AUTOCRYPT.

MOBILITY SOLUTIONS

AUTOCRYPT

Cars are evolving, and they're not alone. With the advent of electric, connected, and software-defined vehicles, the mobility ecosystem is entering a new era. With hundreds of thousands, if not millions, of connections, there not only exists the potential of convenient transportation, but also the loss of valuable data and human lives. This is why security is crucial in mobility.

As an automotive cybersecurity provider that specializes in securing V2X communications and in-vehicle systems, AUTOCRYPT saw the importance of securing sensitive data in this new connected mobility ecosystem. To address this need, AUTOCRYPT launched its secure fleet management system and onboard devices (OBD) for mobility service operators and logistics firms, allowing them to securely manage their fleets with end-to-end encryption and two-way authentication.

AUTOCRYPT soon expanded its offerings beyond cybersecurity to provide a wide range of planning and development solutions for connected mobility, including MaaS platforms for end users and management systems for service providers.
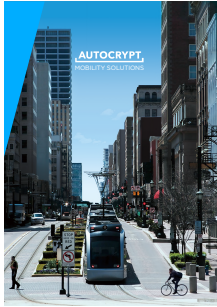

- Munich, Germany
- Wuxi, China
- Shanghai, China
- Tokyo, Japan
- Korea
  Seoul (HQ)
  Sejong
  Busan
- Singapore
- Toronto, Canada
- San Jose, USA

100%
Testing complete with all
V2X stack companies

60
partners and customers
worldwide

60+
patents filed globally

Member Associations

International Transport Forum • OMNIAIR CONSORTIUM • CHARIN • ITS KOREA • CARCONNECTIVITY consortium • 5GAA Automotive Association • RENESAS R-Car

MIH • CHINA SAE 中国汽车工程学会 China Society of Automotive Engineers • CAICV • IMT 2020 • ZK JI ZJ INNOPARK 张江高科技园区 • Cluster Automotive

Awards

TU-Automotive AWARDS
2019 Best Auto Cybersecurity Product / Service
2020 Automotive Tech Company of the Year Finalist
2021 Automotive Cybersecurity Product of the Year Finalist

AUTOTECH BREAKTHROUGH AWARD 2022
2020 Automotive Cybersecurity Company of the Year
2021 Automotive Cybersecurity Company of the Year
2022 Ride Hailing Innovation of the Year

apma IAC Institute for Automotive Cybersecurity
2020 Global Cyber Achievement Award

CYBER MOBILITY AWARDS

Forbes Asia
2021 "100 to Watch"

✓ **MOBILITY SOLUTIONS**

AutoCrypt® MOVE
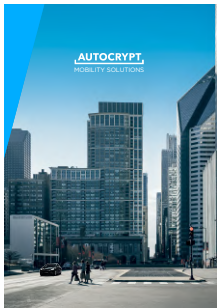Mobility platform for integrated multi-modal service

AutoCrypt® EQ
Mobility platform for people with reduced mobility

Mobility Infrastructure
Fleet management dashboard and on-board devices

AUTOMOTIVE CYBERSECURITY

AutoCrypt® V2X
Secure V2X communications and SCMS backend

AutoCrypt® IVS
In-vehicle systems security and vulnerability testing

AutoCrypt® PnC
Security process integration for Plug&Charge

AutoCrypt® FMS
Secure fleet management system

AUTOCRYPT's mobility solutions provide innovative platforms, services, and management systems utilizing secure real-time data sharing, creating value for both businesses and end users in the new age of mobility.

SOLVING MOBILITY CHALLENGES

Although the worldwide mobility market has been growing at a fast pace, it has been dominated by a few major platform providers. These mainstream platforms have brought significant benefits to urban transport, yet many problems remain unresolved.

Availability

Although MaaS platforms are widely available in large cities, smaller cities and suburbs have been left out of the equation.

Affordability

Most people cannot afford ride hailing on a daily basis. The market needs more affordable services.

Variety

A car isn't always the best answer. For shorter and last-mile trips, micro-mobility options like bicycles and scooters are more efficient.

Comprehensiveness

Mobility services should not compete with public transport. Different transport systems need to be more integrated to complement one another.

