RHONDA SOFTWARE

CAMERA DESIGN HOUSE

Rhonda Software

CAMERA DESIGN HOUSE
CLOSE AMBARELLA DESIGN PARTNER

We help our customers develop their camera products by providing **turnkey solutions**, from the initial idea to factory mass production.

Extensive expertise in **Imaging** processing, **Connected** devices, **Computer Vision**, **Cloud based** services, **Mobile Applications**, etc.

A wide variety of **System on a Module** platforms as a solid basis for proofs of concept, prototypes, and production projects to shorten time to market.

year **1995**	year **2007**	>200	100+
Established	In Camera Imaging	Camera products	Engineers

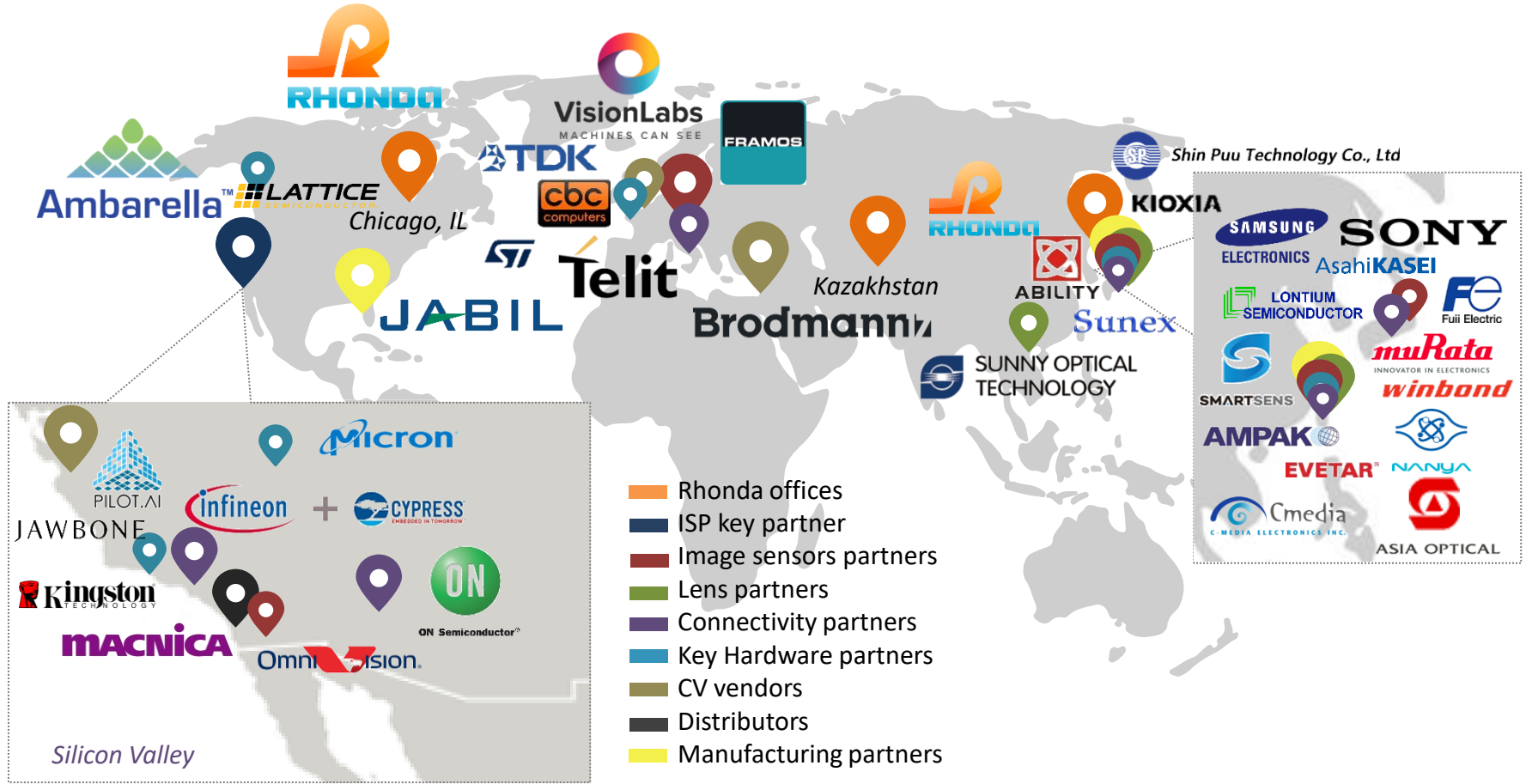Automotive imaging systems

Edge AI

Video Cloud

Multi-sensor systems

Robotic cameras

Intelligent automation

Rhonda Software Ecosystem

Shin Puu Technology Co., Ltd

Chicago, IL

Kazakhstan

Silicon Valley

Rhonda offices
ISP key partner
Image sensors partners
Lens partners
Connectivity partners
Key Hardware partners
CV vendors
Distributors
Manufacturing partners

Our Services

Electrical Engineering
*Schematics and PCB layout
BOM cost optimization
Hardware review, bring up
and validation*

