



BRINGING DIGITAL TOUCHPOINTS IN-STORE AT WALMART



The
Knowledge
Society



EXECUTIVE SUMMARY

Problem

Walmart in-store shopping is **inaccessible** for disabled customers, who make up **25% of America's population**, Walmart is losing a **significant customer base** by not implementing infrastructure to increase accessibility.

Disabled customers report they are **struggling to find all their items** since Walmart is not tailored towards helping their needs.

According to US Department of Commerce, companies not focused on accessibility **lose \$6.9 billion a year** in total due to **incomprehensive services**

Solution

Store Map 2.0: Redesigning the current Walmart Store Map

Implementing iBeacon technology to provide customers with the **shortest route** to retrieve all the items from their grocery list

Personalized features, such as audio to read out the directions, **to aid disabled customers'** shopping experience

Embedded with built-in **machine learning-based recommendation** system that recommends **nearby products** similar to the items on customer's grocery list

Impact

Walmart's **sales will increase** by at least 5% in the first 1-2 years with better map and with recommendation systems **according to industry analysts**

In Accenture's research, **42%** of consumers said they would **pay 5% more to shop** with a brand committed to **inclusion and diversity**

Walmart will **gain more profit** due to **increasing impulse buys** because of the product recommendations that the map provides.



PROBLEM STATEMENT

Walmart is not easily accessible to people with disabilities.



40% of people surveyed had negative actions towards brands not prioritizing accessibility, saying that they wouldn't purchase from the brand and wouldn't recommend the brand to others.



81% of people reported a negative response, in that they felt disconnected and less excited about the brand and believed the brand was unreliable and lacked positive qualities.

CUSTOMERS WITH DISABILITIES REPRESENT A MASSIVE OPPORTUNITY

1 in 4

Americans have a disability

With a disposable income of **\$544 billion**, Walmart is missing a **huge market** in their shopping services

\$6.9 Billion

is lost every year by companies deprioritizing accessibility

This estimate entails potential lawsuits, the loss of the disabled customer base, and customers that **favor other companies focusing on accessibility**

71% of disabled shoppers

Spend more than \$50 when shopping in-person

Motivating customers, especially disabled customers, to shop in-person lead to an **overall increase in purchases and profit.**

Accessibility is for everyone

Accessible design benefits all

Accessible Design* considerations often “lead to improvements in general customer experience and loyalty...[and] provides options that are **useful to all customers** in various situations.”

WALMART IS NOT SET UP TO ADDRESS THE NEEDS OF THESE CUSTOMERS

There is virtually **no way** for blind people to find navigate Walmart store.

Walmart stores are **larger** than average grocery stores, and increased walking can be **difficult** for customers with limited mobility.

There have been multiple **lawsuits** against Walmart for **inconsideration** of disabled customers' needs.





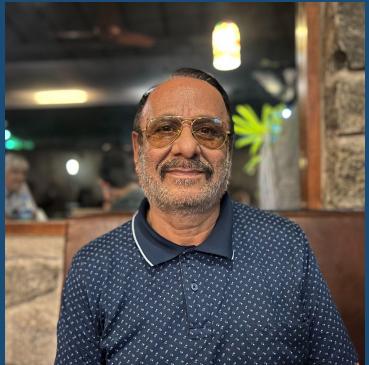
“It’s important for blind people to be able to use the machines **independently** so that people are not stealing from us. We should be **treated like everybody else** – when we come into the store, we would like to check out at the self-checkout **quickly** just like everybody else, and I know that the **technology** is out there”

- Cynthia Morales

MEET CYNTHIA

Cynthia is a customer at Walmart who lives in Baltimore County, Maryland. She likes the in-store shopping experience, but isn’t able to enjoy it because she is **visually impaired**. The checkout machines are **not designed for her**, and she struggles with shopping and buying items on her own.

