





## *Insights and Opportunities for*

Distribution

Transport

Retail

Assisted Shopping

Point of Sale



distribution

## Insights



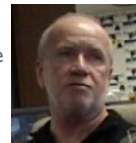
Pickers are incented for faster pick rates; they can earn up To 4 dollars more per hour



Most of the time, only a select number of buttons are used  
- Information does not need to be typed in often



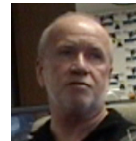
Pickers like to use the same gun every time  
*"You'll find that they all have their own units  
That they like to use."*



Companies are afraid to buy because fear of obsolescence



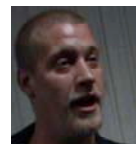
Terminals are often misplaced  
*"If people are signed on and leave their gun  
Somewhere, it takes longer to find the gun  
Than to run the daily maintenance program."*



Different companies have different specialized needs  
For example, at McLane they need to put  
Price labels on single-sell items



Pickers/receivers will take off the ring and  
Stick it somewhere or let it dangle  
*"If I'm not using it, I just stick it in my sleeve."*



## Opportunities

Design some sort of feedback for the terminal so that pickers can know how fast they are picking (visual or audio feedback) and compare to their past rates

Create a hierarchy through form

Customization to allow for pickers to stylize their favorite gun  
(A tactic usually reserved for consumer products)

Design a gun that is future compatible

GPS locator system for terminals

Design a base unit, and then different add-ons that can be purchased separately and attach like the ring scanner (ex: pricing gun)

Add a simple feature that the ring scanner can click into when not on finger



transport



### Logging hours

- Paperwork, the driver must always carry an updated log of the last 7 days to present. Independent truckers have to log every hour on duty and off duty, even vacation hours.
- the cadec system is convenient because it automatically logs hours, but it also forces drivers to sleep and drive at irregular hours



### Communicating

- Even with systems like Cadec and Qualcomm, communicating is difficult. Drivers are expected to type a message or read one on an outdated, hard to read screen.
- Do drivers use these systems while driving, or must they pull over?
- Outdated navigation systems
- System tracks his speed on the road



### Navigation

- GPS systems are not designed for truck drivers and often lead them into residential areas or to impassable roads.
- GPS doesn't show low clearances, road closures, traffic updates, points of interest.



### Unloading shipment

- Unloading may take hours and often runs into break time. Drivers feel they shouldn't be on the clock while shipment is unloaded
- If a seal is broken on the truck, the delivery will not be accepted.
- There is a lot of paperwork that has to be organized which can be difficult when dealing with signature forms, receipts, load inventories, and log slips.
- Verifying what is loaded or unloaded is inefficient



### Stopping

- Drivers must arrive at truck stops before 6 pm to secure a parking space. If one is unavailable, drivers are forced to park in the streets and risk receiving tickets.
- Security of the cargo is a big issue: the truck is secured by one masterlock. The drivers, who are responsible for their cargo, worry about parking in bad areas. Many truck stops happen to be located in these areas.

- Paperwork can be reduced or simplified.
- Drivers should be able to manipulate their hours legally to tailor their schedules to fit naturally.

- Voice-enabled systems can help drivers to stay safe while on the roads, allowing them to keep their eyes on the road and their hands on the wheel.
- Screens need to be easy to read with an intuitive interface
- These systems should have a proper place in the cab
- When drivers are in danger of speeding, they could be notified by an electronic warning.
- Hand-held? Mounted? Multi-platform? Can the driver use it to scan, communicate, verify, log hours, and navigate?

- GPS should include a database of points of interest such as truck stops and their ratings or descriptions.
- Needs to be readable and include low clearances, state-by-state road regulations, and up-to-date traffic/road information.
- Trucking routes should be clearly defined.
- Voice-activated?

- Driver should be able to notify the drop-off points of time of arrival.
- Loading/unloading time can be delineated from driving time and break time.
- Driver can use device to verify and scan what is unloaded. This information could be sent immediately back to distribution and in-store recipient for confirmation.
- Signature capture could be electronic: sign a paper and scan or sign a tablet and print.

