Open V2X Platform

RVP

The RVP(RANIX V2X Platform) delivers the best V2X development environment for autonomous driving. It helps to develop fast performing applications in less time at lower cost but with open platform portability. The pervasive V2X specifications support, straightforward and intuitive API, superb security processing performance will make your V2X application bullet proof.

Accurate V2X specification support

The RVP supports IEEE 1609.3, the V2X communication specification of IEEE, and SAE-J2735, the V2X message standard of the SAE International.
And it supports IEEE 1609.2, the V2X security specification of IEEE, and also supports GB/T 37374, GB/T 37376, and YD/T 3594, the Chinese V2X security specification.
It supports and conforms all the V2X specifications and updates.

Extreme V2X security performance

The RVP supports a variety of Cryptography engines with H/W acceleration. It supports RANiX's next-generation HSM and H/W cryptography engines and also supports a variety of third-party HSM and H/W cryptography accelerators.
In addition, by using the signature verification acceleration technology developed by RANiX, it is possible to maximize the V2X security performance by minimizing the performance loss caused by signature verification using an asymmetric key.

Unrestricted network device

The RVP has no constraints on the network device for application development.
It supports WAVE and C-V2X (LTE, 5G) application development irregardless of network device.
The RVP supports network devices such as Ethernet, WAVE and C-V2X at default, and it supports various network devices without constraints by PAL's simple and unified interface.

Various useful service library

The RVP provides service libraries for customers to develop applications a lot easier and quicker.
It supports various params such as distance, speed, acceleration, angular speed and time synchronization using GNSS service. It also supports various 3rd party SCMS, and TCI service library for certification, etc.
The RVP's service library will evolve to meet various customer requirements for productivity application development.

Superior reliability and K-Plug test proved

Various applications were test proved on the RVP platform in the C-ITS demonstration POC project and C-ITS K-Plugtest. The heavy payload test case demonstrated RVP's superior performance and reliability.

Straightforward and easy API

Our customers can develop V2X products without having to spend a lot of time and effort to understand the V2X specifications anymore. The RVP's API is straightforward and easy enough to develop V2X products without knowledge of V2X network and security specifications.

Excellent extensibility and portability

The RVP's PAL(Platform Adaptation Layer) is a porting interface layer supporting RTOS or Linux irregardless of operating system.
All the system libraries were developed on the PAL, hence the RVP has superb extensibility and portability.

RANIX

SPECIFICATIONS & FEATURES

V2X Standards

- SAE-J2945/1
- IEEE 1609.2
- GB/T 37374
- YD/T 3594
- SAE-J2735
- IEEE 1609.3
- GB/T 37376

V2X Security

- Supports HSM and Cryptography engine
- ECDSA Signature and Verification
- SM2 Signature and Verification
- Butterfly Key Expansion
- Implicit Certificate
- Cryptography Functions
  - Supports SHA and SM3
  - Supports AES and SM4
  - Supports Big number calculations
  - Supports ECC calculations

V2X Network

- IEEE 1609.3 Wave Short Message Protocol
- IEEE 1609.3 Wave Service Advertisement
- Support IPv6

V2X Message

- SAE-J2735 V2X Message specification
  - BSM
  - NMEA, MAP, PDM, RTCM, SSM, SPAT, TIM
  - CSR, EVA, ICA, RSA, SRM, PSM
  - PVD
- Korea standard V2X extension message specification
  - BSM, MAP, RTCM, SPAT, TIM, RSA, PVD

ASN Service

- Encoding and Decoding API for ASN.1 frame
- Supports IEEE 1609.x and SAE-J2735
- Supports GB/T 37374, GB/T 37376 and YD/T 3594
- Supports all TCI frames

TCI Service

- Useful TCI service API
- SAE-J2945/1 certification
- IEEE 1609.2 certification
- IEEE 1609.3 certification
- IEEE 1609.4 certification
- IEEE 802.11p certification

SCMS Integration

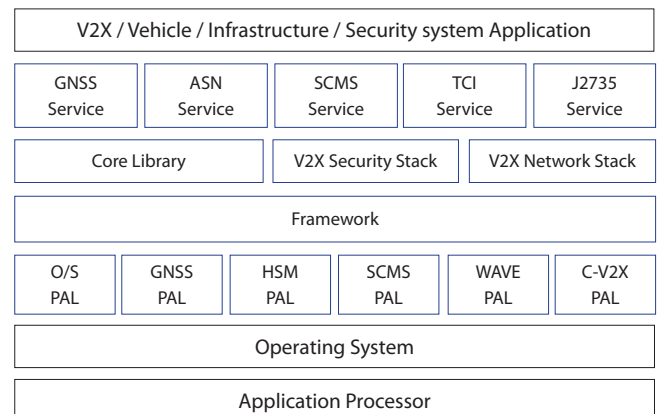- 3rd Party SCMS integration
- Local Certification Management

GNSS Service

- Powerful GNSS service API
- GNSS time synchronization
- Location and Distance APIs
- Supports yaw and pitch calculation
- Supports angular velocity calculation

Seamless Integration

- Powerful modular architecture
- Clear, straightforward and easy to use API
- PAL for various O/S and H/W support

Block Diagram

V2X / Vehicle / Infrastructure / Security system Application				
GNSS Service	ASN Service	SCMS Service	TCI Service	J2735 Service
Core Library		V2X Security Stack		V2X Network Stack
Framework				
O/S PAL	GNSS PAL	HSM PAL	SCMS PAL	WAVE PAL	C-V2X PAL
Operating System				
Application Processor				

KOREA : RANIX.Inc
RANIX Bldg, 25 Eonju-ro 135 -gil, Gangnam-gu, Seoul, Korea

CHINA : RANIX Smart Technology(Shanghai) Co.,Ltd.
11th Floor, Building No 10. Lane 2777, Jinxiu East Road,
Pudong New Area, Shanghai, China

Contact