



Curbside Labs, Inc.

UC San Diego



**BORDER INNOVATION
CHALLENGE**



BUILDING
DATA-DRIVEN
BORDER
of
TOMORROW

BORDER DELAYS = REVENUE LOSS

San Diego-Baja California daily traffic
136,000+ cars, 6,200+ trucks, 320,000+ people

- Current Delays Annual Loss ~\$7.2B (cumulative)
- 15 min Increase Additional Loss ~\$1.0B
- Freight Delay USA: \$1.3B Mexico: \$2.07B

OUR SOLUTION

- Measure ALL Wait-Times with Precision
- Minimizes Delays – Reduces Revenue Loss
- Accurately Optimizes Travel Routes
- Allows Real-Time Traffic Bypass



HOW ARE WE DOING IT?

Advanced Imaging Sensor Network

Identity Independent

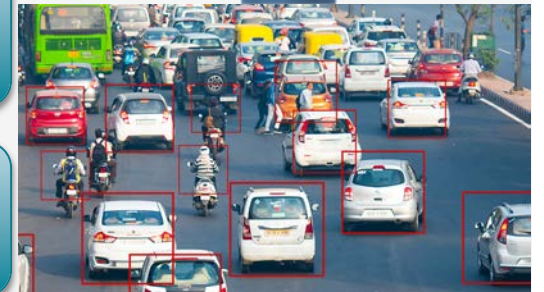
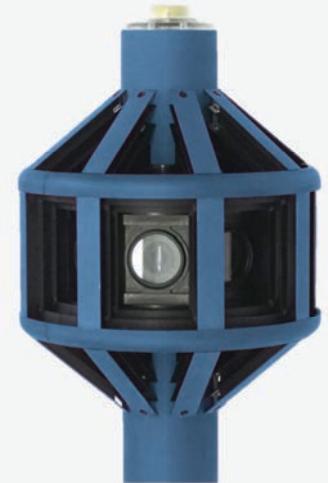
No Private Data Collected or Stored

**PATENT
PENDING**

Hierarchy-Aware Neural Networks

(67% latency/63% energy reduction)

Predictive Analytics and Machine Learning



MARKET AND REVENUE...

SaaS Subscription Model

- General Public
- Private Entities (Cargo, Manufacturing, Agro)



Licensing – Raw Data via Restful API



~\$20M/year



COMPETITORS, PARTNERS, CUSTOMERS?

■ Federal Agencies

- In-Bound Data ONLY



■ Consulting Organizations

- SANDAG Projects
 - Three Reports (2004-2019)
 - 12 Contracts, ~\$1 Million



■ User Groups/Apps

- Video Live Feeds
- Facebook Groups
- Repackaged CBP data



WOMEN
OWNED

OUR TEAM



CURBSIDE LABS

Computer Vision + AI for Smart Cities

CEO - PhD, Data Scientist, 8900+ citations

CTO - Technology Entrepreneur & Inventor

- Team of 4 developers and engineers



MANTIS VISION
3D that works for you



cortica



ELPHEL

3D with Free Software/Open Hardware



SYSTEM ENERGY EFFICIENCY LAB (UCSD)

Leading R&D for AI/IoT/Smart Sensors



Prof. Tajana Rosing, IEEE Fellow

- Team of 17 post-docs and students



THE FUTURE...PART 1

■ Scale Up

- CBP operates 328 ports-of-entry
- US/Mexico: 1 Million daily crossings
- US/Canada: ~350k daily crossings
- Eastern Hemisphere & Latin America
- Singapore/Malaysia, China/Macao



■ Frequency/Geolocation Data

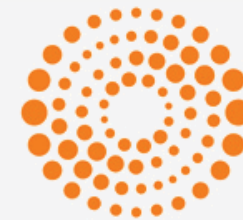
- Mine Patterns for Security
- Our Data/Your Applications



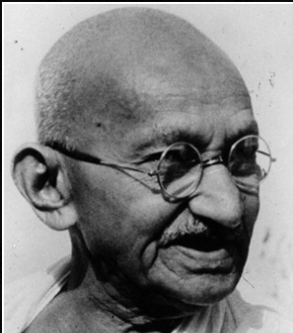
THE FUTURE...PART 2

■ Historical/Cumulative Data

- Machine Learning for Cargo Estimation
- Resource Planning with Predictive Economics
- Media Data Sourcing



THOMSON
REUTERS



A correct diagnosis is three-fourths
the remedy.

— Mahatma Gandhi —

CURRENT PROGRESS...

■ Proof-of-Concept

- Plan for Sensor Node Deployment at San Ysidro
- Site Scouting/Business Owner Negotiation
- Pedestrian and Vehicular Traffic
- Predictive Model Development/Tuning

■ Retail Tie-In with DFA

- Frictionless Customer Loyalty
- Retail at the Border/Duty Free
- 180+ Locations at the Border
- Discussion Stage with DFA Leadership

■ Fundraising



Institute for the
Global Entrepreneur



Q&A



“WHAT GETS
MEASURED, GETS
MANAGED.”

+PETER DRUCKER