

From habit to economic

Automotive-IoT Device & Data hub provider





Overview

Company

Identity

Vision

Market Analysis

ICT Integrated B/M



JastecM Co., Ltd.

CEO	Yongbeom Baek
Founded	July 6, 2016
Capital	USD 680,000 (Current) *Fundraising in Apr. 2019 (USD 1.8M) & Jan.2021 (USD 450K) / Series A – USD 2.6M in total)
H.Q	PDC C-402, 242, Pangyo-ro, Bundang-gu, Seongnam-si, Gyeonggi-do, Republic of Korea
US Branch	JastecM USA, LLC 3003 N. First St., Suite 336, San Jose, CA 95134
Websites	Corporate: jastecm.com / Global: viewcar.net







A Leading Company of Smart Mobility Data Hub

From habit to economic





Key technologies for Mobility data gathering & analysis

- Vehicle's sensor data analytics
- IoT devices to collect vehicle & driver's sensor data
- Data analytics platform for 3rd party business





Leading technologies for future mobility service

- 'Seamless indoor-outdoor positioning' for ISO & autonomous driving
- IoT chatbot service to connect with Home IoT and detect human mistakes in advance







BM integrated with Mobility data hub

- 'Auto finance' Vehicle's residual value analysis
- 'Auto Insurance' EWI (Extended Warranty Insurance) based on vehicle's sensor data
- 'Fleet operating cost reduction' with IoT platform







ICT integrated Sensor Data Hub for Future Mobility Environment

Chapter I Overview

Increasing demands of Smart Mobility: More precise and Faster



Big Data based on Cloud

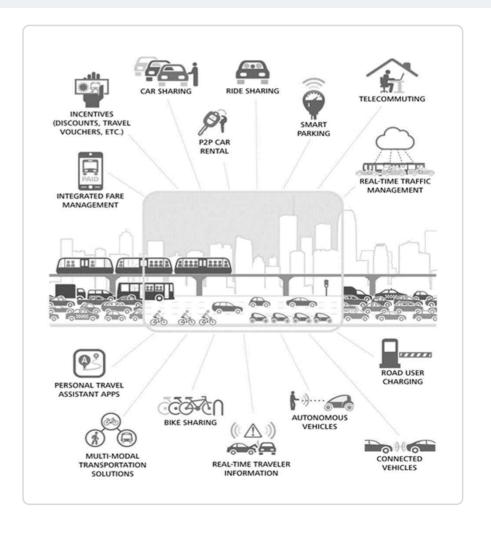
Every Device

- Every Vehicle
- Every Manufacture

Testbed for various technologies & toolsBattle in the gridlock

Present

Key Technology & Convergence Data hub are required



A data hub is a collection of data from multiple sources organized for distribution and sharing.

HOME > 뉴스 > 경제/교육

Growing demands for Smart City (i.e. Smart transportation)



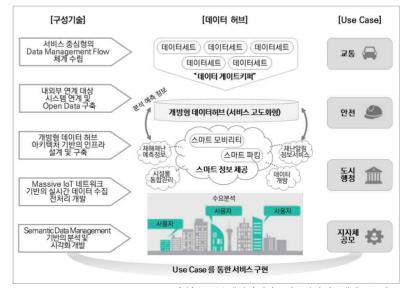
스마트시티 데이터 플랫폼을 활용한 신속한 COVID-19 대응사례

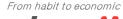
김재호 IoT 스마트시티 플랫폼(PG1001) 의장. KETI 자율자능IoT연구센터 센터장

"국내스마트시티시장,코로나19로위기와기회동시직면"

△ 강석오기자 | ② 승인 2020.05.13 13:59 | ◎ 댓글 0

한국IDC'국내 스마트 시티 시장 트렌드 보고서' 발간 국내 스마트 시티, 공급자에서 민간 기업 및 시민 주도로 사업 이니셔티브 무게중심 이동 스마트 시티 재검토 이뤄지며 포스트 코로나 시대 도시 회복탄력성 강조





lastec M

Expanding use cases for Smart Mobility



Keywords in mobility market

Keywords

Future business idea

Integrating ICT in business

Green New Deal **Policies**

Intelligent Mobility Product Service



- AutonomousDriving -GettinaIntegratedwith varioussensor data
- Connectivity -Importance of big data collection.analytics. processina
- -Highly expandable with 3rd business
- User Experience -Enhancingcustomervalue with deep learning technology (AI)

Sensor Data in Multiple Industries



- Data & Service Integration New business models from mobility.repair.maintenance. autofinance, insurance sectors
- Mobility Services with Al -Fnablesvarious unmanned services
- -Carsharing.robotaxi.deliverv