[Spokesman Review](#)



Meet Gurumoorthi

Gurumoorthi is from South India, and he is 72 years old. He comes to America every year for multiple months to visit his family. He used to work as a transplant surgeon and has a lot of **experience working with patients with disabilities.**

CUSTOMER REVIEW

MEET GURUMOORTHI



SHOPPING IN-PERSON AT WALMART

"Shopping in-store at Walmart has been a bad experience for me many times. I have to walk around the entire store to find the item I am looking for, which would be really hard for some of my patients with disabilities."



USING THE CURRENT APP

"The current app doesn't really help me while I am shopping in-person at Walmart. The map feature is very unhelpful since it doesn't specifically label anything. I only use the app occasionally to check the price of items while in store."



Overall Satisfaction with Walmart:



Gurumoorthi's Walmart Inclusivity Rating:



I went to Walmart for the first time since I thought I would be able to get groceries and daily items I wanted for better deals. However, I was disappointed that it was **very hard to find the items I needed** in store and I had to **walk around a lot**. I would **not recommend** shopping at Walmart to any of my patients who struggle with physical disabilities as **Walmart is not friendly to disabled patients**, in-store and on the app.

INTRODUCING MAP 2.0

Overview

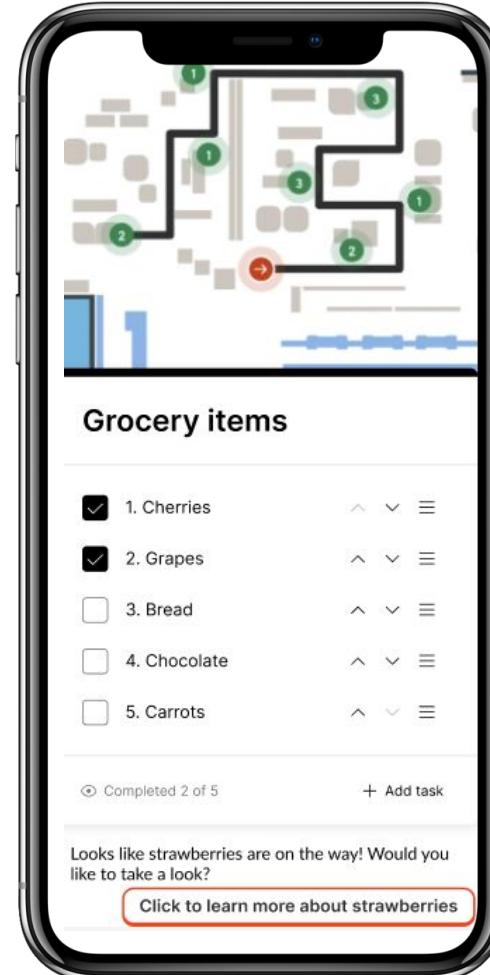
A map that aids disabled customers during their in-person shopping experience

Important Features

Provides personalized features (audible features, specific directions, etc.)

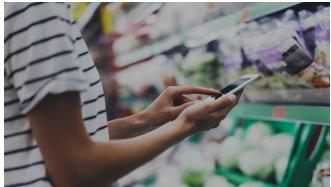
Scalability

This proposal is an updated version of the current Walmart Store App and tracks users while they are in store



HOW IT WORKS

Superstore Map 2.0



INPUT YOUR LIST

Input your grocery list into the app. You can **add** and **delete** items **as you walk through the store.**



APP CALCULATES BEST ROUTE

The app uses the **product directory listing the aisles where each product is at** and **iBeacon technology** to calculate the **shortest** and **most optimal** route to ensure the customer doesn't need to walk as much.



VIEW YOUR PERSONALIZED ROUTE

For the visually and hearing impaired, the app **reads out the directions**. There is also a **call for help button** on the app if a customer needs further help.



GET WHAT YOU NEED, AND MORE

After the customer reaches item, the app **automatically directs the customer to next item** to purchase. The app also **recommends products nearby** the items on the customer list..



LEADS YOU DIRECTLY TO THE CHECKOUT

After all the items are in the shopping cart, the app **directs the customer to the checkout line. Settings can be customized** if the customer wants to go to the **self-checkout** or the **regular checkout** line.

