



Be the **Right ONE**

The Japan-Australia QZSS Industrial Utilisation Workshop

Feb 2018

Toyota Tsusho Corporation

NEXT Mobility Electronics Business Department
Connected Group

Table of Contents

- 1. Toyota Tsusho Corp. Corporate Profile**
- 2. Activities for NEXT Mobility**
- 3. What we do in High-precision Satellite positioning Business**
- 4. TSQUARE -Traffic Service in Thailand-**
- 5. The Advanced Route Guidance System by Precise Lane Identification**
- 6. Expected Business Collaboration in Australia**

Corporate Profile

Headquarters

Head offices: Nagoya and Tokyo, Japan

Number of employees

Parent company: 3,614
Consolidated: 58,086

Shareholders

Key investors: Toyota Motor Corporation (22.1%),
Toyota Industries Corporation (11%), etc.

President & CEO

Jun Karube

Number of group companies

Group companies : 731 subsidiaries/ 243 affiliated companies
(including those under equity method) as of FYE2016

Global network

Business locations in more than 150 cities throughout 90 countries



Activities for NEXT Mobility

Our Goal

To build a Safe and Secure Mobility Society, provide our solutions based on the cutting-edge technologies

【Motorized】



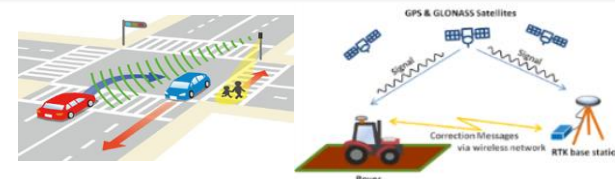
- Next-gen devices (power, high frequency, sensors)
- Next-gen battery systems
- Motors/controllers for LEV
- Ultra compact EV/PMV

【AI】



- AI
- Quantum Computing
- Block chain
- Personal robots

【Connectivity】



- V2X
- DCM/TCU
- **High-precision satellite positioning**

Technology

Solutions



Mobility sharing services



Town and event platform



Truck Platooning (connected electronically)



Automated valet parking



Last-one mile mobility



Data transaction platform



Telematics services



Energy management

What we do in High-precision Satellite positioning business

Press released on Jan 25, 2018

Toyota Tsusho Corp: Investing in Magellan Systems Japan.

-Promoting High-precision Satellite Positioning Technologies and accelerating sales of its products and solutions to the global market.

センチメートル級の衛星測位技術を有する マゼランシステムズジャパン社に出資
～「高精度衛星測位ビジネス」市場開拓で協業へ～

2018年01月25日

豊田通商株式会社（以下、豊田通商）は、高精度測位技術を活用した事業領域における協業を目的に、センチメートル級の衛星測位技術を持つマゼランシステムズジャパン株式会社（以下、マゼラン社）へ出資しました。

1. 背景

日本版GPSといわれる準天頂衛星システム（QZSS）「みちびき」は、4号機打ち上げにより2018年4月から4機体制の本格運用が開始されます。高精度な衛星測位が可能となり、産業用、民生用共に高精度測位の需要が拡大することが期待されています。

2. 出資の目的

マゼラン社は、「みちびき」を活用した高精度単独測位受信機を世界で初めて開発・販売した企業であり、この分野でのリーディングカンパニーとして市場から高く評価されています。


豊田通商は本出資を通じて、マゼラン社の高精度測位技術を自動車および農機・建機の自動運転システム向けにグローバル展開していくとともに、その技術を活用したさまざまなサービスを創出し、「高精度衛星測位ビジネス」という新しい市場を拡大していくことを狙います。

What we do in High-precision Satellite positioning business

Magellan Systems Japan(MSJ) is the only one supplier of QZSS supported Multi-frequency Multi-GNSS receiver's EVK as of today.

You can evaluate QZSS's high-precision Satellite Positioning Technology by MSJ's EVK.

