

CYBERKAR
SYSTEMS

L'INNOVATION COMMENCE PAR LE
PARTENARIAT

CONTROL THE CHAOS IN THE FRONT
COCKPIT OF YOUR VEHICLE

 **KOMMANDER**

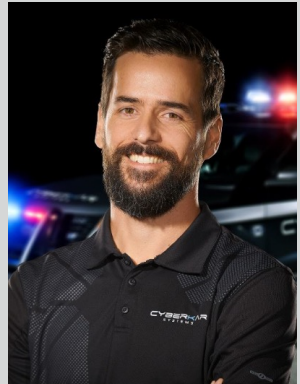
BY JONATHAN BOIVIN ENG., M.ENG
BUSINESS DEVELOPMENT

Biography

OWNERS EXPERIENCE

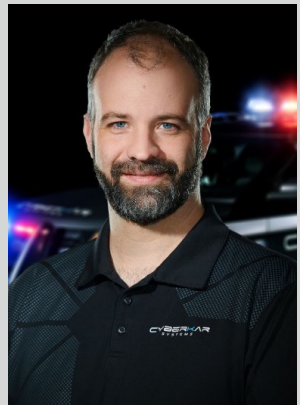
Jonathan Boivin Eng., M.Eng, Business Development

- 10 years in technical project management.
- 12 years in sales and business development.
- Automation Engineer and Master degree in Engineering management.



Éric Deschênes, CTO

- 14 years in installation, start-up, project management, sales for IT solution in vehicle.
- 10 years in Management of Engineering department for vehicle solution development.
- University diploma in telecommunication and electronics.



Context and needs

PROBLEMATIC

- With the arrival of vehicles as mobile offices, ergonomic and safety problems have arisen in vehicles. Even more true with EVs.

CONTEXT

- Replacement of the Ford Crown Victoria in 2010.
- Smaller vehicles.
- More computer equipment.
- Writing accident and event reports on board vehicles.
- Writing of tickets for offences on board vehicles.

Context and needs

ORIGIN OF NEEDS

- Access to the issues experienced by Canada's largest police forces(OPP, Ottawa, Montreal, SQ and RCMP)
- User distraction.
- Ergonomics.
- Airbags.

NEW NEEDS

- Mobile office and visibility of patrol cars.
- Need for ergonomics and safety on board vehicles.
- Eliminate user distractions.

Standards

STANDARDS

- In 2011, Cyberkar participate in an automobile cybersecurity project with the Canadian Department of National Defence.
- CACP (**C**anadian **A**ssociation **C**hief of **P**olice) suggest best practice for mounting equipment in the front cockpit of police car to Canadian police chiefs after crash tests.
- CSA (**C**anadian **S**tandardisation **A**ssociation) ask Cyberkar Systems to joint build the first law enforcement vehicle standard.
- Kommander compliant to APSAM (health and safety association) best practice.

Kommander historical

KOMMANDER BIOGRAPHY

- In 2014, Cyberkar is founded to provide solutions to those problems.
- In 2015, Kommander in-dash solution is created.
- In 2016, Microsoft selects Kommander for its « Ultimate patrol car », that will be used for demonstration in USA and Middle-East.
- In 2017, Hydro-Québec had Cyberkar Systems develop a 19-inch version of Kommander for its 600 boom trucks.
- In 2018, Kommander was selected by the Sûreté du Québec and installed in more than 1300 police cruisers.
- In 2022, Kommander launched the first Ford Mustang Mach-E for patrol vehicle.
- In 2023, Kommander is part of all Demers Efx ambulances with a 16 inches enhanced version.
- In 2024 Kommander launch a cloud IOT portal for Kommander.

Quick Facts : Health and In-Car Duty Officers



77% *Ratio of police officers using their computer while driving¹.*

14% *Ratio of accidents related to distracting driving among police officers².*

Source:

1-Study : Minn. Police squad
Study : Minn. Police squad
car computers can be crash
hazard .