Key Features



Audible Features/ Options

For the visually impaired

Recommendation Algorithms

To provide customers with options and increase customer purchases

Shorter Routes and Call Buttons

Improves shopping experience of customers with limited mobility

Other Potential Implementations

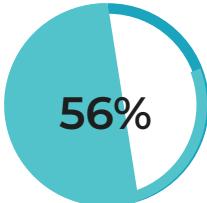
NFC chips, Augmented Reality, Checkout, etc. through the app

Recommendation Algorithms

The app will **compare each item** on the list with other items in the **same area** to find any **similarities**

When the customer reaches certain item on list, the app will **recommend similar products**

Increases the amount of **impulse buys**



Of shoppers

Consider purchasing products that are **recommended** to them on the Walmart website

[Walmart Marketplace](#)

The image shows two smartphones side-by-side. The left phone displays a grocery list with items like Cherries, Grapes, Bread, Chocolate, and Carrots. A notification at the bottom suggests looking at strawberries. The right phone shows a detailed view of strawberries, including their price (\$6.89/lb), health benefits (relief from allergy symptoms, improved vision, great source of vitamins C, manganese, folate, and potassium), recipes, and a nutrition facts table.

Grocery items

- 1. Cherries
- 2. Grapes
- 3. Bread
- 4. Chocolate
- 5. Carrots

Completed 2 of 5 + Add task

Looks like strawberries are on the way! Would you like to take a look?
Click to learn more about strawberries

Driscoll's Strawberries (\$6.89/lb)
Health benefits
Helps relieve allergy symptoms
Improves vision
Great source of vitamin C, manganese, folate (vitamin B9), and potassium
Recipes:
<https://tastesbetterfromscratch.com/gourmet-chocolate-covered-strawberries/>

Nutrition Facts	
Amount Per Serving	% Daily Value*
Serving size about 8 medium/1 cup (140g)	
Calories 45	
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 11g	4%
Dietary Fiber 3g	11%
Total Sugars 2g	
Includes 0g Added Sugars 0%	
Protein 1g	
Vitamin D 0mcg	0%
Calcium 20mg	2%
Iron 0.4mg	4%

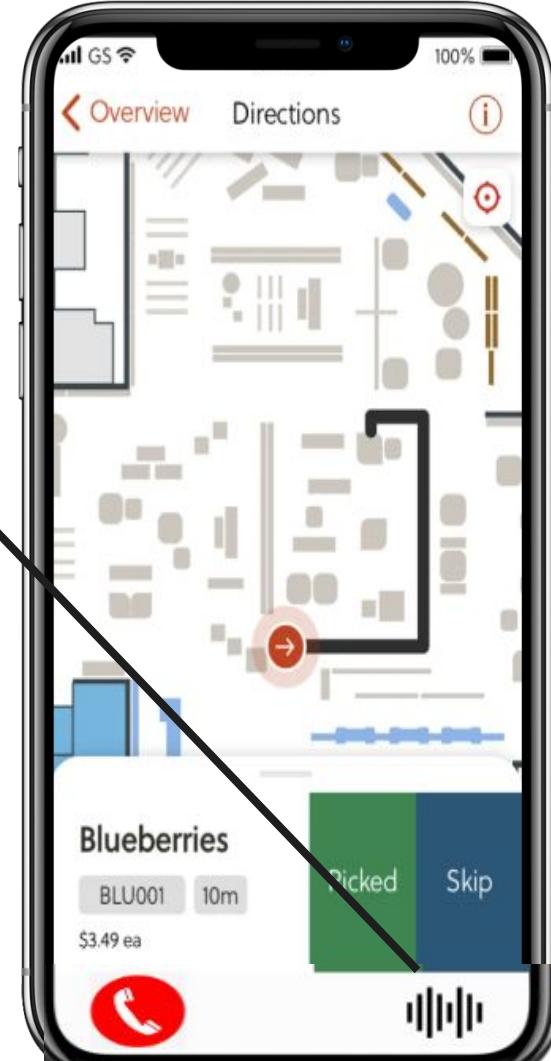
Audible Options

When visually impaired customers enter the store, they can **input** their grocery list into the app

The app will map the **shortest route** to get all the items and give user **audible instructions** for the customer to navigate the store

If they are approaching any obstacles (~3 feet away), app will **notify** the user by sending an alarm to inform them to change direction

The app will “**speak**” to inform the user of where each item is located on shelves



Shorter Routes + Call Buttons

Many disabled customers **struggle** with travelling the entire distance of a normal shopping trip, so they are more **inclined** to shop online instead of in-person.

