

## Refraction Al: Robot-as-a-service last-mile delivery



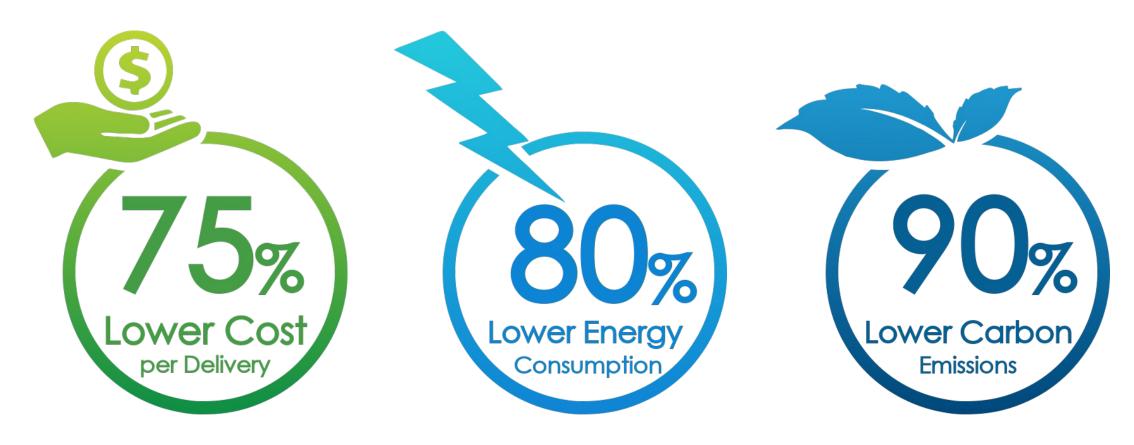
- Delighted customers
- Profitable growth
- Margin expansion
- Brand augmentation
- Sustainable operations
- New opportunities







## Scalable, profitable, sustainable



Technology enabled last-mile delivery using intelligent routing, autonomy, and tele-operations, to deliver goods safely, efficiently, and sustainably, at a fraction of the cost of conventional options





# REFRACTION AI

(Click for Video)

## For operators











#### Robots at the ready

Dedicated, virtual fleet is ready to fulfill deliveries

- Days of week
- Hours of day

No maintenance or fleet management headaches

Fleet expansion is turnkey

#### **Integrated operations**

Order management API enables seamless robot hailing and loading

Orders may be individually loaded or batched for greater efficiency

Staging and loading areas are space-efficient and conveniently located

#### Full delivery range

Road-margin operation enables 5-mile radius

Max speed of 15 mph ensures timely deliveries

Autonomous + teleoperated travel means hitting the arrival window more precisely

#### Clean consumer experience

Integrated communication of status, ETA and support

Logical, secure, payload access

Nimble enough to deliver orders to curbsides, sidewalks, driveways and porches

#### **Effective brand expression**

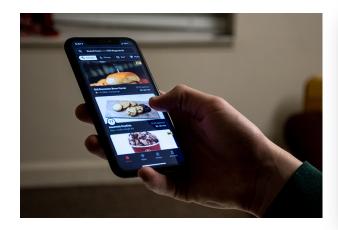
Branded, highly-visible mobile assets

Promotion/activation ready for events and opportunities

Integrated digital display advertising options



## For consumers



Place an order through any supported channel



Receive a text confirmation when the order is loaded



Receive a secure access code text when the order is arriving



Use the code to open the door, and goodness awaits!

TRANSACTING	It's easy to buy – "lights out" app integration
AVAILABILITY	It's immediate – Robot fleet acts as a virtual, dedicated delivery fleet
RELIABILITY	All-weather, More accurate ETAs
AFFORDABILITY	It's cheaper – No tipping, right-sized delivery vehicles
SUSTAINABILITY	90% smaller carbon footprint, 80% more energy efficient
LIVABILITY	No travel lane occupancy or curbside congestion



## **Technology Platform**

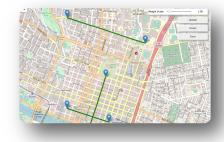
#### **Autonomy**

Portable Level 4 autonomy Integrated tele-operation Ultra low-cost sensor suite Semantic, scene-based Al



### **Route Optimization**

Multi-criteria routing engine
Location specific
Asset configurable
Machine-learning driven



### **Delivery Management**

Demand management
Asset management
Planning
Analytics





## Operations

### **Tele-operations**



Offshore partner in LATAM

Complete remote piloting capabilities

Full training and licensing curriculum

Turnkey, low-cost expansion

### **Robots**



Road margin/bike lane domain

Multiple manufacturing partners

Customer configurable interiors

Branding and advertising options

### **Field Operations**



Restaurant, grocery and retail
Integration with legacy systems
Design of experience support
Concierge services

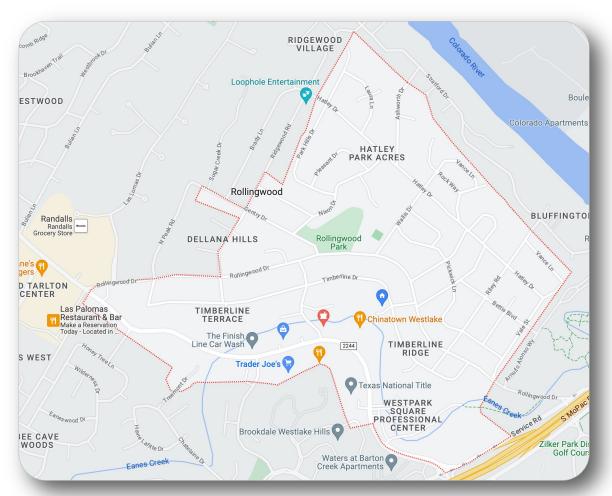


## Chick-fil-A





## Rollingwood concept







- Limited pilot, 90-120 days
- Grocery focus
- Retail centers along Bee Caves Rd
- Exclusively serving Rollingwood residents
- 2-3 robots, 12-16 hours per day
- Promoted by Refraction Al





### The Refraction Al team



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LUKE SCHNEIDER | CEO **25 YEAR MOBILITY ENTREPRENEUR WITH MULTIPLE EXITS** 











RAM VASUDEVAN | CO-FOUNDER, CO-CTO **DIRECTOR, UM-FORD CENTER FOR AUTONOMOUS VEHICLES** 











**AARON FAVARA | COO SEASONED LAST-MILE / TRANSPORTATION ENTREPRENEUR** 











REFRACTION AI

JUSTIN STORMS | DIRECTOR OF ENGINEERING ROBOTICS PH.D AND TELE-AUTONOMOUS VEHICLE EXPERT











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