SW Development
*Camera FW: application and BSP
Image/video capture and
encoding
Rhonda Camera SDK*

Image Quality
*IQ tuning in fully equipped IQ lab
Lens & image sensor selection
and benchmarking
3A algorithms (AWB, AE, AF)*

System Engineering
*Requirements elicitation
System architecture and
component selection
Feasibility study*

Radio Frequency Design
*Antenna design and simulation
EMI/EMC
Certification support*

Mechanical Engineering Design
*Camera housing
Thermal design and simulations
DFM/DFX*

Quality Assurance
*Manual QA
Test automation
Interdisciplinary QA (Image
Quality, EE, etc.)*

Manufacturing Support
*Incoming & outgoing quality control
through automated tools
Per-unit image quality calibration
Tender and factory selection*

Embedded Debugging
*Debug tools: cross-platform logging
firmware, profilers, etc.
Remote debugging
Interdisciplinary troubleshooting*

Computer Vision
*DNN porting into Ambarella CVflow
Third-party CV library integration
CNN optimization by pruning & quantization
CV backbone selection*

Mobile Applications
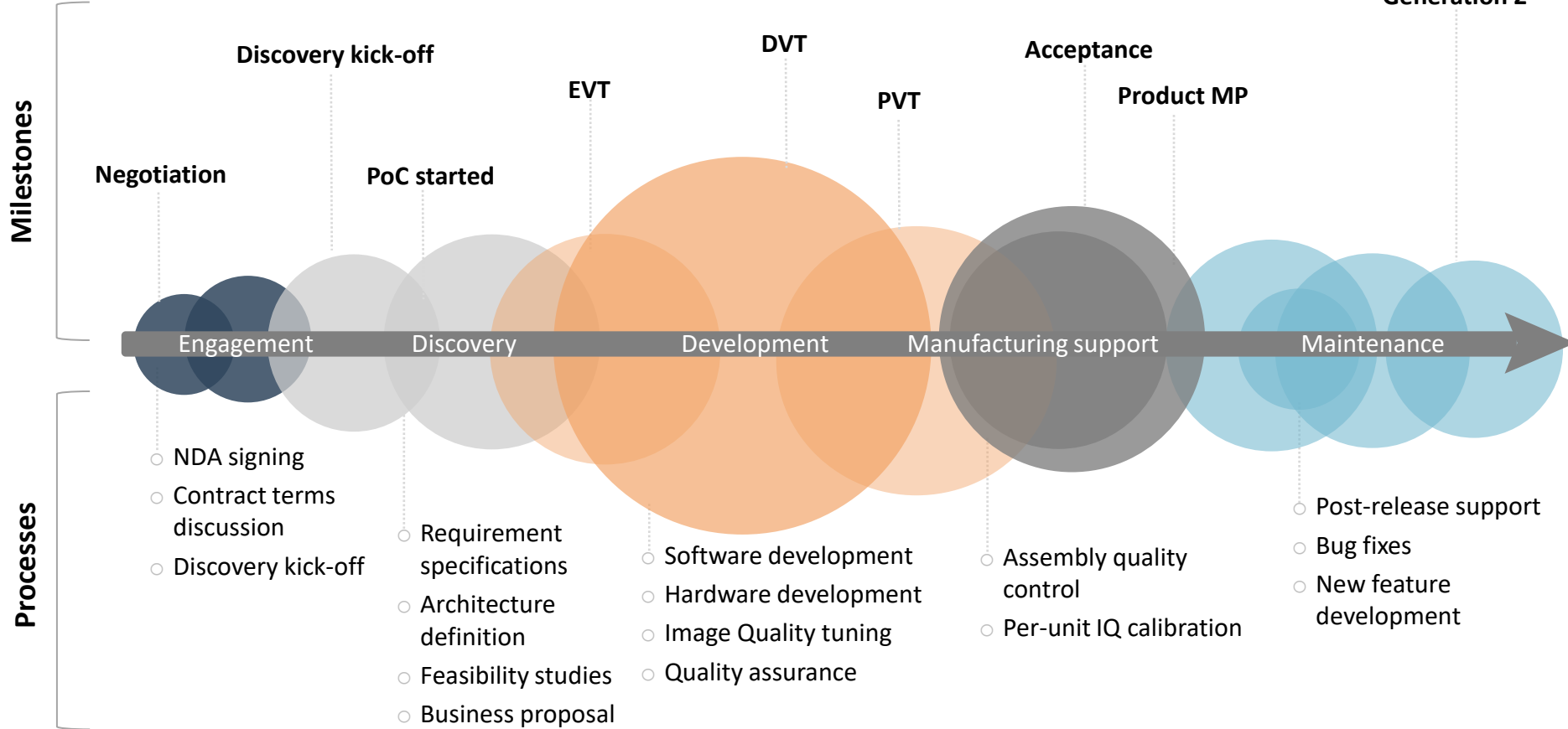*Android & iOS
Reference applications*

Cloud Services
*In-house video cloud platform
Integration with customers'
platforms
Vendor agnostic architecture*

