

## **Special Feature Article**

### **Increased entry of parts suppliers into new businesses**

~Seeking next-generation businesses for the arrival of the EV era~

As the automotive industry faces a "once-in-a-century" transformation, automotive parts manufacturers are scrambling to establish new businesses. Although there have been moves to diversify businesses in the past, the company sees new businesses as a promising source of future earnings against the backdrop of a decrease in the number of parts due to the spread of EVs and a shortage of labor. Furthermore, they hope to link their efforts to solutions to social issues such as increasingly severe disasters and the need to improve food self-sufficiency. They are taking on the challenge of developing new business areas by leveraging its expertise in R&D and production management cultivated in the automotive parts business.

#### **Seek to utilize core technologies in different fields**

Aisin CORPORATION, which manufactures key components for electric vehicles such as eAxles, has proposed a technology using ultra-fine water particles called "AIR. It can produce water particles of less than 2 nanometers (one billionth of a meter), the "world's smallest," or 1/600th the size of ordinary water vapor. The company has applied cartridge technology used to treat impurities in automobile exhaust gas, as well as temperature and humidity control know-how cultivated in the bed business it once handled.

The barber and beauty industry has taken notice of it, and many beauty salons in the Kanto and Chubu regions have introduced the Hydraid, which is used in barbering equipment for scalp care. Since the particles of the AIR are smaller than the skin's crevices, moisture can penetrate to the stratum corneum. The company has presented its effectiveness in treating atopic dermatitis at the Japanese Dermatological Association. The company continues to make proposals for potential applications, such as maintaining the freshness of food products and enhancing the penetration effect of drugs in the medical field.

#### **Decrease in demand due to the shift to EVs as a backdrop**

As a move to solve social issues by leveraging core business, NOK CORPORATION is developing an Electroencephalogram(EEG) measuring

device called "Sotto Brain" by utilizing its rubber technology cultivated in the oil seal business. A "bio-rubber electrode," a combination of rubber and conductive material, is attached to the backside of a hat, and brain waves can be measured by placing the clip-type electrode between the earlobes. Currently used EEG measurement devices use metal electrodes that are applied with gel to the skin, but the company's technology uses a rubber material that adheres closely to the skin for quick and easy measurement.

The company boasts a 70% share of the global market for oil seals among Japanese automobile manufacturers. In addition to sealing performance, the company has expertise in heat resistance and wear resistance. On the other hand, demand for parts for internal combustion engines and transmissions is expected to decline in the future due to the shift to EVs. Therefore, with the aim of utilizing Sotto Brain in dementia prevention programs, etc., the company is also working on the development of an application for smartphones that will allow users to check the status of brain waves and necessary training.

### **Contribute to social issues such as disasters and aging populations**

UACJ Corporation, an aluminum rolling manufacturer, is working on the development of watertight plates. As flood damage from torrential rains and other disasters becomes more serious throughout Japan, the company is receiving an increasing number of inquiries for watertight plates as well as sandbags.

The company's experience in the disaster has led to the development of these plates. In September 2020, a linear precipitation zone occurred around Nagoya City, Aichi Prefecture, causing flood damage in the city. In preparation for preventing future damage, the company took a hint from the "AORI(frame)" for truck beds and applied its extrusion and parts fitting technologies to commercialize a water stop plate called "Mizuyoujin" (watch out for water). The company intends to contribute to effective disaster prevention and mitigation by using 3D modeling software to confirm the installation location and developing a technology that is linked to a weather application to inform the user when to install the watertight panels.

### **Entering a growing industry from scratch**

On the other hand, some companies are exploring areas completely different from their existing businesses. Last year, TPR Co., Ltd., whose main

business is engine parts such as piston rings, developed "Koromoko," an AI (artificial intelligence) robot for nursing care. Although the company did not have expertise in robot development, it developed a new communication robot by taking advantage of the fact that its group companies are involved in the nursing care business.