Environment ·Energy

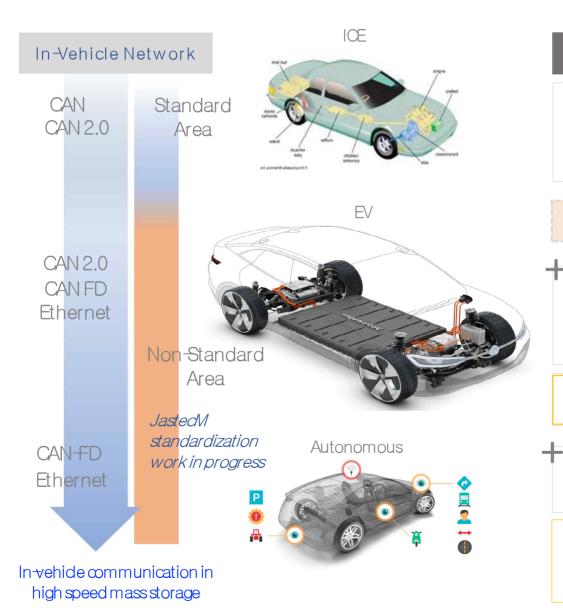


- Carbon Emission Controls
- -SoCmonitorina(EVs)
- -Fuel consumption
- monitorina (Providesincentivesto ICEV drivers reduced the emission)
- -New regulations for ICEVs etc. (* ICEV: Internal combustion engine vehides)
- Energy efficiency Enhancement
- -Car sharing management
- -EVcharginginfrastructure management etc.

New value chain with sensor data business

*iastec*M

Chapter | Overview



ICT Device

Serviœ

Business

Sensor and satellite data

- FMS API service data hub
- Drivinghabit,break down,maintenance
- Fuel & CO2 monitoring
- Insurance(UBI·EWI)
- Wastepickupvehide monitoringsystem

Tech: Sensor fusion based Seamless in high-def

Battery monitoring in safety aspect

- Charging status
- Fire outbreak
- API service available
- Used EV battery residual value
- V2Gmarket

EV battery diagnostic

**Jastec (shareholder company) holds over 80% market share across 1,760 vehicle inspection centers nationwide

Autonomous Fallback

Perception sensors (ie, ADAS, LiDAR, Radar)

- Mobility management service
- Autonomous driving management service

NEXT autonomous driving techbased B/M

1.5 | CT | ntegrated B/M Emission Measurement and Reduction Technology Project

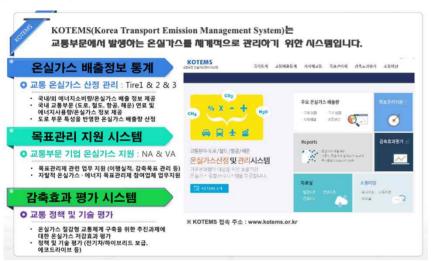
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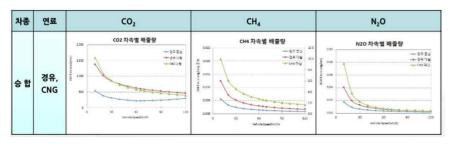
Chapter I Overview

History

Joint development of a sustainable traffic management system utilizing a New safety-economy driving model based on Big Data with the Korea Transportation Safety Authority's Automobile Safety Research Institute (2016–2020)

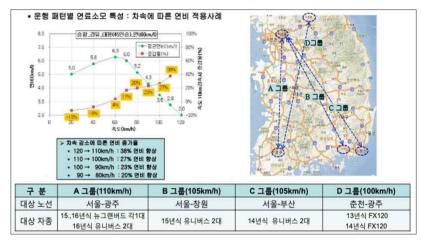


- Yearly trends and GH Gas Emissions by type for 230 cities, counties, and districts, and Establishing Reduction Standards
- Road traffic monitoring system DIAS
- Development of Algorithms for Estimating Greenhouse Gas and Nitrogen Compound Emissions Based on Driving Patterns and Vehicle Speed (km/h)



Effect

 Quantifying Carbon Emission Reductions and Fuel Cost Savings Through the Application of Safe Driving Support Devices



 Creating Practical Effects in Reducing Automobile Carbon Emissions Through Optimal Fuel Efficiency Support

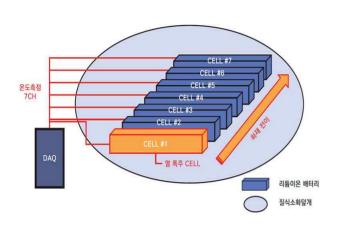


1.5 ICT Integrated B/M EV battery performance evaluation

Chapter | Overview



EV Battery inspection and Evaluation









LGENSOL B-Lifecare battery evaluation

Increased data required for monitoring

- □ EV fires have increased by an average of 41.4% annually over the past four years
- □ Electricity consumption varies by up to 250% depending on driving habits (Hyundai Motor EV Usage White Paper)
- ☐ Growing demand for services to manage vehicle safety while extending battery life
- ☐ Insufficient standards for evaluating and certifying residual value of used car batteries

Changes in Battery
Inspection Methods
and Standards

- ☐ Shift from in-person vehicle inspections to continuous diagnostics ⇒ IoT products
- ☐ Al based big data analysis and processing
- □ Precision and accuracy in both inspection and data aspects ⇒ A consortium between R&D and manufactures
- ☐ Standardization and certification process

1.5 ICT Integrated B/M EV battery residual value evaluation system

Chapter I Overview



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ICT integrated data driven EV battery lifecycle monitoring and residual value evaluation service