Our app finds the best route so that disabled customers can travel the **shortest** distance possible to acquire all their shopping items.

If customers need assistance, they can use the call feature on the app, and an employee will come directly to the customer's location to **assist** them



Beacon Navigation



1

Beacon scalability

Beacons are small devices that emit radio waves that can be captured by cell phones and help with **indoor navigation** and tracking

Beacons are more **efficient** for tracking in stores compared to GPS*

Cost around **\$10-15****

Companies offering beacon solutions: [Estimote](#), [Kontakt.io](#), [BeaconZone](#)

2

Installation

Install beacons on walls/ ceilings of store

Beacons are constantly emitting Bluetooth LE signals.

The pack of 18 costs \$612, so we recommend Walmart to buy these in bulk for their in-person stores.

[Getting Started with iBeacon | Apple Developer](#)

3

Tracking

When anyone logs into map, phone picks up signal and user can see their **position** in reference to the entire store

4

Benefits

Beacon navigation can help **form routes** for users based on grocery list.

Employers will also be able to track customers for **user data** and **projections**

*[Navigine](#)

**[Bleesk.com](#)

Overall Impact



Usable for entire Customer Base

Most customers can use all of these applications



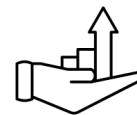
Increasing Inclusivity

Widening customer base



Increasing Impulse Buys

With the recommendation algorithm, customers will be purchasing more products per shopping trip



Profit Increase

Impulse buys and a larger customer base will lead to a large profit increase for Walmart

IMPROVING ALL CUSTOMERS SHOPPING EXPERIENCES

CUSTOMER SATISFACTION

All the app features can be used by all customers, regardless of ability



Time-saving

More customers are inclined to shop in-store because the features of this app increase efficiency and saves them time. “71% of all shoppers spend \$50 or more when shopping in-store. This compares to only 54% of respondents spending more than \$50 when shopping online” ([Forbes](#)). Shopping in-store promotes more spending than online.

&

Accessible

More disabled customers will be able to shop in-store with the app features. This widens Walmart's in-store customer base to also include 25% of America's population.

Increasing Profits and Improving Social Image

Increasing accessibility automatically generates profits for Walmart

More disabled customers will be able to shop in-store, which leads to more **impulse buys** promoted by the recommendation algorithms

Walmart's potential in-store customer base will expand to include [61 million](#) more adults.

Companies that focus on increasing accessibility generate [28% higher revenue](#) and 30% higher economic margins

Emphasis on accessibility improves public opinion

Customers, abled and disabled, prefer to shop in companies that **champion** inclusivity. [78%](#) of consumers prefer to **purchase** goods from stores that focuses on infrastructure to improve accessibility compared to ones that don't

APPLE

CASE STUDY | RESULTS OF MAKING SERVICES MORE ACCESSIBLE



“Accessibility is a core value at Apple and something we view as a basic human right”

Sarah Herrlinger, Director of Global Accessibility Policy and Initiatives, Apple



In the early 2000's, Apple listened to CSU's complaints regarding the inaccessibility of the iTunes U platform for visually impaired students. To increase access, Apple implemented the VoiceOver software, "**the world's first gesture-based screen reader**" that many customers, not just visually impaired, use to navigate the iPhone features. A few weeks later, Apple received a **special commendation** from the National Federation of the Blind for this innovation. Currently, 92% of Apple customers are satisfied with Apple products, and innovations targeting accessibility are a significant contributor. Focus on accessibility leads to overall customer satisfaction.



Further Implementations

POTENTIAL IMPLEMENTATIONS



NFC Chips / RFID tags

We can implement Walmart's recent innovation-NFC chips-within product barcodes to provide users with **more information** about each of the **products** that are recommended to them while they're shopping. For example, [Samsung](#) used NFCs to build interactive billboards where users could scan a QR code and learn more about recent Samsung products.