2-Source : Multi-tasking
behaviors of general duty
police officers. Police Practice
and Research. Vol 6, No. 1,
March 2005, pp39-48

Quick Facts : Safety and Causes of Law Enforcement Deaths

	2009	2011	2013	2015	2017	Total
Auto Crash	39	44	29	36	31	364
Job-Related Illness	32	33	27	50	21	325
Motorcycle Crash	3	5	5	6	5	63
Shot	50	73	34	43	46	514
Struck by Vehicle	11	10	12	11	10	126
Other	4	20	13	14	16	119
TOTAL	139	185	120	160	129	1511



Source:

United States National Law
Enforcement Officers
Memorial Fund
(2018)

Crash tests

SAFETY IN THE EVENT OF AN ACCIDENT

In addition to taking up a lot of space, a laptop can become dangerous when the airbag deploys, snapping the patrol man's fingers, or worse by throwing itself out of its base.

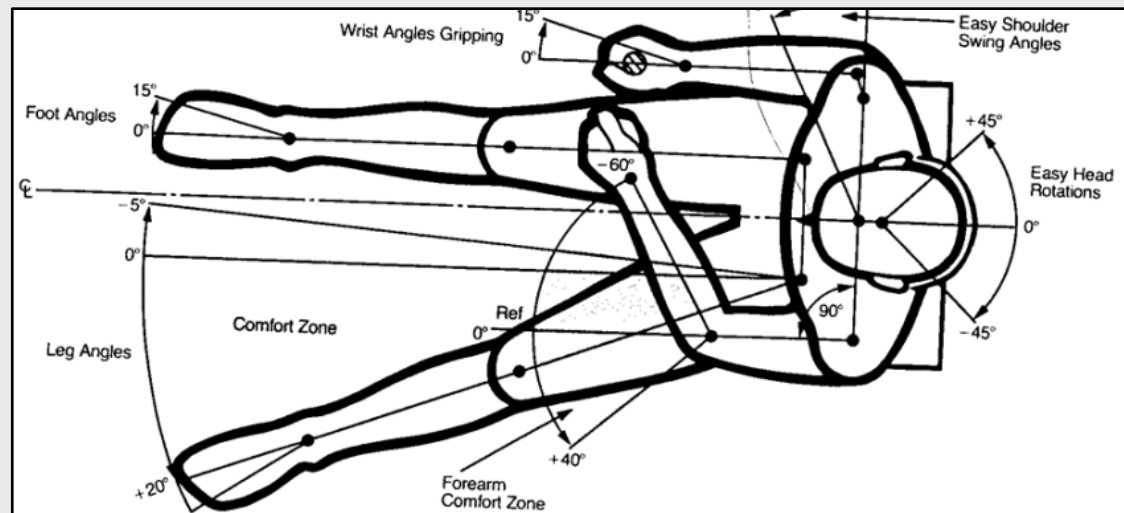
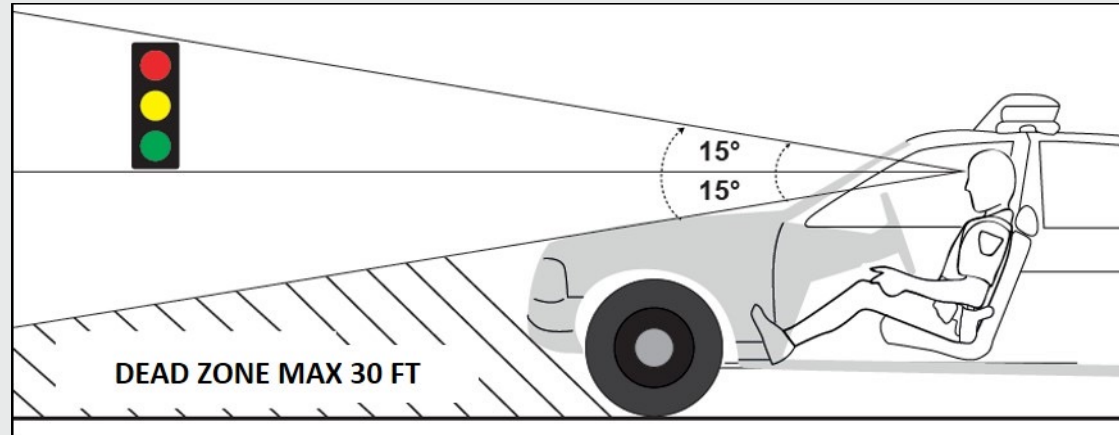
"Crash tests" have been carried out by the OPP (Ontario Provincial Police) and have shown that the installation of equipment between the passenger and the driver is a serious attack on the safety of patrol officers.