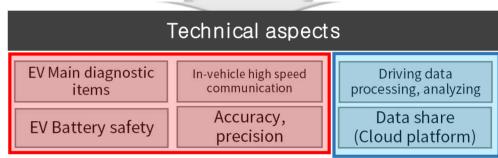
- The global electric vehicle market grew by 89% in 2021, reaching a scale of 6.08 million units. It is expected to maintain high growth with an average annual growth rate of 30%
- In South Korea, the sales of ultralight electric vehicles reached 2,129 units in 2021, marking a 30.9% increase compared to the previous year
- In Korea, the sales of ultralight electric vehicles reached 2,129 units in 2021, marking a 30.9% increase compared to the previous year
- The domestic market for personal and asset tracking and control services has seen the highest revenue growth rate, reaching a market size of 864.4 billion KRW
 - The connected car service market is expected to grow at a CAGR of 27.7% by 2025
- The used electric vehicle market is expanding as consumers have more choices based on the residual value of electric vehicles
- The electric vehicle battery data market is leveraging battery usage history to create indicators for battery life and value, enhancing market utilization



Market

- EV universal diagnostic scanner market growing
- EV battery monitoring feature in need
- EV related Business model
- In-Vehicle high speed IoT device in need

Features



EV Battery Lifecycle Monitoring

- OBD based IoT device for EV Battery monitoring
- State of Charge(SoC), State of Health(SoH), State of Power(SoP)
- EV Trip data (Trip info, Driving data, DTC etc)

Battery Performance Battery/Trip Converged data

- Converged Data (Trip + Battery)
- · Converge trip data and battery performance data
- Maximize battery performance Combining vehicle sensor data (like driving habits, maintenance status, and charging info)



- EV Battery Performance Management Solution
- BM to predict future residual value based on electric vehicle operation and battery data
- Expand data usage to other industries (battery recycling, finance, and insurance)

1.5 ICT Integrated B/M

Waste Pickup Vehide Monitoring (Smart city)

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Chapter I Overview

Current Project (City of Bucheon, Korea)

Public waste pickup service

Waste collected from 36 districts

10 waste pickup agencies on service
(195 special purpose trucks)

Different pickup schedule per waste type

Requirements from Bucheon city

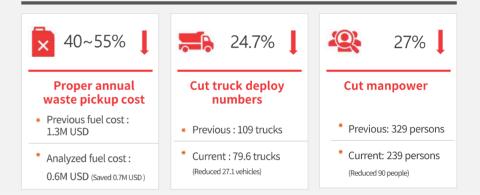
We want to know if the truck really went to the pickup area.
Has fleet cost been calculated properly?
Can we see the accurate workload & work hours of workers?

Monitoring system is required for waste collection agencies (City of Bucheon)

Results

City budget: 13M USD / 2020

Cut truck deploy numbers → Cutting annual city budget



Next Plan

- Market testing in Korea
- Based on FMS* model → Free devices & Having incentive as much as the cost saved instead.
- Gyeonggi-do waste management council
- Nominated as outstanding achievement from MOLIT in 2023
- City of Seongnam, Suwon, Gimpo scheduled in 2024
- Sonrai System* project scheduled (67K trucks)
 - * Sonrai System: US waste collection agency

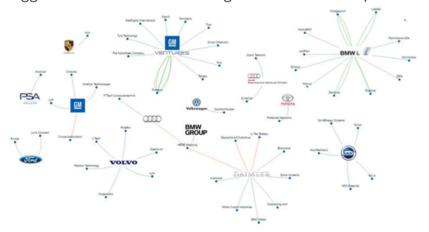


Why is it important in market?

- Core technology of Autonomous driving, drone or MaaS etc.
- Secures location data regardless of network errors (GPS, Cellular)
- Continuous indoor
 outdoor positioning
- Enhanced location data accuracy by sensor fusion

Exclusive by Automakers

- OEMs develop & own most of positioning technologies
- Aggressive investment or merge with related companies



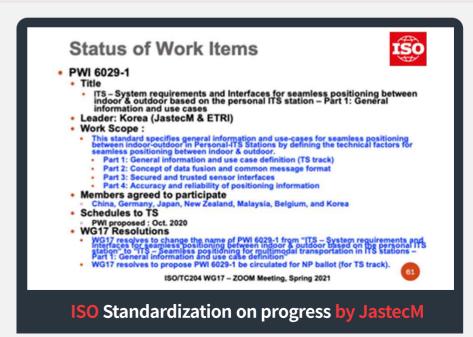
New mobility services are coming up

However, related standardization is not prepared for the new services (protocol, data set etc.)

A Game Changer in OEM centered market with Market Diversification

- 1 ISO standardization based on JastecM's technologies
- Variable product types per target market



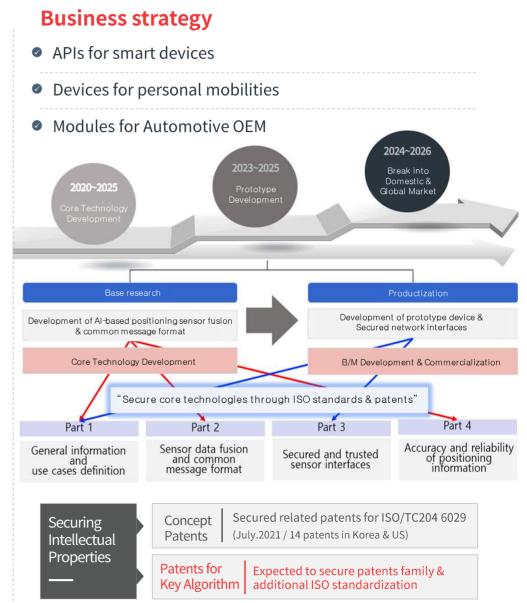




Market Analysis

- Essential technology for high accuracy localization
 - * Global market is expected to reach USD 19,800 Million by 2030
 - * Global sales growth: 48.5%
 - * Domestic sales growth: 23.8%
- Market Volume of Sensor Fusion *CAGR: Compound Annual Growth Rate
 - * CAGR* of Automotive sensor fusion market: 6.9%
 - * USD 2.81Billion in 2017 → Expected to be worth USD 4.19 Billion by 2025