4

Product development cycle

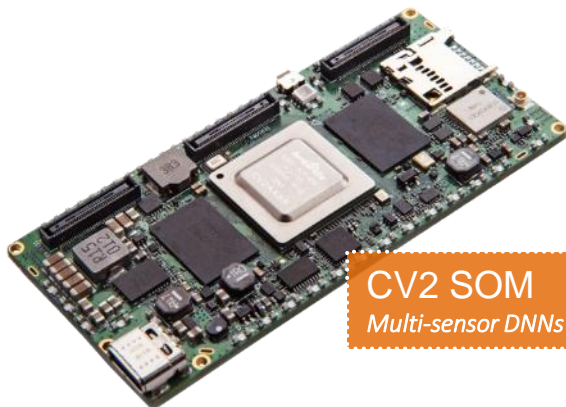# Rhonda Systems on a Module ⬈

H22 SOM
Wearable 4K

H2 SOM
Multi-sensor 4K
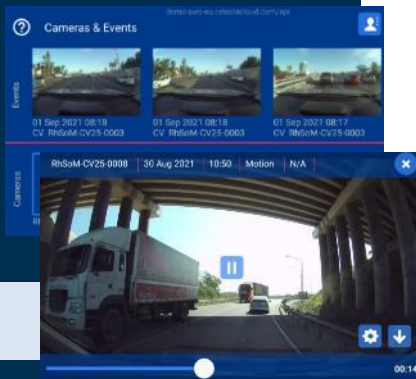
CV25 SOM
Low-power CV

CV22 SOM
AI on the Edge

CV2 SOM
Multi-sensor DNNs

Optics Modules
& Carrier boards

AMBARELLA SOC BASED DESIGNS

ADAS Cloud Cam Proto

Smart automotive camera prototype for fleet monitoring

SoM-based Prototype

- Based on Rhonda CV22 or CV25 Ambarella SoC
- Integrated AI for front-view ADAS from Brodmann17
- Vehicle and pedestrian detection
- Real-time audio warnings to driver
- External GPS/GLONASS module
- Connectivity through mobile Wi-Fi hotspot or USB LTE modem
- Full HD road event video recording with auto uploads to Video Cloud
- Local Wi-Fi video streaming enables viewfinder during camera installation
- Mobile App for Video Cloud access
- Camera housing with 1/4" screw for installation with off-the-shelf in-car mounts

DEMO VIDEO https://youtu.be/bxiFnRjuyoE

Automotive & Transportation as a Strategic Market

1 — Segments

- Micro-mobility safety
- Pedestrian protection
- Transportation support services
- Advanced Driver Assistance Systems (ADAS)
- Driver Monitoring Systems (DMS)
- Autonomous driving
- Car-sharing automation
- Parking assistance system

2 — Use cases

- CAR-DVR / Event recording
- Fleet management
- Blind spot monitor
- E-mirrors / Backup cameras
- Self-driving applications
- Driver monitoring
- Passengers monitoring
- Cabin monitoring
- Automotive parking / Parking lot automation
- 360˚ surround-view

3 — Technologies

- CV algorithms (object detection, surface classification, etc.)
- Sensor-side HDR + 4K + Low light
- Multi-sensor solutions with different FOV
- Electronic Image Stabilization
- GMSL2 and FPD-link support
- LED flicker mitigation
- IQ calibration for automotive conditions
- Cloud-connected solutions with geo tracking

Robotics and Intelligent Automation as a Strategic Market

1 Segments

- Retail & E-commerce automation
- Robotics in Warehouse, Logistics
- Unmanned Delivery
- Tele-medicine, Tele-care & Lifestyle
- Intelligent Security systems
- Manufacturing automation
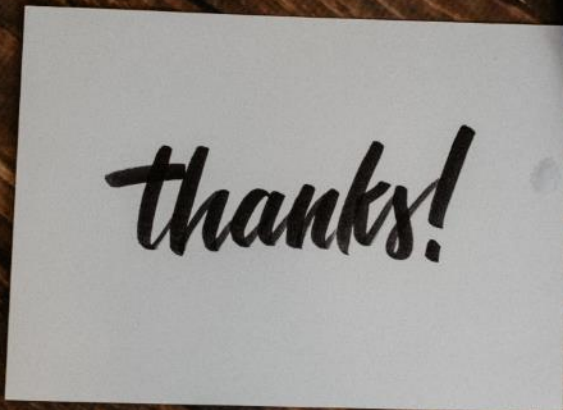- Hospitality management automation

2 Use cases

- Shelf-monitoring systems
- Products sorting and merchandising
- Robotic vision cameras
- Unguided barcode recognition
- Telepresence
- Online medical consultations
- Production line monitoring
- Smart cities & Video surveillance for government facilities
- IP cameras with people counter

3 Technologies

- CV algorithms (object detection, face recognition, etc.)
- Stereovision & Depth-mapping
- Cloud-connected streaming services
- PTZ & ROI analysis
- Sensor side HDR + 4K
- Electronic image stabilization
- High performance in low-light conditions
- GMSL2 and FPD-link support

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