Accessibility

People with reduced mobility (PRM) have very limited transport options. Mobility services must be inclusive and accessible by all.

AutoCrypt® MOVE   Mobility platform for integrated multi-modal service

AutoCrypt MOVE is a comprehensive and secure mobility platform development solution that covers service planning, application development, security integration, and maintenance and optimization.

Focused on overcoming the challenges of mobility, AUTOCRYPT works with businesses, NGOs, municipalities, and public transport operators to develop custom mobility platforms that are tailored to local market needs, making transport efficient, affordable, and comprehensive.

Solution Portfolio

– AutoCrypt MOVE - Multi Modal : Platforms for multi-modal transport, micro-mobility sharing, public transport
– AutoCrypt MOVE - Taxi : Platforms for taxi and ride-hailing services
– AutoCrypt MOVE - DRT : Platforms for demand-responsive transport services
– AutoCrypt MOVE - Fleet : Platforms for fleet sharing, including cars, purpose-built vehicles, and watercrafts

USE CASES

Multi-Modal Mobility Platform

The AutoCrypt MOVE team developed a multi-modal transport sharing platform for Jeju Island, a tourism hotspot in East Asia. The platform was designed to help tourists and locals navigate the island by offering alternative means of transport such as e-bikes, e-motorcycles, and e-scooters.

Public transport was later added to the platform, allowing users to transfer between the micro-mobility services and local buses.

Key Features

- Supports various eco-friendly modes of mobility
- Secure vehicle access and control via digital key
- Transfer hubs with lockers for travelers
- Collect loyalty points for intermodal transfers (between micro-mobility and buses)
- Trip planning and navigation all-in-one
- Real-time information on bus location, speed, and arrival time
- Tourism information on hotels and restaurants (in-app reservation)
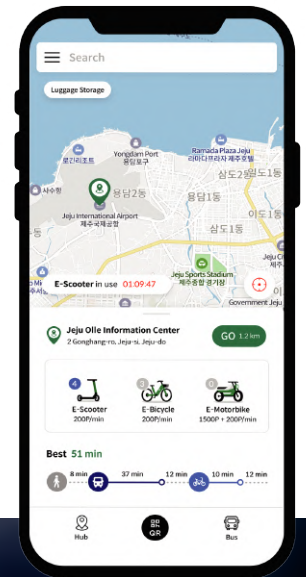
Multi-Purpose Taxi Call and Dispatch Platform

KCall is a 24/7 taxi call and dispatch platform that allows users to reserve door-to-door taxi services for both personal and business use, with a configurable payment and billing system that makes reporting business expenses easier. Operating on an AI-based dispatch system, KCall boasts excellent response time while requiring fewer drivers to operate.

Demand-Responsive Transport Platform for Commuters

BusDot is a DRT commuter shuttle platform AUTOCRYPT developed to serve the last-mile commute. By analyzing the reservation history, the service adjusts its travel routes and stops based on demand (dynamic routing).

E-Boat Sharing Platform for Private Boat Tours

AutoCrypt MOVE's scope of service isn't limited to developing platforms for road transport. Partnering with a boat manufacturer, AUTOCRYPT developed a digital key for a boat rental platform that allows people to reserve boats for private tours.

AutoCrypt® EQ   **Mobility platform for people with reduced mobility**

Not only should mobility be widely available and affordable, but it should also be universal. Ultimately, AUTOCRYPT's mission is to ensure that mobility is accessible by everyone.

AutoCrypt EQ is a mobility platform development solution based on the same business model as AutoCrypt MOVE. However, instead of building mobility services for the general public, the AutoCrypt EQ team focuses on working with government bodies and social businesses to create mobility platforms for people with reduced mobility (PRM).

USE CASES

Barrier Mapping and Barrier-Free Navigation Platform

Under the partnership with 2U Social Cooperative, a non-profit based in Busan, Korea, AUTOCRYPT developed a crowdsourcing mobile map for PRM. The map allows users to pin newly discovered transport barriers, such as curbs, steps, uneven pavements, and more. The route-planning system then uses the crowdsourced barrier information to provide barrier-free navigation based on the user's disability type.