Products

Platform

Key features

NA Model

Global Models

von-P series

Service features

ViewCAR™ Web

Mobile service



JastecM already set up API service structure from device to platform.



ICT Device

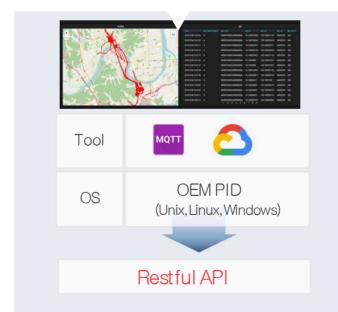
OBD II standard protocol based vehicle data gathering technology





Vehicle Platform

Converting various vehicle sensor data gathered from OBD device as per platform specification





Service level interface in app/web based on telemetry data platform





- Wi-Fi hotspot connection
- Network out of coverage solution
- Secured, Device specific FOTA

Robust Network







Secured Device



Reliable Metrics

- Precise GPS, Accurate Vehicle Metric
- Various Wake up Scenario
- Remedy for Network out of coverage



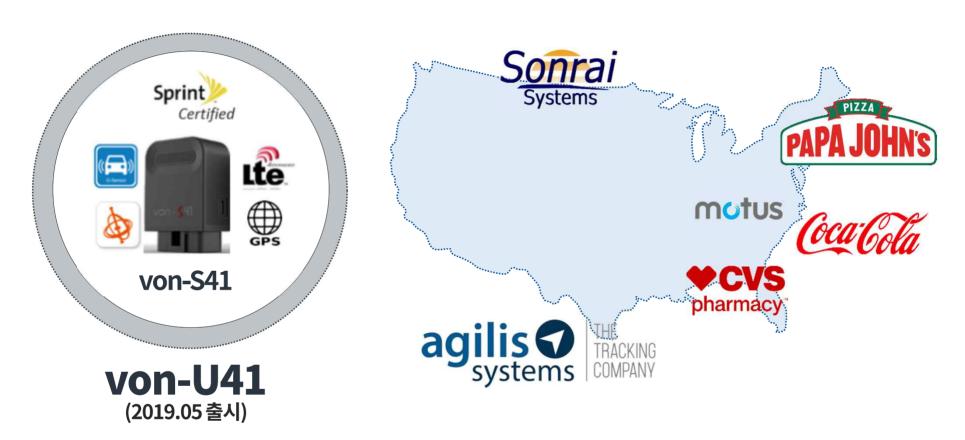
Customizable Configuration

- External Interfaces for Other Devices
- Cooperative with backup platform
- Script support (Radio Packet, Customization, Simulation, Provisioning)



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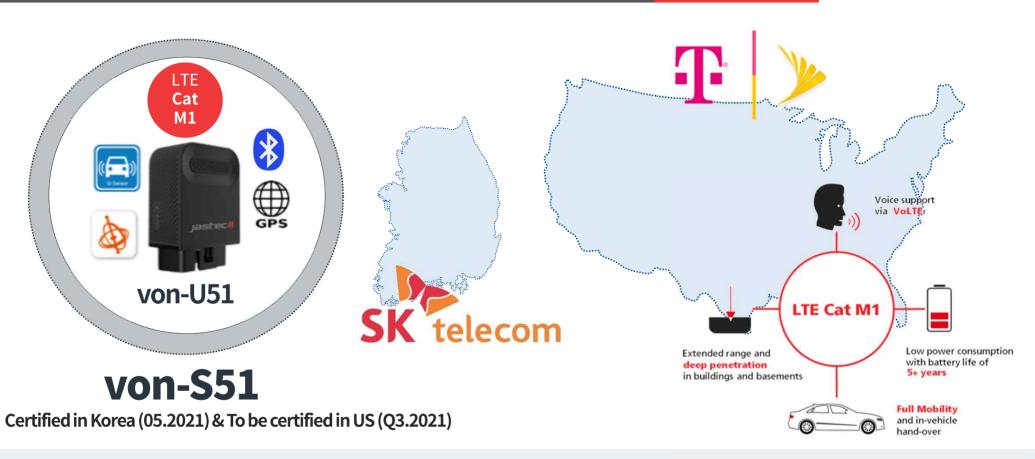
Chapter II Products



- T-Mobile network LTE Cat.1 device for U.S. market
- JastecM and Motus planned to launch a vehicle reimbursement service for Coca Cola, Papa John's Pizza and CVS commercial vehicle drivers (2020) Delayed due to COVID-19, market re-entry in 2023