- A database can allow drivers to know which truck stops are safe and cater to the driver's needs.
- An on-board alarm system could help secure valuable cargo.
- Smart trucks could know what is on them and when it isn't.
- Is there a way to let drivers know of an approaching vehicle or person?



retail

## Insights

## Opportunities



### Backroom Team

1. Doesn't use hand strap
2. Can't reach buttons while wearing on hand
3. Afraid of dropping
4. Heavy reliance on paper

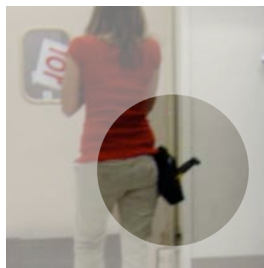
1. Make scanner hands free
2. Scanner ergonomics and button hierarchy
3. Attaches to body
4. Printable options with scanner



### Restocker

1. Scanner gets lost
2. Forget to scan product when restocking
3. Uses dolly to hold product and tools
4. Scanner placed on shelf and dolly, not holster

1. Page find
2. Scanner differentiates between back and front of store
3. Base unit for dolly
4. Hands free scanner



### Sales Associate

1. Not enough scanners for everyone to have their own
2. Many of the buttons are not used
3. Difficulty communicating with other team members
4. Overall scanner and walkie maintenance,  
(system updates, daily battery maintenance.)

1. Opportunity for less expensive scanner
2. Eliminate unnecessary buttons
3. Ability to locate other store team members
4. Product notifies user of status



assisted shopping



**People buy more**

When shopping at large retail stores customers tend to buy a larger quantity of items, even if they set out to buy only one or two items. The layout of the store departments encourages people to buy more. For example, often times high-price items will be in the back of the store, forcing shoppers to walk past the more inexpensive commodities, where impulse buying is more likely.



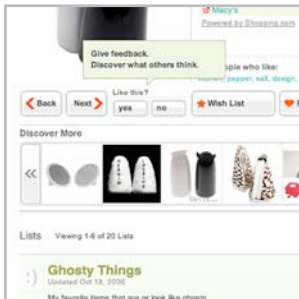
**People demand more**

Customers want to know more information about the products they are interested in. To name a few examples, shoppers want to compare one item to another similar item, they want to hear about the materials used in the product, and they want to know what other people think. Especially with recent product recalls from Chinese manufacturers, customers are increasingly aware of where their products are coming from, what they're made of, and how eco-friendly they are. Customers need different ways to access the information they desire, depending on the context they are in: standing at the shelf edge, at a kiosk, or talking to an employee.



**People have different shopping motives**

While some shoppers may just want to walk in and wish to be immediately directed to a specific item, some shoppers visit large retail stores recreationally, and enjoy the browsing process, especially when prices are low. People enjoy the "anytime, anywhere" mentality of shopping online. The advantages of shopping online are many: seeing when a product is out of stock, home delivery, etc. All kinds of products are now available online, from electronics to groceries.



**People rely on each other for shopping advice more than "experts"**

In comparison shopping and buying expensive items, people seek out advice and recommendations from fellow consumers before talking to a retail store sales associate. Using websites like amazon.com and thisnext.com, people can read reviews of products and even make their own wish lists. Shopcasting and blogging are new ways in which people advertise the things they like to other consumers via the internet.

**Assistive device needs to fit environment**

The scanners customers carry around the store when making a list or registry tend to be physically complex but with a simple interface. They could be more intuitive to use, similar to the price check kiosks. The amount of buttons on the scanner usually does not correlate to the interface. It is difficult to carry since there is no holster or strap attached to the scanner.

Price check kiosks are well-positioned at the end of aisles, but nothing calls attention to them. Some customers did not even notice they were available. Large items are hard to hold up to the kiosk because shoppers need to lift the UPC code to shoulder level.

While it is possible for customers to shop online in stores, there is usually nowhere to sit and the keyboard is positioned very low for a standing position. When a specific item is unavailable in store, people tend to search online for it, so using kiosks that access the store's website could be very useful.

Signage at the shelf edge is helpful, but some items require the display of more information. There is an opportunity to bring assistive devices right to the shelf edge.