Key Features

- Crowdsourcing model allows users to add, modify, and delete barriers on the map
- Directions and navigation based on the user's disability type
- Barrier-free infrastructure locator (e.g. powerchair chargers, accessible washrooms, elevators)
- Save and share barrier-free routes with others
- Barrier information shared with local governments to enable prompt removal

Barrier-Free Demand-Responsive Transport (DRT) Platform

Through AUTOCRYPT's partnership with 2U Social Cooperative, the AutoCrypt EQ team also developed a barrier-free DRT platform that provides affordable and convenient door-to-door transport services specifically designed to serve residents who face mobility challenges.

Key Features

- Accessibility assistance on demand (wheelchair, car seat)
- Text-to-speech/speech-to-text functionalities
- Optimized fleet dispatch through AI-based demand-matching system

Voucher-Taxi for Expectant and New Parents

AUTOCRYPT worked with a district government in Seoul to provide on-demand taxi services for expectant parents and parents of newborn children, allowing them to easily reserve door-to-door transport for hospital visits, payable by e-vouchers given at district civic centers.

Key Features

- Quick reservation through mobile app
- Accessible vans equipped with car seats for children
- Stroller storage on board
- In-app payment using preregistered e-vouchers
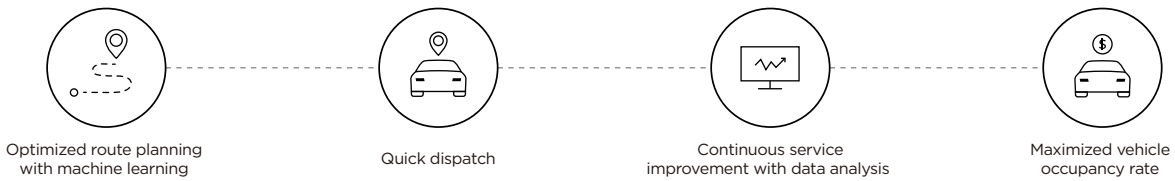- Babysitting service and mobility assistance for hospital visits

Mobility Infrastructure

Behind AUTOCRYPT's innovative mobility services is its secure fleet management system. To enable AI-based vehicle dispatch and route planning, AUTOCRYPT's fleet management platform collects and analyzes mobility data in real-time, then uses the data for machine learning and operation optimization.

• FMS Dashboard — Maximize operational efficiency

A fleet management backend that allows fleet operators to monitor, operate, and maintain their fleet, while gathering insights for service improvements and updates. Fleet and user data are kept secure with end-to-end encryption and two-way authentication.

Benefits

| Optimized route planning with machine learning | Quick dispatch | Continuous service improvement with data analysis | Maximized vehicle occupancy rate |

• On-Board Devices — Securely collect real-time data

AUTOCRYPT's on-board devices (OBD) enables mobility service operators to securely manage the operations of their fleets. Data collected by the OBDs are monitored and analyzed by the FMS backend through machine learning and AI, ensuring fleet operational efficiency.

Data collected

- Vehicle data (vehicle info, odometer data, TPMS)
- Driving data (driving pattern, fuel efficiency, speeding)
- BMS data (battery info, charging status, state of health)
- GPS data (real-time location and speed)

	MDC1_O2B	AWF_OBDII	AGL_OBDII
Model			
Communication Interface	Bluetooth	LTE, Wi-Fi, Bluetooth LE, Bluetooth 5.0	LTE, Wi-Fi, Bluetooth LE, Bluetooth 5.0
GPS Receiver Type	Cellphone GPS tethering	External GPS receiver supported	Embedded
Data Upload Device	Cellphone (via app)	Cellphone (via app), LTE dongle	Embedded LTE
CPU	STM ARM7	280 MHz, dual-core, 32-bit	280 MHz, dual-core, 32-bit
Memory	-	4 MB (disk), 350 KB RAM	4 MB (disk), 350 KB RAM
Storage	Not supported	Micro SD card supported	Micro SD card supported
Size (mm)	47 x 27 x 24	47 x 45 x 27	90 x 65 x 33
Electricity Consumption	11.5 V - 15 V Working: <200 mA Srandby: <3 mA	Active: 40 - 80 mA Wi-Fi-off standby: 20 mA Sleep: 8 mA Deep sleep: 0.3 mA	Active: 180 - 200 mA Wi-Fi-off standby: 40 mA Sleep: 8 mA Deep sleep: 0.3 mA
Data Collection Cycle	1.7 s	1.7 s	1.0 s
Data Transmission Cycle	-	-	2.0 s