Augmented Reality

This tool can be used to **further improve the route display**. Rather than showing the route in an unreal 2-D environment and dictating directions, augmented reality can showcase which **direction to go in a 3-D space** for customers to more easily understand. For example, in [Nike](#)'s implementation, customers can scan a QR code, which allows them to step into a virtual reality space to view the supply chain and information about the product. Also, this feature allows customers to try on online products virtually in-store.

POTENTIAL IMPLEMENTATIONS



App-based Checkout

Customers can scan the items using the app, which will automatically charge them without using checkout stations.

NFC could be used to implement this; it allows phones to communicate with NFC chips on the product barcodes to get their cost, and after scanning all the items, the app will charge the customer's credit/debit card attached to the app. One other possible implementation is Amazon's Walk Out Technology; at

Amazon Go, customers can simply walk in, select whatever products they want, and walk out without any checkouts. Amazon uses a combination of Deep Learning AI algorithms and cameras to track customers' products to add to their final bill.

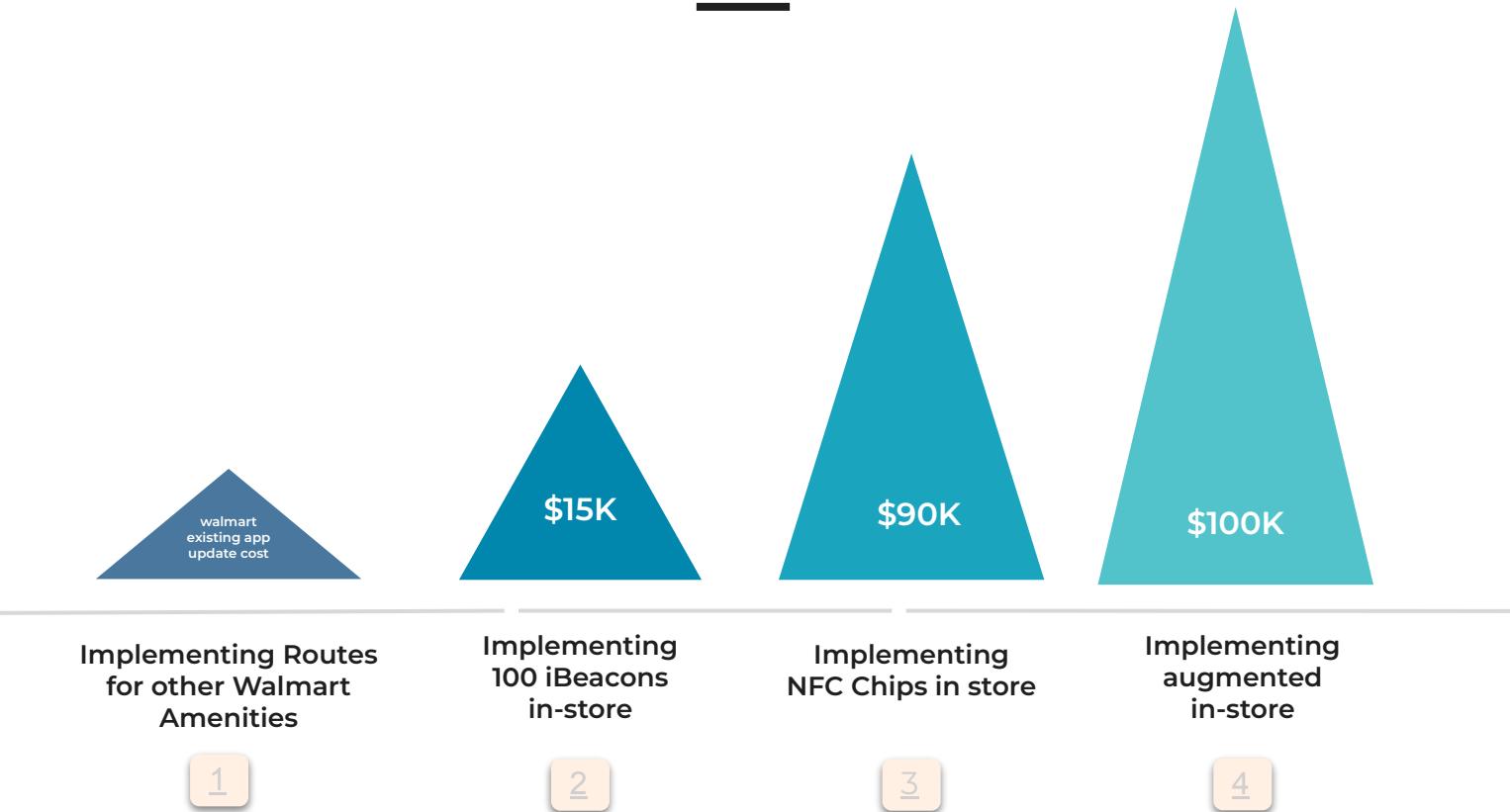


Access to Other Amenities

If customer needs to find a route to another service in Walmart (restrooms, restaurants, customer service, etc.), app will be able to map the shortest route possible and give directions.

ACTION PLAN

COST BREAKDOWN





Matt Hackert

CENA staff for National Federation of the Blind

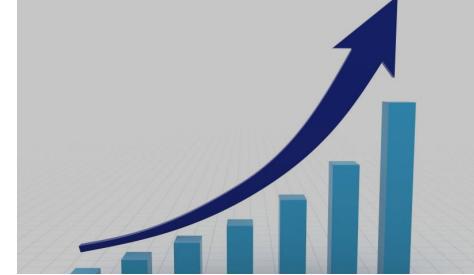
Matt Hackert works at the National Federation of the Blind. As a visually impaired person, he has not been able to engage in the full in-store customer experience at Walmart without employee assistance.

“People in the blind community would appreciate an **alternative** [to personal shoppers/assistance] because they can’t browse the store [nor do] impulse buys...[Superstore Map 2.0] is a very **innovative approach** to these problems and would enhance checkout procedures”