Ergonomy

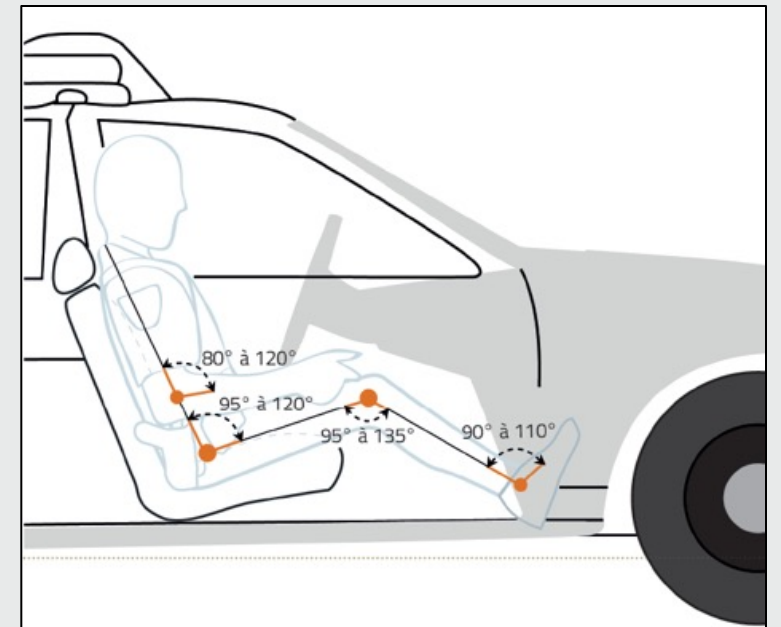
ERGONOMY

Typical laptop installations on consoles require the officer to turn his back in order to use the keyboard, which limits their movement in the cabin.

Ergonomics: the basics



SECURE. ERGONOMIC. SIMPLE.



Obvious In-Car Duty Officer Concerns

- **Health :**

Repetitive twisting of neck and back to access in-car equipment can lead to higher rate of ...

- Officer absenteeism (time off).
- Workers' compensation claims due to Physical or Psychological Injury.

- **Safety :**

Personal injury as in-car equipment can become a dangerous projectiles when vehicle air bags are deployed during collision.

- **Equipment :**

Limited in-car officer workspace and movement.

Quick Facts : Health and In-Car Duty Officers



83% *Ratio of officers feeling lower back pain as a result of operating a police vehicle in a prolonged sitting position ¹.*

37% *Ratio of officers who felt discomfort working with traditional in-car systems during the past year ².*

Source:

1-Physical Ability, Fitness and Police Work, Canadian Center for Police Research (1995)

2-Police Patrol Vehicle Cabin Layout: Ergonomic analysis for the prevention of musculo-skeletal disorders, University of Quebec at Montreal (2010)

Guidelines for in-car technology

- **Lowers in-car officer operational stress.**
- **Officer can control in-car workspace from a central area.**
- **Ergonomically designed that promotes officer health & safety.**
- **Frees up vehicle cabin workspace for the officer.**
- **Officer multiple tasks while operating the police vehicle are simplified.**

5 Things to Improve Squad Car Safety

1. **Limit Equipment.**
2. ***Wear your Seatbelt.***
3. ***Integrate Equipment.***
4. ***What If Scenarios?***
5. ***If You Cannot Secure it, Relocate Loose Items.***



Source:

Magazine Article,
PoliceOne,
(2014)

Laptops and tablets

LAPTOPS HAVE SERVED THE PUBLIC SAFETY MARKET WELL FOR SEVERAL YEARS.

BUT ARE THESE REALLY THE BEST SOLUTIONS AVAILABLE RIGHT NOW?

LIMITED CABIN SPACE

The dimensions of laptops and tablets are not designed specifically for patrol cars. Other electronic equipment is required to complete the system, which increases the rate of breakage and decreases the space available to patrollers.