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Chapter II Products

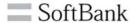


- LTE Cat.M1 (Global Band) device to find more global business opportunity
- Price competitive with low data usage of Cat.M1
- **** Target price: 50 USD (35% cheaper than competitors' devices, 30 % lower than LTE Cat.1's data usage cost**

Chapter II Products







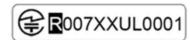




von-J51

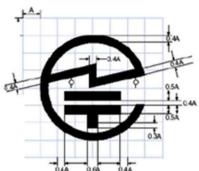
(2022.12 Certified / 2023. 6. 15 Launched)

Format of Certification Number



007: Approval Body ID Number of ul japan XX: 2 digits of Radio Equipment type UL: 2 digits of Designated by UL 0001: 4 digits of Type Approval serial

Certicication Mark





















- Cat.M1 Japanese device for local service
- Device for OBD based inspection (2024. 10 scheduled)
- Collaborate with Japanese local partner (Inter Support) business network

Chapter II Products



- von-U61 features various connected car intefaces
- Designed to support various conneceted devices such as ELD*, ADAS, AI specker, dashcam etc.
- **Wi-Fi Hotspot available to connect with commercial vehicle's ELD, Driver status monitoring and FMS etc.**

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Chapter II Products



Close ranged OBD device (Doosan Infracore Co., Ltd.)

von-P10 Series (Basic) von-P11 von-P12 Acts as a client which gathers essential vehicle data Acts as a client which gathers essential vehicle data **Basic+ Basic** (Driving summary, G-sensor, vehicle condition) (Driving summary, G-sensor, vehicle condition) Wi-fi External Port + external port available for Wi-fi antenna) Serial: RS232 Serial: RS232 Wi-fi: IEEE 802.11 b/g/n Wi-fi : IEEE 802.11 b/g/n Bluetooth: BT EDR / BLE v4.2 Bluetooth: BT EDR / BLE v4.2 G-Sensor: BMI 160 (6-axis) G-Sensor: BMI 160 (6-axis) ※ External port for Wi-fi antenna

von-P20 Series (USB Onboard)

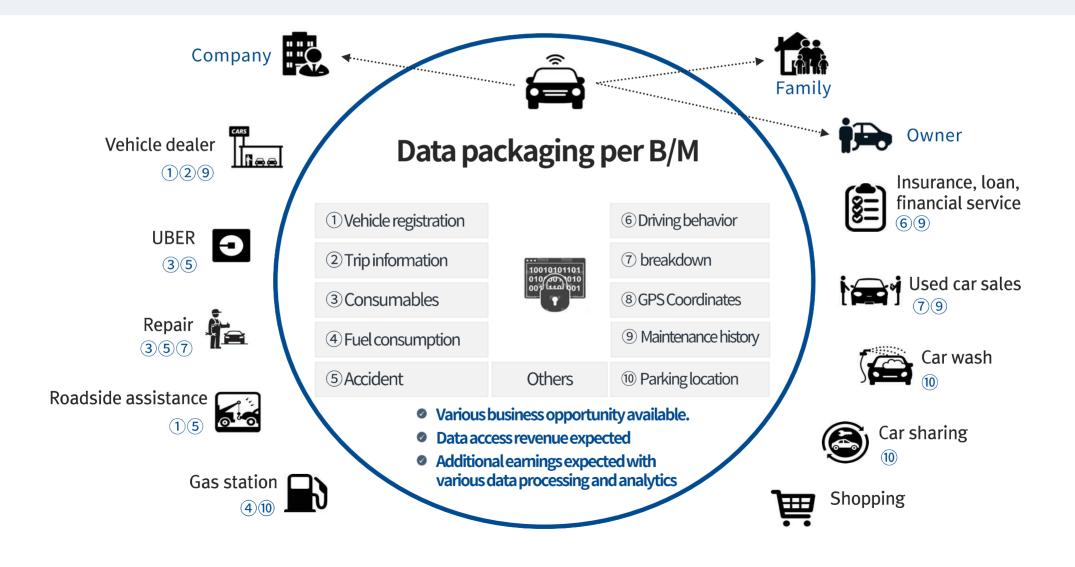


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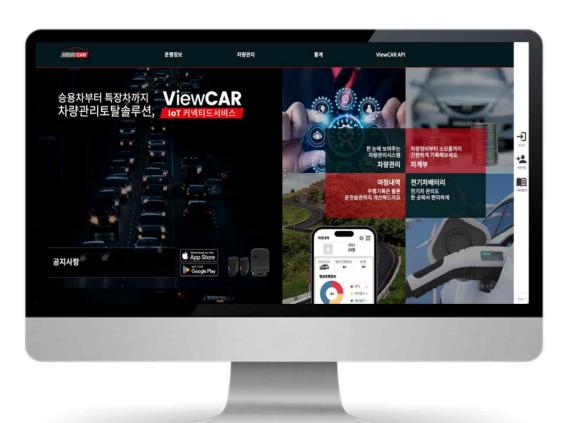
Chapter II Products

Data collected based on user verification & consent of data use

Up-to-date technology trend



ViewCAR is a tool for gaining an access to vehicle related services as shown below.





