

AUTONOMOUS AGENTS

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INTRODUCING CERES DELIVERY

Autonomous, electric delivery vehicle, Ceres, together with her Vectors, provides access to healthy groceries for those with limited mobility, resources, and alternatives.

THE PROBLEM

In a world with growing income disparity, low-income members of society lack access to the food they need and deserve. This population is often restricted by thin budgets, lack of mobility, and proximity to fresh grocery stores. These communities are subject to becoming food deserts — areas where a minimum of one-third of the population lives at least one mile away from a supermarket in an urban area and 10 miles away in a rural area.¹ Of the 10% of U.S. households in a food desert, 2.3 million do not have access to a vehicle.^{1,2}

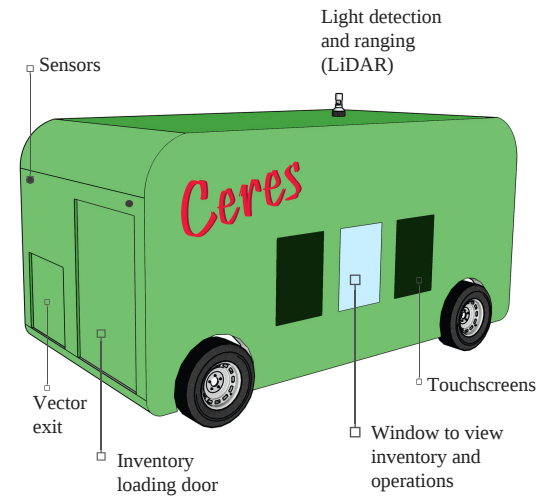
Today’s grocery delivery services do not serve these communities. Lack of reliable internet access, irregular work hours, and inability to accept deliveries paired with minimum purchase requirements and non-acceptance of SNAP³ fail this population.

THE SOLUTION

Ceres will leverage autonomous technology to allow our electric delivery vehicle to bring a healthy food shopping experience to disenfranchised communities 24/7. As illustrated by the map (right), Detroit is the ideal pilot market. Over 50% of neighborhoods use SNAP, and in 2009 Wayne County had 470,000 food-insecure residents.⁴ SNAP spending at farmers markets has increased by \$14.6M or 347%⁵ from 2009 to 2014, illustrating the desire for healthy options.

Ceres Delivery will be an approved SNAP retailer and accept EBT/SNAP payments, credit cards, and cash. Current regulations require SNAP retailers to sell foods for home consumption and include three of the following: bread and cereal, vegetables and fruits, and dairy products. Ceres will comply by remaining stocked with food from all of the above groups as well as meats, poultry, and fish.

1. U.S. Department of Agriculture (USDA)
 2. Economic Research Service - ers.usda.gov
 3. Supplemental Nutrition Assistance Program (formerly known as food stamps)
 4. Data Driven Detroit
 5. Farmers Market Coalition, 2015



AUTONOMOUS SOLUTIONS



Access to Resources

Ceres autonomous delivery services bring resources to previously underserved areas



Healthy Options

Partnering with farmer’s markets and grocery stores brings healthy options to underserved areas



Flexibility

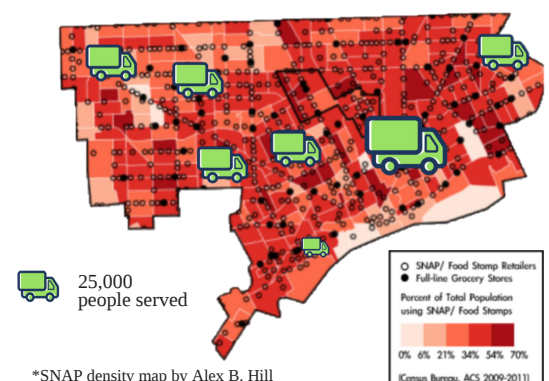
A variety of delivery, access, and timing options gives flexibility to a currently rigid system



Convenience

Food delivery on-demand to your home is easy and convenient

PILOT MARKET - DETROIT

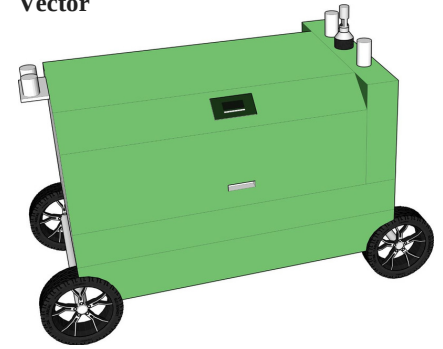


HOW DOES IT WORK?