Evolution in Display Mounting Solutions



1.

TRADITIONAL CONSOLE MOUNT SYSTEM
WITH LAPTOP IN CRADLE



2.

CLOSE TO DASH SCREEN MOUNT SYSTEM
WITH LAPTOP MOUNTED IN TRUNK

Next Gen Display Mounting Solutions



4. KOMMANDER OEM DASH BOARD SCREEN

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ACTUAL SITUATION



DEMERS EFX AMBULANCE 100% ELECTRIC

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RM EKABWM – Florida state trooper using computer in patrol car.

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FORD MUSTANG MACH-E

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FORD E-TRANSIT

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CHEVROLET BLAZER EV

TIPS TO CONTROL THE CHAOS



PRIORITIZE OCCUPANT SAFETY

- ✓ Attached directly to the vehicle chassis inside the dashboard.
- ✓ Outside the airbag deployment area.
- ✓ Validated pull tests.
- ✓ Validated airbag testing.

TIPS TO CONTROL THE CHAOS



SIMPLE TO USE

- ✓ Large navigation buttons
- ✓ Integration of cabin components.
- ✓ Automated user tasks.
- ✓ Designed to minimize cognitive load.
- ✓ Standardization of vehicle upfit.

TIPS TO CONTROL THE CHAOS



SIMPLE TO USE

- ✓ Suitable for driving.
- ✓ Start applications in a simple (Big buttons), intuitive (icon) and standardized way.
- ✓ Different app color/controls.
- ✓ Easy to control screen brightness, volume, reboot, and computer and device status.

TIPS TO CONTROL THE CHAOS



ERGONOMIC AND SAFE

- ✓ Use of buttons on the steering wheel
- ✓ Reduced user distraction



Dodge Charger



Ford Taurus/Explorer

TIPS TO CONTROL THE CHAOS



ERGONOMIC AND SAFE

- ✓ Easy to navigate between applications.
 - ✓ **Better ergonomic**
- ✓ Block some applications when the vehicle is in motion.
- ✓ Prioritize voice message to the user over text.
 - ✓ **Reduced user distraction**
- ✓ Locate information essential to driver in the interface.
 - ✓ **Reduced user distraction**

TIPS TO CONTROL THE CHAOS



ERGONOMIC

- Use minimum space in the front cabin.
- Keep arms, hands, elbow, shoulders, neck and head in a comfortable position.
- Large screen that swivels for maximum comfort.

TIPS TO CONTROL THE CHAOS



CUSTOMIZABLE

- Each department works differently.
- Needs to be optimized to specific needs.

TIPS TO CONTROL THE CHAOS

TECHNOLOGY

- ✓ Vehicular telemetry and GPS tracking.
 - ✓ Connected to the vehicle's CAN network.
 - ✓ Odometer and other data.
 - ✓ Driving habits.
 - ✓ **Reduces accidents.**
- ✓ Interface for real-time inventory.
 - ✓ **Be sure to not leave any equipment behind.**

TIPS TO CONTROL THE CHAOS

TECHNOLOGY INTEGRATION

- ✓ Programmable event management.
 - ✓ Automation of user tasks.
 - ✓ Makes the system simple to use.
 - ✓ Transparent to the user.

TIPS TO CONTROL THE CHAOS

TECHNOLOGY INTEGRATION

- ✓ Control of siren, emergency lights and other peripherals on the screen.
 - ✓ **Saving installation cost.**
 - ✓ **Saving on equipment costs.**
- ✓ Remote diagnostic of the status of connected equipment.
 - ✓ **Lowers service costs.**
 - ✓ **Minimize vehicle downtime.**

TIPS TO CONTROL THE CHAOS

CAMERAS

- ✓ Record and view the videos into your city VMS.
 - ✓ **Cost saving.**
 - ✓ **Standardisation.**
- ✓ Up to 5 cameras simultaneously.
 - ✓ **Increases safety.**

KOMMANDER

RED ALERT DIGITAL COCKPIT



CYBERKAR
SYSTEMS

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ANY QUESTIONS ?



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