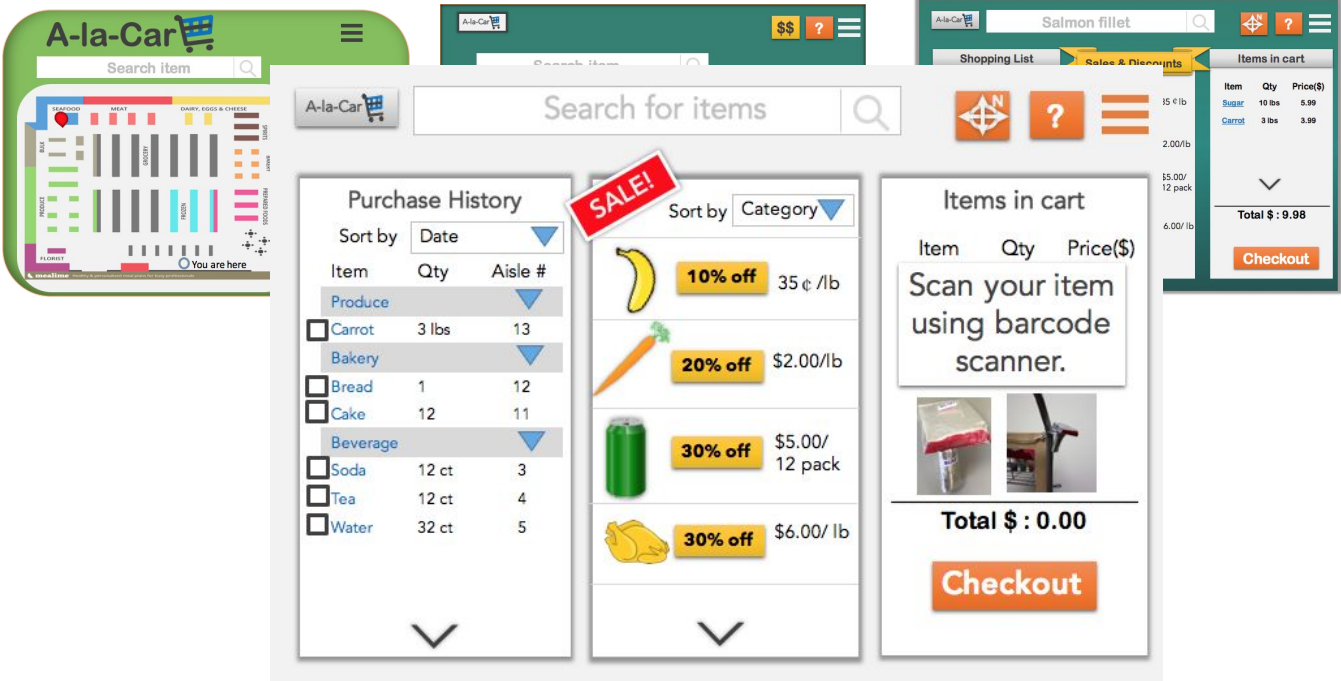
User Interface Mockup

Evolution



User Interface Mockup

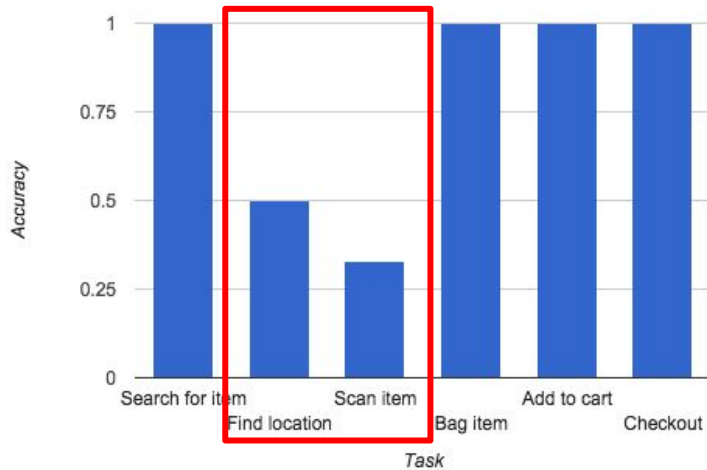
Evolution



Usability Assessment: Effectiveness and Efficiency

- Buy 2 lbs of Salmon fillet from the store.