**Motorola/Symbol can bridge the gap between the home and the store**

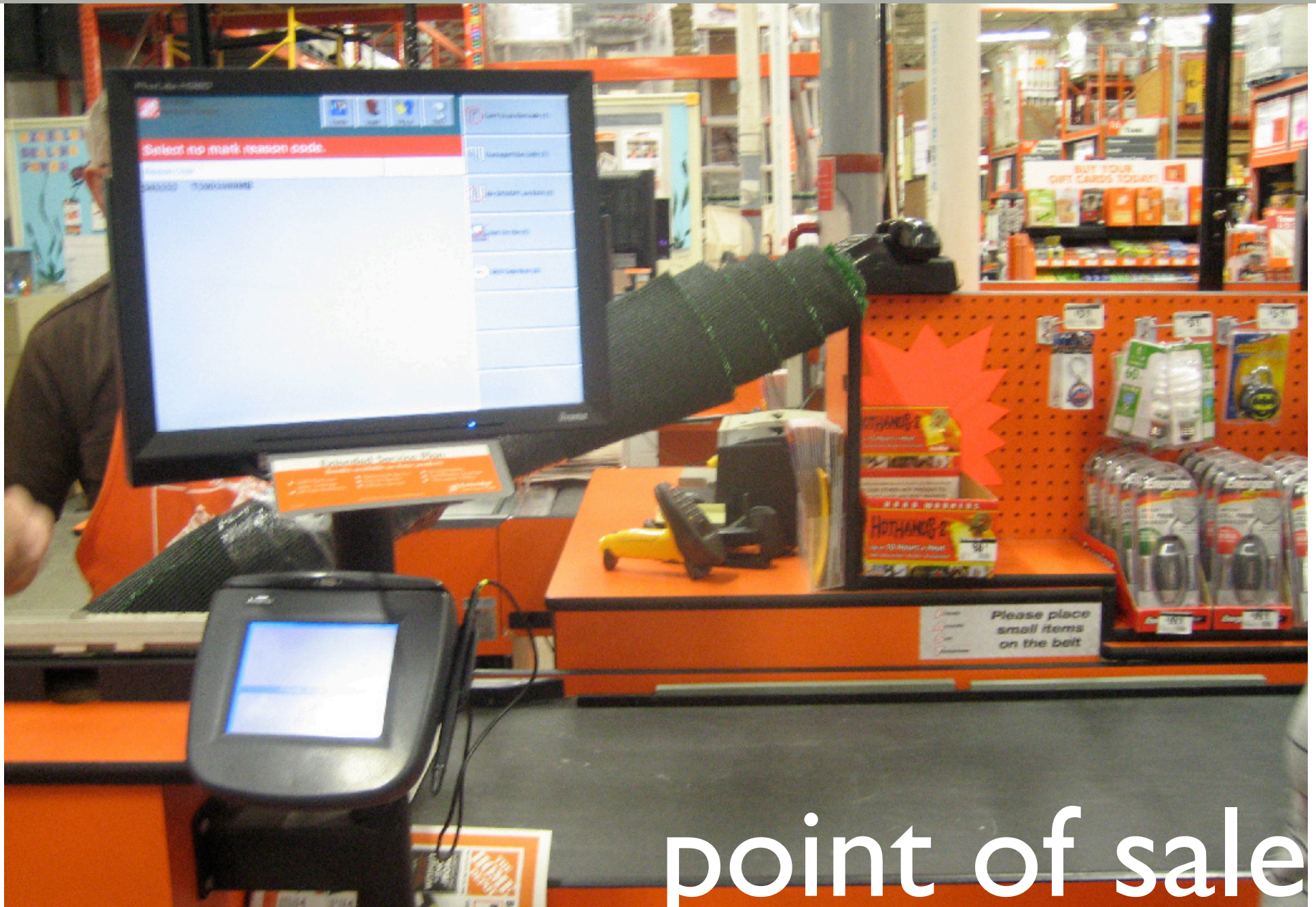
Communication between shoppers is important in large retail stores, where groups easily get separated from each other. Instead of wandering the aisles, people use cell phones to reach each other. Also, when one person is buying for multiple people, communicating what needs to be purchased is an issue. Handwritten lists made by one person can be unclear to another person. How can the shopping list be more specific in both product details and location in the store?

A new type of messaging system, list-making assistant or scanning ability could be relevant additions to a cell phone or another electronic consumer product for use both in and out of the retail store.

**Existing products need better UI**

When using price checking kiosks and selecting items for a registry, the object needs to have a intuitive user interface. Knowing which barcode to scan, how to view a list in progress and how to manage lists are tasks that could be refined with the help of a new interface. Customers need simplified interfaces, but they should not be so simple that they are limited in their capabilities. Using touch screens and reducing the number of buttons on the assistive device is a good start.





point of sale

## Insights

## Opportunities



### Cashier

The biggest issue here is efficiency. anything that will help the cashier maintain a steady line flow will help his or her productivity in this position. Having to wait for help or try to fix a computer err while communicating with the customer presents a number of issues that can be improved upon via the devices at P.O.S.

### System Communication

Mobile Device  
Clearer Interface  
Cancel Option  
Instruction On The Swiping Device  
Mobile Device Or  
Line Indicator



### Customer

Customers are concerned with paying for their products and leaving the store. The experience is better for them when the device instructions are as clear as possible. It would be beneficial if the devices recognized customers and could help cater discounts and buying suggestions towards them.

Simpler Interface  
Buying Suggestions  
Recognize Customer  
Define Difference  
Mobile Device



### Self Checkout

Self checkout is still a developing area. Customers prefer this area because it reserves them the privacy of whatever it is they are buying. It is nice to checkout on your own, especially if you only have a few items. The biggest problems arise when the customer has a lot of items and the efficiency of this area declines.

User Gun  
Staff Call