CEATEC[®]
AWARD
2017

 **Magellan Systems Japan, Inc.**

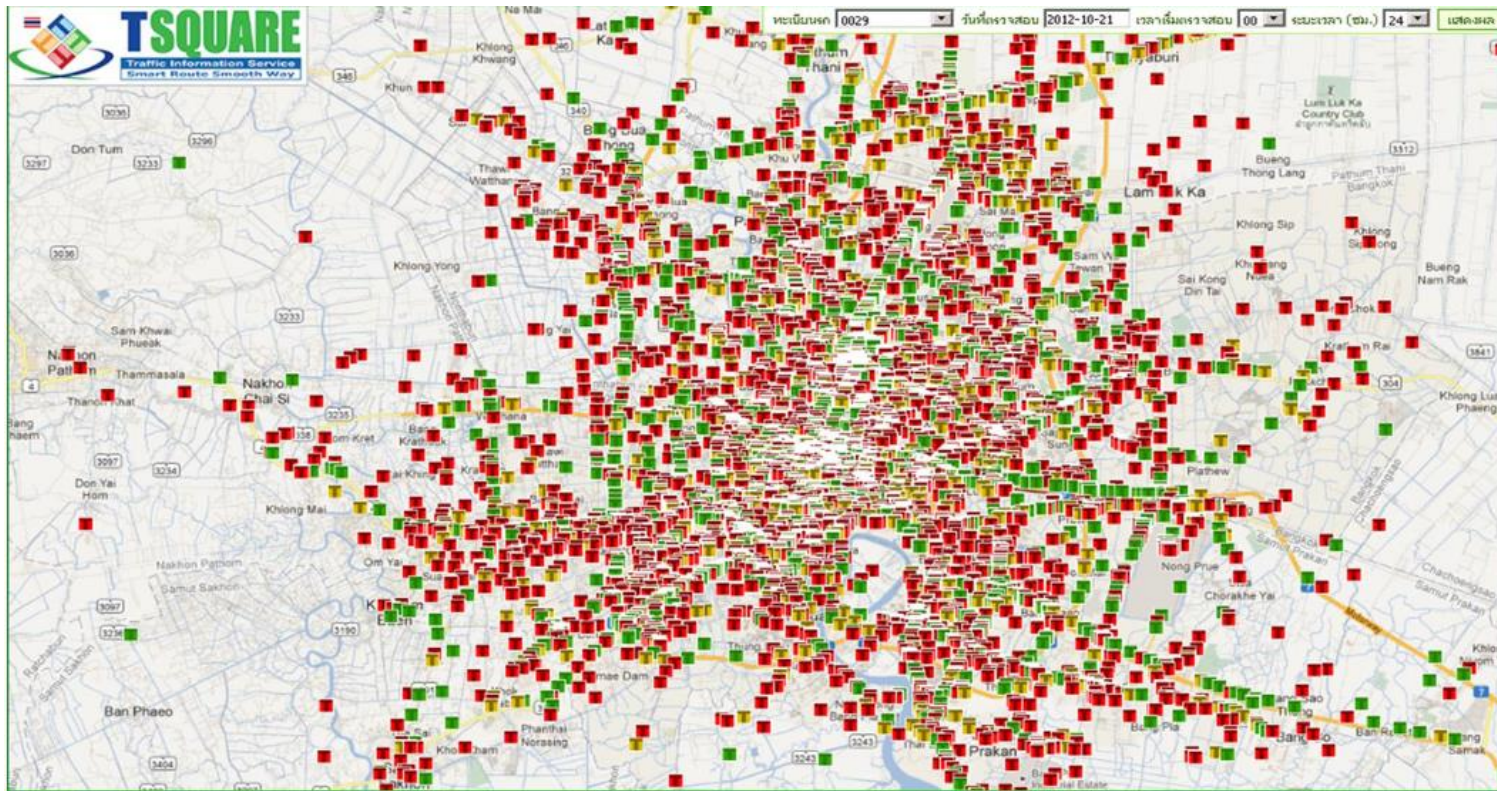


QZSS Multi-frequency Multi-GNSS receiver and its EVK

Toyota Tsusho sells MSJ products globally as a global distribution partner.
Welcome Inquiries from Australia !!

TSQUARE -Traffic Service in Thailand-

Bangkok is the one of the monster traffic jams in the world.
Toyota Tsusho Group supplies the Traffic Service in Thailand.



By utilizing GPS data from more 130K Taxi and Truck probes,
we are generating traffic information and supplying it to our customers.
We confident that TSQUARE is the best traffic service in Bangkok, Thailand.
BUT, the probes are not always accurate due to GPS' accuracy...