Task Accuracy

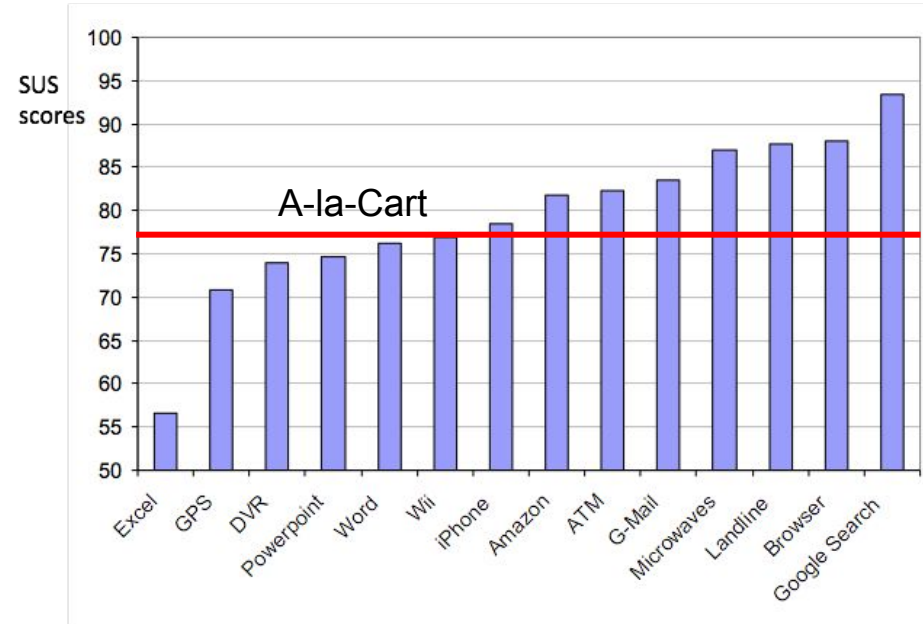
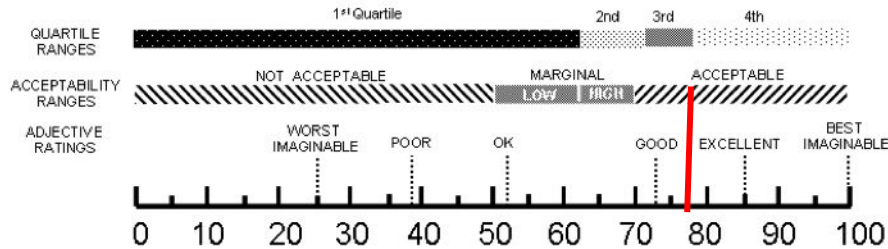


Reaction time (RT)



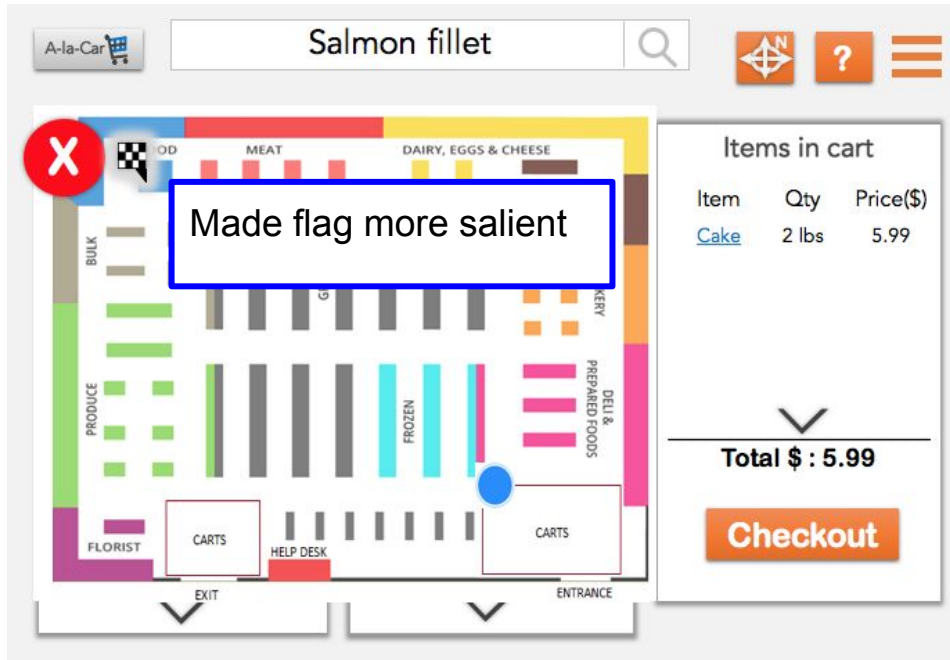
Usability Assessment: Satisfaction

- Buy 2 lbs of Salmon fillet from the store.