Vehicle use reservation



Trip route & Event location monitoring service



Vehicle breakdown monitoring



Real time accident report

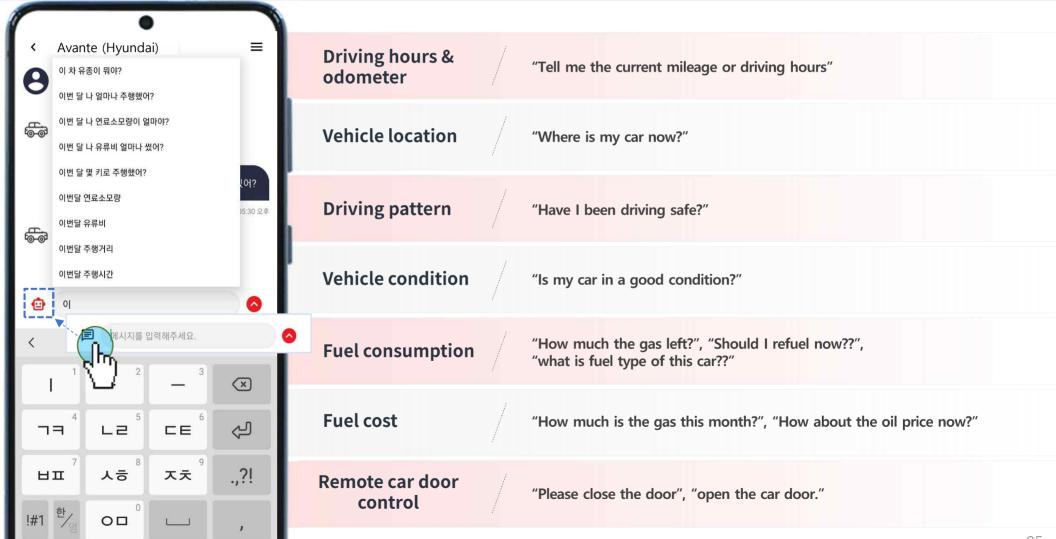
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Chapter II Products

Al Chatbot in IoT device to monitor vehicle information and control









Business

Market Leaders
Business Models
Competitiveness



The most similar service as JastecM, Israeli vehicle bigdata platform company **TOTONOMO**.

- NASDAQ IPO in progress
 (SK invested 10M USD in end of 2018, acquired 2.69% of shares)
- Fundraising stage : Series C
- Total amount of fundraising: 89M USD
- Number of Employees : Approx. 110 ~ 250
- Providing API service with vehicle OEM(BMW, Daimler, Mitsubishi, Mercedes-Benz etc.) for data collecting, e-Call, insurance, parking and repair service.





Second golden age with future solution,Dutch navigation company **TOMTOM**

- 1st generation in European GPS navigation market (25 employees, Revenue growth: 45M USD to 19.8B USD in 5 years)
- Stock plunged after Google Map launched in 2008 (91.2 USD → 2.43 USD)
- Back on its feet after diversifying its business and acquiring Tele Atlas* (3.2B USD) *Tele Atlas: Dutch company delivers digital map & In-car navigation system for autonomous driving
- Key technology:Accurate road data and real-time data update
- Secured stable financial structure in 2015 (Revenue: 1.08B USD, Pre-tax net profit: 135M USD)

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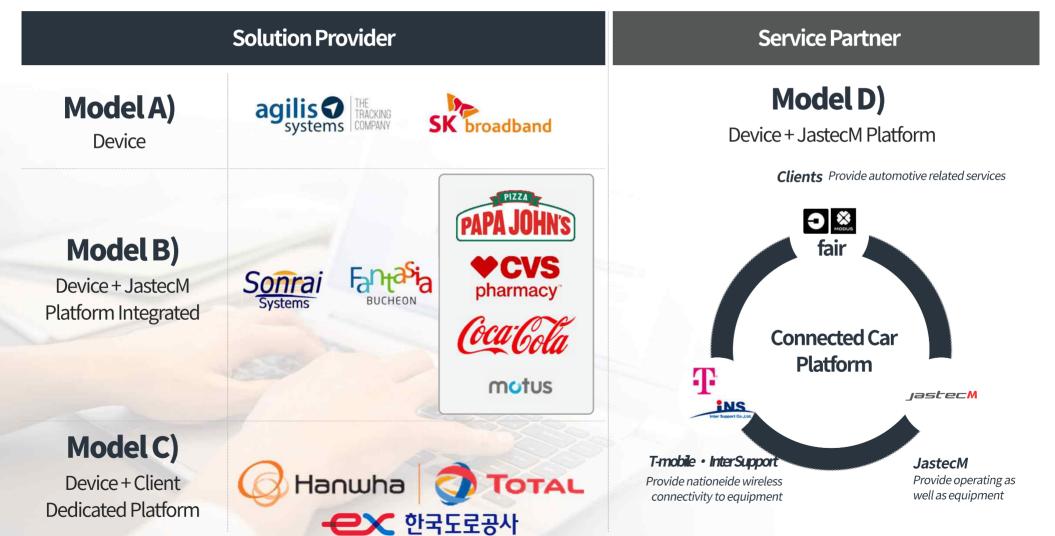
Chapter III Business

Identify and acquire clients through global partnerships in our target markets of B2B and B2B2C





Flexible • Fast B/M development by customer type (B2B, B2B2C etc.)