• AutoCrypt V2X-Air   **Protect vulnerable road users using V2X connectivity**

With advanced active safety features, vehicles today are becoming safer.
However, there hasn't been much effort made to improve the safety of vulnerable road users (VRU).

Based on AUTOCRYPT's expertise in securing V2X (vehicle-to-everything) communications, AutoCrypt V2X-Air was introduced to enhance the safety of **vulnerable road users*** via real-time messages and warnings.

* Vulnerable road users : Road users who are not protected by a closed vehicle, including pedestrians, cyclists, scooterists, and road construction workers.

What is V2X-AIR?

AutoCrypt V2X-Air is a portable V2X on-board unit (OBU) that can be seamlessly connected to smartphones and vehicle head units. These devices transmit messages in real-time with other V2X connectivity units to inform their position, speed, direction, and travel path. V2X-Air actively communicates with roadside infrastructure and other connected vehicles so that users can be protected and warned about potential danger and collisions.

Key Features

- Easy connection to smartphones and vehicle head units
- Compact and portable
- Configurable via mobile app
- Transmits data to and from other OBUs and RSUs
- Receives 26 kinds of safety notifications

|	
Operating Frequency Range	ITS 5.9 GHz
Dimension	80(W) x 18(H) x 30(D) mm
Weight	150 g
V2X Communication Protocol	DSRC, C-V2X
Standard Compliance	IEEE 802.11p, IEEE 1609.2/3/4, SAE J2735 (TIM, RSA, MAP, BSM, PVD)
User Interface	Mobile App
Communication Interface	Bluetooth LE
Extended Interface	USB Port

USAGE SCENARIOS

Pedestrian Crossing Alert
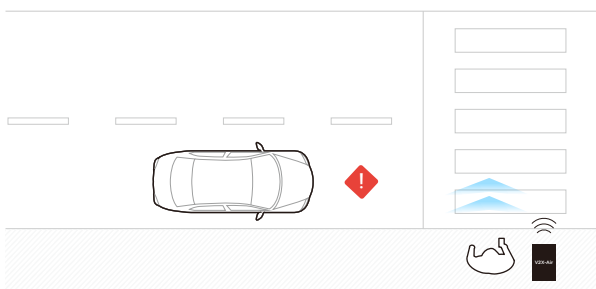
Automatic signal extension at crosswalk

+5s
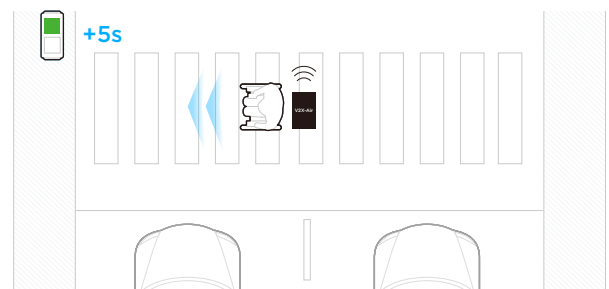
Emergency Vehicle Preemption
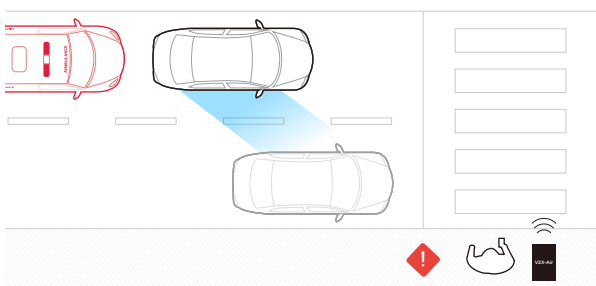
Road Construction Warning

AUTOCRYPT