This emergency call system detects an accident using such means as the activation of air bags and, with the assumption that the driver will be unable to notify the proper authorities themselves, automatically notifies a call center regarding the location of the vehicle. The call center will attempt to contact the driver while notifying the fire department and other agencies. By ensuring rescue and emergency medical services are promptly made aware of accident information and thus able to begin treatment at an earlier stage, this system is expected to contribute to a higher survival rate and prevent injuries from worsening.

This initiative has already been launched in Russia and the European Union. In Russia, new vehicles have been required to include the “ERA-GLONASS” emergency call system since January 2017, while in the European Union, new vehicles have been required to include the “eCall” emergency call system since April 2018. The European Commission has estimated that the introduction of eCall will “shorten time required to reach traffic accident sites by 40-50%” and “reduce the number of fatalities from traffic accidents by 2,500 persons a year.”

The United Nations Economic Commission for Europe’s World Forum for Harmonization of Vehicle Regulations adopted the international standard for “accident emergency call systems” in November 2017. Following this, the Ministry of Land, Infrastructure, Transport and Tourism also introduced this same standard in Japan in July 2018 and established performance standards. The Ministry plans to apply this standard to new vehicle models from January 2020 and existing vehicle models from July 2021.

Across the globe, emergency call systems are being introduced as standard features into vehicles that make up the next generation of automobiles. By incorporating a device in a vehicle that automatically signals the vehicle’s location information when an accident occurs, these systems make it easier to more rapidly conduct rescue and emergency medical activities. This feature is expected to contribute to the achievement of Goal 3, Target 3.6 of the SDGs (Sustainable Development Goals) adopted by the United Nations, which is, “by 2020, have the number of global deaths and injuries from road traffic accidents.”

Yamaha has developed an in-vehicle communication module for a high-quality emergency call system that utilizes the voice processing technology we have cultivated in our sound and music businesses. Yamaha aims to contribute to the reduction of traffic accident damage by entering this field, which is expected to see significant market growth due to rising societal needs.
IN-VEHICLE COMMUNICATION MODULE, THE EPITOME OF YAMAHA’S “SOUND TECHNOLOGY”

The in-vehicle communication module for emergency call systems developed by Yamaha is currently being installed and used in vehicles sold by Japanese automobile manufacturers to Russia and Europe. Yamaha’s in-vehicle communication module consists of a microphone, speaker, and electronic circuit. This is a compact version of a communication module Yamaha provides for remote conferencing, such as online conferences, and is durable enough to withstand being installed in a vehicle.

In addition to basic features of emergency automatic notification and hands-free telephone call, the biggest feature of this module is that the microphone which captures the voices inside the vehicle and the speaker which the call center operator uses to communicate are part of the same unit, and provide clear audio quality. Furthermore, the same system can be used in both compact and large vehicles, a revolutionary feature that makes it unnecessary to tune units for environmental changes, such as the size or reflection of vehicle interiors. Yamaha’s background in sound and music businesses allows it to utilize assorted technologies, such as voice processing, digital signal processing, tuning, and acoustic design.

Because of the nature of the device, the in-vehicle communication module for the emergency call system is in reality rarely used. However, during a serious accident, the ability to provide prompt support through clear voice communication can be the difference between life and death. This in-vehicle communication module is packed with Yamaha’s desire to “contribute to speedy rescue and medical treatment efforts during traffic accidents by using sound and music technology.”

In-vehicle components

Shift into total in-vehicle solution domain
- Integrated control of passenger compartment audio, voice, and noise

Enhancing the foundation for products and support, and accelerating growth toward the establishment of a third business pillar

- Improve customer value by enhancing support foundation
  - Establish in-vehicle customer support hub in China

- Plans to establish quality standard certification hub for in-vehicle microphone in Russia and Japan

- In-vehicle audio market size
  - $600 billion yen
  - 10%

- In-vehicle space total solutions proposal trend

- China support hub
- Communication quality certification system

MOVING TOWARDS THE CREATION OF UNIQUE VALUES THROUGH INTEGRATED CONTROL OF THE SOUND ENVIRONMENT IN NEXT-GENERATION AUTOMOBILES

Yamaha has established an industrial machinery and components business that it aims to make our third business pillar in the future along with its musical instrument and audio equipment businesses.

In-vehicle components are one growth area which will play a central role in this business. As 5G telecommunications technology spreads and AI and cloud networking evolve, the day is approaching when “connected cars” which are capable of connecting to the internet become a central technology in the automobile industry. As that day draws near, the demand for in-vehicle-related equipment is expected to grow even further.

Utilizing its technology related to sound and music, Yamaha will enhance its functions such as in-vehicle conversation assistance, and improve its voice recognition rate. At the same time, Yamaha will advance proposals to enter the “in-vehicle total solutions” realm which adds new value to “the time spent riding in a vehicle.”

What Yamaha aims for the future (Business vision / Industrial Machinery and Components business)

Create growth utilizing core technology and establish third pillar along with musical instruments and audio equipment

Grow in the in-vehicle, industrial equipment, and health care markets

COMMENT

I believe that the ultimate value of this product is when something unexpected occurs, customers can say that “they are glad this product was here.” A key point for Yamaha on entering this market is that the sound quality of our products has been very highly rated. As the environment surrounding vehicles changes in the future, including the introduction of driverless vehicles, we will see more attention paid to technology which can control the audio environment, including sound such as music, the conversation of passengers, and the elimination of exterior noises. At this time, the potential for application of Yamaha’s high-quality sound know-how will once again be in the spotlight. I am proud that we have been able to use Yamaha’s sound technology to enter a business which generates new societal value. At the same time, I would like for us to make proposals as to how Yamaha’s good sound can create safe, wonderful cars in the future.

Yasuyuki Muraki
IM Development Group, Group Manager