Price & quality analysis comparing to global competitors

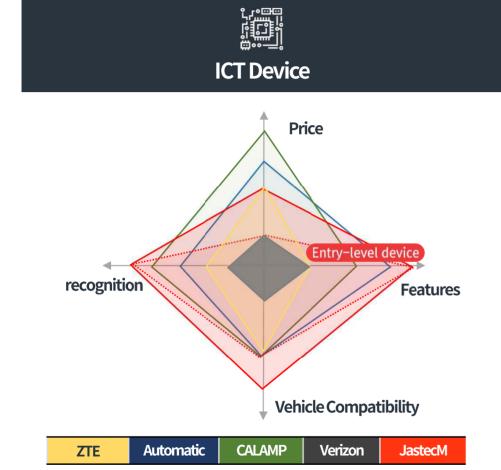
- O1 Compatibility issue: Compatible with all vehicle models in US (3~5x more diverse than Korea)
- O2 Collects vehicle's location data per second & 100~200M/Monthly for Data usage
 - >> Cut down data usage while gathering various data such as speed and angular rate (Data usage: appx. 15~20M/Monthly)
- 03 Secured accuracy of vehicle sensor data relatively higher than other competitors

	Company	ZTE	Automatic	CALAMP	Verizon HUM	JastecM
Model		Mobley	Automatic Pro	LMU-3035	HUM X	Von-S 51
Image				1		von- di
Dimension		3.22 x 1.96 x 0.86"	1.96 x 1.65 x 0.79"	2.5 x 1.5 x 1.0"	3.19 x 2.13 x 1.06"	2.55 x 1.81 x 0.98"
Network		LTE	3G	GPRS, CMDA, HSPA	LTE	LTE (Cat M1)
	SIM Type	Micro	Micro	Micro	eSIM	eSIM
Vehicle Interface		CAN, PWM, VPW, K-Line	CAN, PWM, VPW, K-Line	CAN, PWM, VPW, K-Line	CAN, PWM, VPW, K-Line	Primary CAN(H.S CAN), Secondary CAN, K-Line, PWM, VPW, J1939
Use Case	Maintenance management	-	-	-	-	Raw Sensor Information (Voltage, Temperature, Air flow, etc)
	Breakdown Assistance	Generic DTC	Generic DTC	Generic DTC	Generic DTC	Generic / Manufacturer DTC
	Fleet Management	Support by GPS	Support by GPS	Support by GPS	-	Support by GPS, Ignition On/Off
	Insurance	-	Risk Driving Analysis	-	Risk Driving Analysis	Risk Driving Analysis
	Remote Control	-	-	-	-	Door Lock/Unlock
	Direct local access to the Vehicle	-	·	BLEv4.0(Optional fit)		BLE v4.0 / Micro USB
	Wifi Hotspot	Max 5 users	-	-	Max 10 users	_

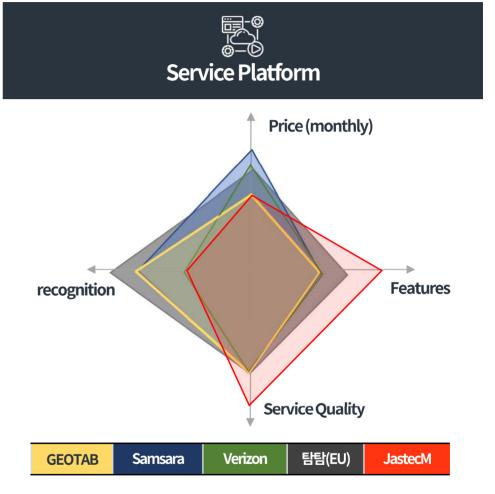
3.3 Competitiveness

Chapter III Business





Price competitive comparing to Chinese product. (von-S51: Entry-level model)



Currently JastecM's platform is on market-entry level.

- 01 Making partners for affiliated program development &
- 02 Market expansion with features & service by B/M are required



Company

History
Certification & IP
Oversea Activities

2023	 MOTIE Award for Knowledge Service Industry Contributions (Nov 30, 2023) G-Connect BETA service open
2022	 Selected as Family-Friendly Company / Nominated for Ministry of Land, Infrastructure, and Transport's Top 100 National R&D Excellence Entering Japanese Market - Contract with Inter Support for Smart Mobility ICT Devices and Services Office moved – Gyeonggi-do Seongnam-si Sujeong-gu Dallaenae-ro 46 A-Tower 701, 702
2021	 International Standard Development Project (Seamless Positioning Technology) KB Capital vehicle value residual assessment project Smart city waste pickup monitoring platform development project
2020	 Nominated & awarded as the best IP-R&D company (Korea Intellectual Property Strategy Agency) Nominated as the company with excellent performance for data voucher project 'Waste pick-ups monitoring solution' (Korea Transport Institute) Nominated as the best industry integration company (Ministry of Trade, Industry and Energy)
2019	 Nominated as the export frontier enterprise (Governor of Gyeonggi Province) Selected for Governmental R&D project—US device and platform development (Ministry of SMEs and Startups) Import started to US clients with Sprint Capital fund raised by1,799,856 USD (Pre A) Waste pick-ups monitoring solution (City of Bucheon) Vehicle monitoring and car sharing solution for Star-Mobility and other rental corporates
2018	 Master Purchase Agreement with Sprint (Million/yearly) Electrical delivery vehicle monitoring device (Korea Post) Carbon emission monitoring device for C-point service (Korea Environment Corp.) Energy efficiency monitoring device and service (Korea Transportation Safety Auth.) Commercial vehicle management system (Hanwha Total) B2B2C FMS device and service (SK Telecom)
2017	 Connected car platform business (SK Telecom) Technical development project (SK Telecom) Connected Vehicle Platform project (Sprint) Nominated as the '2017 Export leading company' (KOTRA)
2016	 K-Global Smart Mobile R&D (Ministry of Science and ICT Acquired research facility accreditation (Korea Industrial Technology Association) Nominated as the best R&D entrepreneur (Ministry of SMEs and Startups) Merger between vehicle Inspection specialist Jastec Co., Ltd. and platform corporate Infinityplus Co., Ltd.