Each Ceres, along with her Vectors, will dock and charge in loading areas of partnering grocery chain locations. In addition, Ceres will have a reservoir of free, clean water that anyone can access. Utilizing LiDAR and imaging technologies, Ceres and her Vectors will autonomously navigate streets and sidewalks. When Ceres arrives at the designated parking location, two Vectors will deploy for deliveries to the doors of customers and return to reload when necessary, making multiple trips during each hour-long stop. The remaining two Vectors will stay with Ceres and deliver groceries to on-site customers who ordered using Ceres' touchscreen. An additional screen on the side of Ceres will notify customers how long it will be at its current location and how much inventory remains.

When the Vector meets the customer, it will use facial recognition technology to authenticate the customer and unlock for delivery. If the facial recognition fails, the customer can use a PIN to unlock the Vector. After an hour, all the Vectors will return, and Ceres will move on to the next location.

Vector



POTENTIAL FEATURES:

- Double Bucks
- Tracking technology
- Solar panels
- Security lighting
- Internal ATM
- Music mechanism
- Democratized route setting with machine learning
- On-Demand Paging

FUTURE OPPORTUNITIES:

- Elderly communities
- People with disabilities
- Working middle class
- College campuses
- Aid delivery for natural disasters

Other Important Metrics	
Average Distance from Distribution Area to Customer	2-3 miles
Average Radius Coverage Area	1 mile
Stop Time at Customers	1 hour
Loading & Unloading Time	30 min

REVENUE STREAMS

Direct Consumer Sales

Estimate of Average Transaction	\$ 40
Estimate of Daily Houses (1 Truck)	200
Total Daily Revenue	\$ 8,000

Advertising on Ceres

Annual Advertising on Ceres	\$ 50,000
Annual Advertising on Pods	\$ 10,000
Annual Advertising on App	\$ 20,000
Total Annual Advertising Revenue	\$ 80,000

Daily Advertising Estimate	\$ 219
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Daily Profitability Opportunity Per Truck

Total Daily Revenue	\$ 8,219
Estimated Costs Per Day for 200 Houses	\$ (6,600)
Daily Profit	\$ 1,619

Annualized Revenue	\$ 3,000,000
Annualized Costs	\$ (2,409,000)
Estimated Annual Profit	\$ 591,000

ESTIMATED COSTS

Activity	Traditional Retail	Online From Store	Online via Satellite	Via Ceres
Warehouse Overhead	\$ 1.20	\$ 1.20	\$ 6.00	\$ -
WH Receiving & Storage	\$ 0.50	\$ 0.50	\$ 0.50	\$ -
WH Orderpicking	\$ 2.20	\$ 2.20	\$ 7.50	\$ -
Transport WH to store	\$ 0.90	\$ 0.90	\$ 0.80	\$ -
Store OH	\$ 2.40	\$ 2.40	\$ -	\$ 1.00
Store Receiving and Storage	\$ 1.50	\$ 1.50	\$ -	\$ 2.00
Store shelf filling	\$ 3.00	\$ 3.00	\$ -	\$ -
Consumer Order	\$ -	\$ 3.20	\$ 3.40	\$ 1.60
Store Orderpicking	\$ -	\$ 5.00	\$ -	\$ 2.50
Point of Sale	\$ 1.20	\$ 1.20	\$ 1.50	\$ 1.30
Transport to Home	\$ -	\$ 5.00	\$ 5.50	\$ 3.00
Returnables	\$ 1.20	\$ 1.20	\$ 2.30	\$ 0.60
Customer Service	\$ 0.90	\$ 0.90	\$ 3.00	\$ 3.00
Variable Grocery Costs	\$ 15.00	\$ 28.20	\$ 30.50	\$15.00

Cost to Charge	\$12.00
Maintenance costs	\$ 6.00
Costs of Vehicle	\$18.00