The Advanced Route Guidance System by Precise Lane Identification

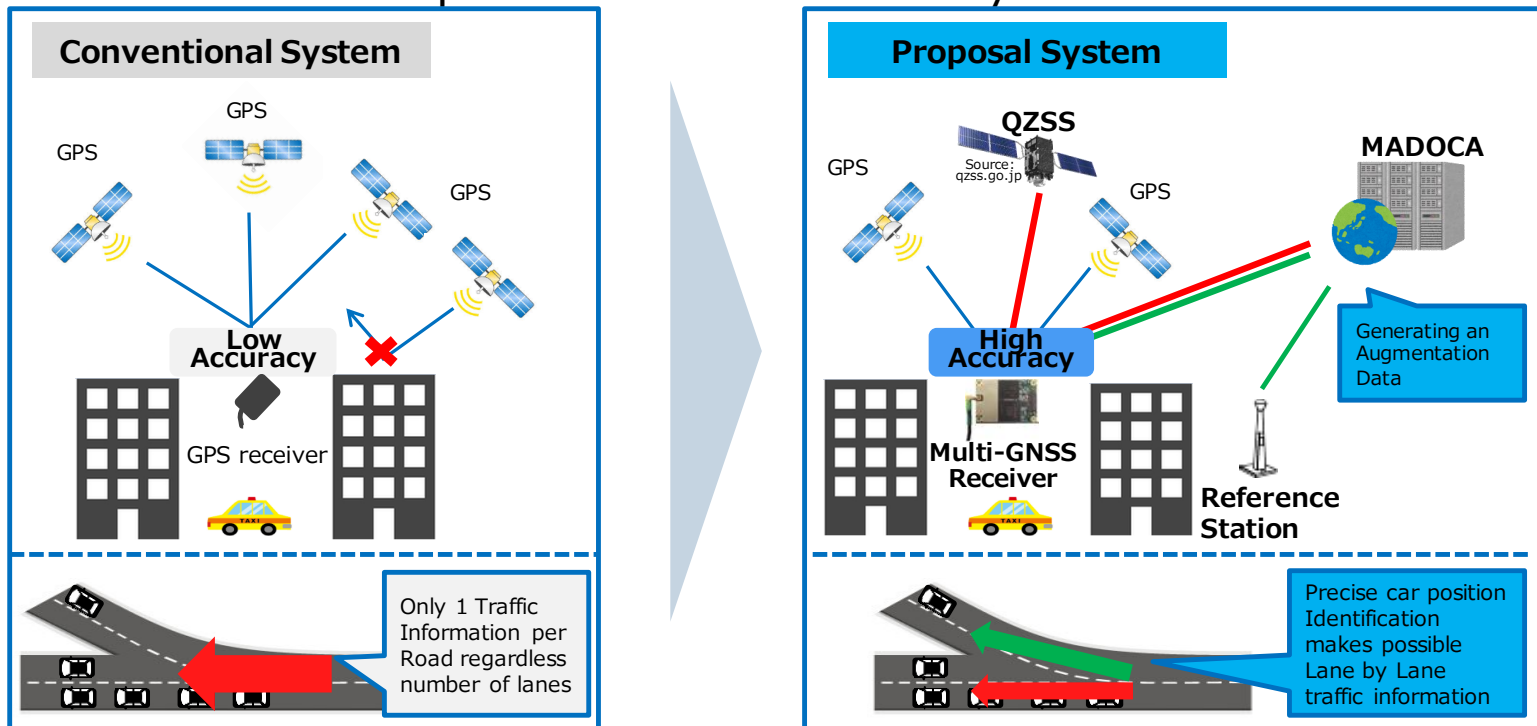
As JETRO “Japan-ASEAN Demonstration Experiment”, Toyota Tsusho and its partners have a field test of “The Advanced Route Guidance System by Precise Lane Identification” in Bangkok, Thailand in Mar 2018.

■ System Overview

- Getting a precise Taxi positioning data(Taxi probes) by QZSS and MADOCA
- Generating lane by lane traffic congestion info by High precision Taxi probes
- Providing the advanced(lane level) route guidance to the advanced Navigation-system

■ Expected Benefit

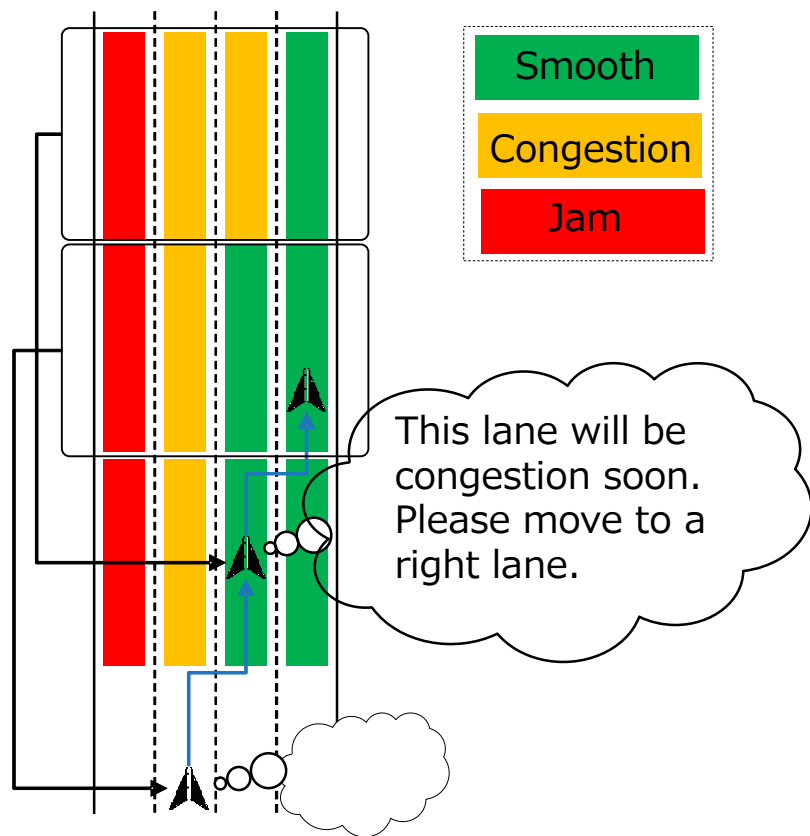
- Arrive at Destination earlier compared to conventional system