Research & Development

Development

- Vehicle-IoT wireless network(3G/LoRa/LTE/LTE-M) connected device
- Firmware for vehicle sensors, GPS, Gyro/G-Sensor, Bluetooth
- Restful Open API for 3rd party business
- ViewCAR[™] (Application & web service) for end user

International Standards

(Standard Essential Patents)

ISO / TC 204 WG17 standards in progress

• Emergency call feature related standard ISO published (Dec. 2020) (ISO 20530-1 Information for emergency service support via Personal ITS station)

- Micro e-vehicle relate standardization work in progress (Nomadic device service platform for micro mobility)
- Proposed emission monitoring standard
 (Extracting trip data via nomadic device for estimating CO2 emissions)
- Proposed indoor & outdoor positioning based on sensor fusion method (Seamless positioning for multimodal transportation in ITS stations)

4.2 Certification & IP

Chapter IV Company



Certification	Model	Certification No.
FCC	JTBT-1100	UK4JTBT1100
FCC	JTBT-2100	UK4JTBT2100
FCC	JTWF-1100	UK4JTWF1100
FCC	JTCM-1000	UK4JTCM1000
FCC	JTGM-1100	UK4JTGM-1100
FCC	JFCM-1000	UK4JFCM-1000
KC	JTBT-1100	KCC-CCM-JS0-JTBT1100
KC	JTBT-2100	KCC-CMM-JS0-JTBT2100
KC	JTWF-1100	KCC-CCM-JS0-JTWF1100
KIDI	JTBT-2100	KIDI-11-07
KIDI	JTUB-1000 & etc	KIDI-18- **





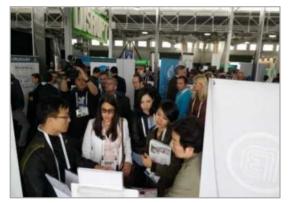
Item	IP No.	Title
Trademark	4500481620000	ViewCAR™
Patent	10-1382498	System and method for motion-sensing automotive airbag systems
Patent	10-1618118	BCM Control system with external device
Patent	10-2074905	Apparatus for processing vehicle information
Patent	10-2020-0188585	Vehicle price estimating method (Korea & US)
Patent	10-2021-0032244	Information exchange system with messenger display (Korea & US)
Patent	10-2021-0041415	Indoor and Outdoor continuous positioning switching method (Korea & US)
Copyright	C-2016-008356	VDAS(Vehicle Driving Analysis System)
Certification	881	Location based business

4.3 Overseas Activities

Chapter IV Company



- Been participating in many ISO meetings & trade shows (TechCrunch, Melbourne ITS conference and ISO TC204)
- A registered expert of ISO TC204 WG16 / WG17 and published ISO 20530 as a proposer (Dec.2020)







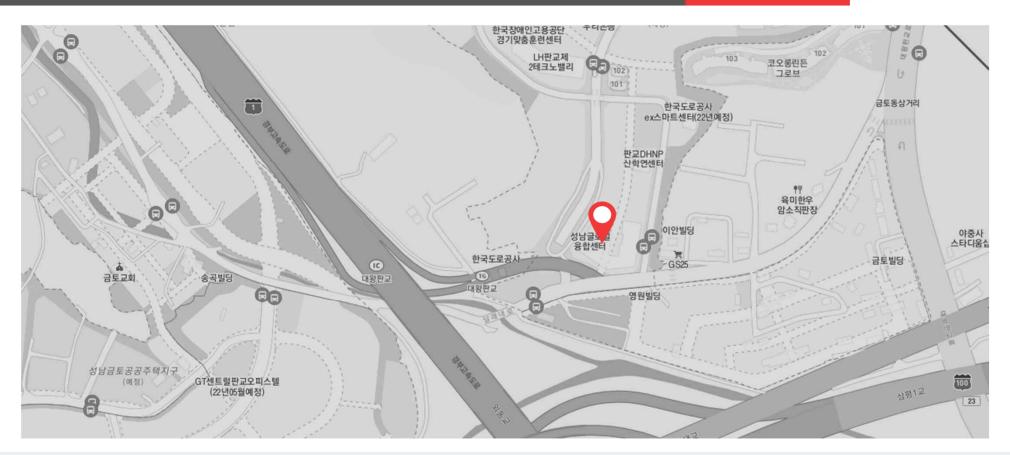






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