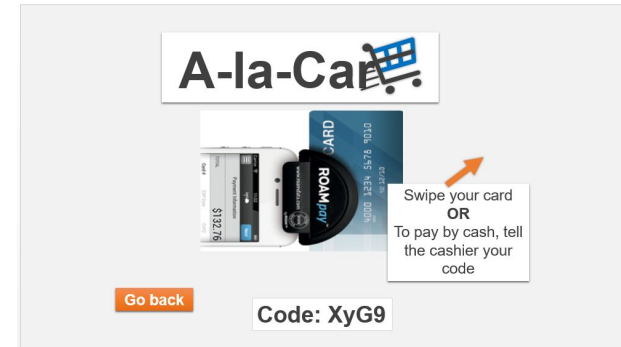
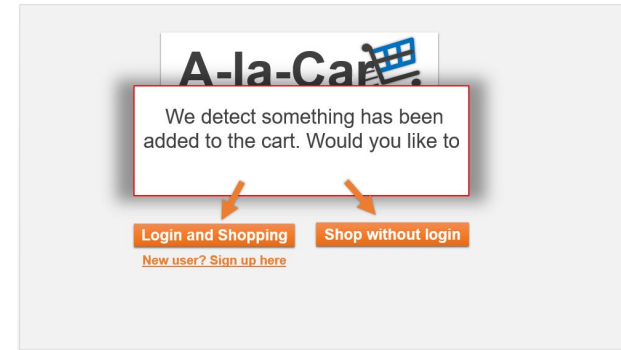
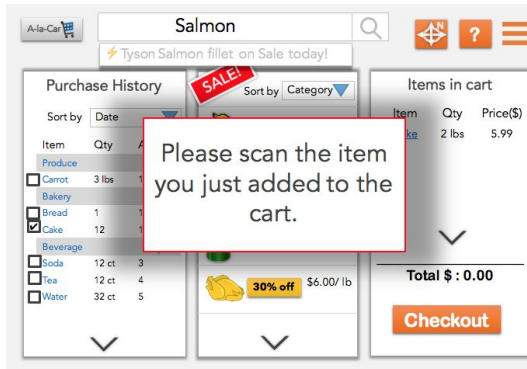
Error Analysis

- Difficulty finding location of item on map
- Difficulty scanning item



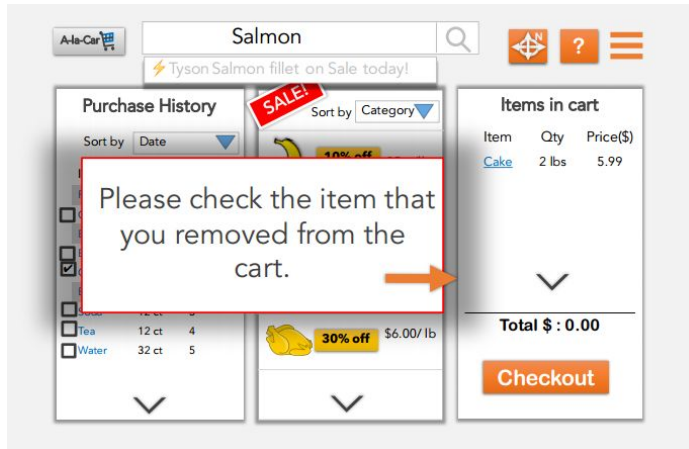
Edge Cases

- The user adds an item after the bill is paid
- The user adds multiple items into the cart without scanning
- The user wants to pay via cash
- The user wants the printed version of the bill



Edge Cases

- The user removes an item from the cart that has been scanned in
- One of the peripherals stops working or is out of charge
- The cart is moved outside the parking lot: Anti-theft vehicle system US 5598144 A
- The user exits the store without paying clearing the checkout due



Acknowledgments

A-la-Car



Acknowledgments

Dr. Kortum

Randall McCabe, Art Department



30% off



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20% off



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