The Advanced Route Guidance System by Precise Lane Identification

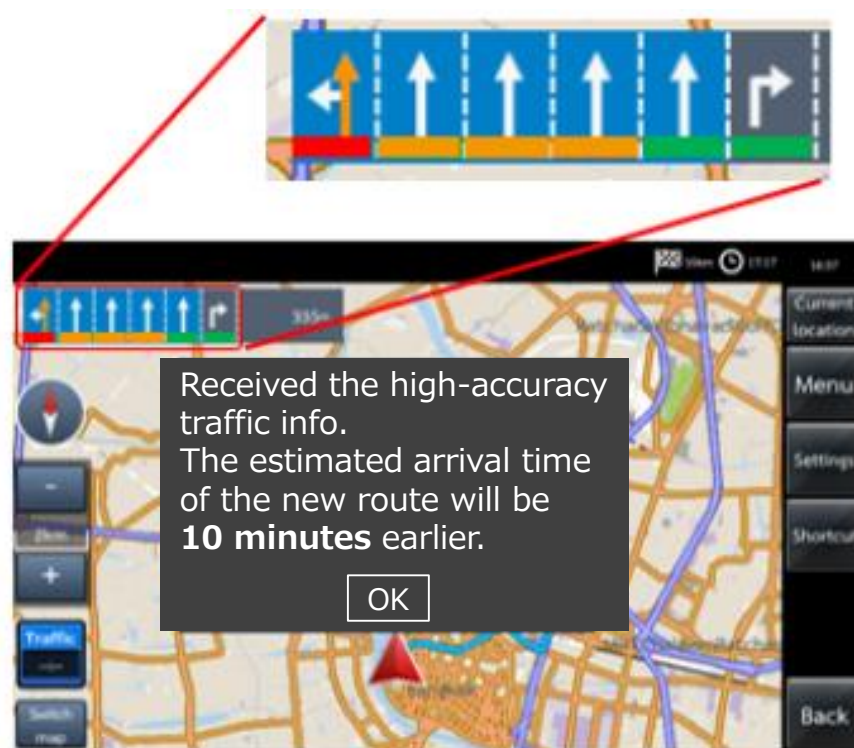
Voice Guidance Image

Providing "A lane level" route guidance by using "A lane level" traffic information



User interface Image

Pop-up display and Voice Guidance corresponding to high accuracy traffic information



The Advanced Route Guidance System by Precise Lane Identification

Participating Entities and Organizations

| Name | Role |
|---|--|
| Toyota Tsusho Group | |
| Toyota Tsusho Corp. | Project Management |
| -NEXTY Electronics Corp. -TOYOTA TSUSHO NEXTY ELECTRONICS (THAILAND) CO., LTD. | Lane by lane traffic information |
| Japan Research Institute Ltd. | Advisory for QZSS and Satellite technologies |
| ZENRIN DataCom Co., Ltd. | The Advanced Navigation Software |
| Global Positioning Augmentation Service Corp. | MADOCA Augmentation Data |
| Magellan Systems Japan, Inc. | Multi-frequency Multi-GNSS receiver |
| Chulalongkorn Univ. (Thailand) | Local reference station |
| Michibiki Sora, Co., Ltd. (Thailand) | Evaluation QZSS Augmentation services |
| Howa International Co.,Ltd. (Thailand) | Taxi |
| East Innovation Co., Ltd. (Thailand) | Trucks |

**By utilizing QZSS High Precision Satellite Technologies,
we can work together and resolve social needs like;**

- **Lane by Lane Traffic Information and Route Guidance**
(Congestion W/W Rank* : Sydney : 29, Melbourne: 58)
- **Autonomous Vehicles/Agricultural machines**
(Generate new industries)

and others

*Source: TomTom



Welcome Partners !!
Let's make mutually beneficial business together !!



Be the **Right ONE**

EOF