V2P & 79GHz Radar

V2P Communication

- New pedestrian support system by means of V2P (Vehicle-to-Pedestrian), wireless direct communications

79GHz Infrastructure Radar

- Wider Area and Higher precision - Millimeter Wave Radar Technology
- Roadside to Vehicle - Cooperative Safety System

This work is part of the R&D commissioned by the Ministry of Internal Affairs and Communications (MIC) as “Next - generation ITS utilizing ICT” for the Cross - ministerial Strategic Innovation Promotion Program (SIP).
**System outline**

To realize a direct V2P communication system that can alert pedestrians or drivers in appropriate situations and with suitable timing to reduce traffic accidents involving pedestrians, we develop element technologies required for a pedestrian terminal.

- 700-MHz band communication
- High-precision positioning
- Danger identification & pedestrian support

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**Pedestrian terminal system prototype**

- GPS, GLONASS
- QZSS
- ARIB STD-T109
- Location Information, speed, direction
- GNSS positioning terminal
- Smart Phone
- Bluetooth
- 700MHz band communication terminal

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**Panasonic**

**AUTOMOTIVE**
Proof-of-concept experiments

This test scenario assumed collision avoidance at the blind intersection without traffic signal.

Test application for Pedestrian terminal

<table>
<thead>
<tr>
<th>Waring point: distance from collision point</th>
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<tr>
<td>Target value: Before the road crossing</td>
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<tr>
<td>Mean values of measurement</td>
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FY2015 JARI Experiment

Warning before crossing the road
Application

Application image using 79GHz millimeter-wave radar for road-vehicle cooperation safety system

- Sensing each location of pedestrian and car by using millimeter-wave radar from roadside of intersection
- Notifying the object location, via wireless channel, to vehicle-mounted system aiming to prevent accident
Technical Advantage

- Wide field-of-view area to scan / High accuracy to detect multiple targets
- High resolution to separate pedestrians and cars
- Robustness under bad weather conditions (fog, snow, etc.) and at night