SUPERSTORE MAP 2.0

SUMMARY



Improving Existing App

The Walmart Store Map can be improved by adding **various implementations** targeting disabled customers. Possibilities include finding the shortest routes, implementing recommendation algorithms, and audible services to provide directions.

Targeting Customer Demographics

This map is useful for **everyone**, not just disabled customers because of the multiple features. Because they can spend less time and be more efficient in the grocery store, people are more inclined to shop in-store rather than using online or pick-up. Also, targeting accessibility makes Walmart more inclusive and moral, which improves Walmart's branding.

Overall Business Impact

Overall, this app would reap **several benefits** for Walmart. By making in-store shopping more accessible, Walmart is increasing its **customer base** to include 25% of the US population. Also, with more impulse buys (coming from more people shopping in-store and the recommendation algorithms in the app), more revenue will be generated.

MEET THE TEAM



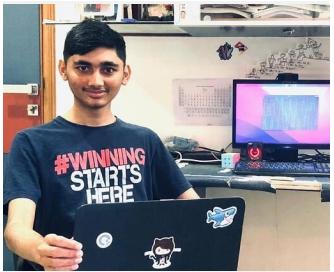
Ananya Manoj



Sambridhi Deo



Sofia Kimuyu



Dev Shah



Shrila Esturi



Atreya Manaswi

On a more personal note,
We'd like to thank you for giving us the
opportunity to contribute to
Walmart's potential strategies in enabling
customers with disabilities to. We
appreciate
your commitment to providing us with the
information we needed, and the time you
dedicated to making this possible for us.

We hope that we were able to make an
impact on the decisions

Please feel free to reach out to the us if you
have any questions or comments
about our recommendation.
The six of us are extremely excited to see
the company strive and become a service
that will massively impact millions of
disabled customers across the United
States.

Thank you!
Ananya Manoj, Sambridhi Deo, Sofia
Kimuyu, Dev Shah, Shrila Esturi, Atreya
Manaswi