The fluffy-looking body is equipped with heart rate measurement sensors under the armpits and in the mouth, and a camera in the eyes that can analyze the facial expressions of the patient. The aim is for Koromoko to be a talking companion for the person being cared for and to help them feel more positive. At the same time, it is expected to reduce the burden on nursing home staff.

The company developed the device in cooperation with a university to determine what kind of words would be appropriate to encourage users and to help bathe, eat, etc., in a way that is attuned to their feelings. The product was tested at the group's nursing care facilities before the launch.

NTN Corporation, whose main business is bearings, is involved in independent power supply products that utilize renewable energy. The company's "N-Cube" is a container-type independent power source equipped with solar and wind power generation equipment and storage batteries. Inside the container, electrical outlets can be installed, and mobile toilets, air conditioners, and vending machines can also be installed. In normal times, it can be used as a recharging facility for electric bicycles, etc. In emergencies, it can serve as an emergency power source and lifeline.

In 2019, the company provided them for the disaster relief of Chiba Prefecture, which was damaged by a major typhoon, and from 2020, it will be available for sale to the public. Renewable energies face the problem of unstable power generation depending on weather conditions, but the company is working to increase their adoption by improving efficiency with its proprietary technology that enables simultaneous control of solar and wind power.

### **Component makers are keenly interested in the agricultural sector**

Many parts manufacturers are finding their way into primary industries such as agriculture and fisheries. At first glance, these industries may seem far from the automotive industry, but they are attracting attention as areas where core technologies that have been difficult to apply to in-vehicle parts and safety, and a high quality control can be utilized.

TSUBAKIMOTO CHAIN CO. has built a "plant factory" by meticulously

controlling sunlight, temperature, water, etc. in Fukui Prefecture last year to produce lettuce. The company aims to start operations in 2025 and hopes to make its agricultural business one of its profit sources by around 2030.

The company has been involved in transplanters of seedlings and elevators for pallets of vegetables for plant factories. In particular, the need for commercial vegetables continues to increase due to the growing demand for take-out side dishes, while the shortage of workers is becoming more serious. Therefore, the company aims to improve productivity and labor-saving by utilizing automation technology.

The company will utilize its manufacturing capabilities cultivated in the automotive parts business to produce vegetables with minimized quality variation, thereby pioneering the future agricultural business field. First, the company plans to make the new plant profitable within three years, and to produce approximately 2.2 tons per day, the largest scale in Fukui Prefecture.

KOJIMA INDUSTRIES CORPORATION, a partner company of Toyota Motor Corporation, is developing "Mamold," a sheet that suppresses the growth of mold, in anticipation of increased demand for transportation and export of agricultural products. The company is involved in instrument panels and other products, and has "vapor deposition polymerization" technology that produces a thin film in a vacuum, which it had hoped to use in insulating sheets. However, due to issues such as the spreading of the mesh-like structure when humidity is high, the company has not been able to adopt the technology for use in automotive applications.

On the other hand, its characteristic of changing state according to humidity was an advantage for agricultural materials. They succeeded in creating a characteristic that allows gradual release of naturally occurring additives that inhibit mold and discoloration. The developed product protects food products with a four-layer structure that includes a mold growth inhibitor. When the company tested the product using Shine Muscat, it was able to keep the product refrigerated for four months. The company intends to continue development of the new product and commercialize it after confirming its stable effectiveness.

### **Some "sea-less" prefectures are moving toward land-based aquaculture**

YAMADA MANUFACTURING CO.,LTD, a manufacturer of oil pumps, is engaged in land-based aquaculture in Gunma Prefecture, where there is no

ocean. The project was born out of an in-house venture program and is now cultivating tiger puffer fish and flatfish in tanks.

Honda Motor Co., Ltd., a major customer of the company, plans to use EVs and fuel cell vehicles (FCVs) for all new cars by 2040, which may lead to a decrease in demand for parts in the mid- to long-term. The company is therefore optimizing the water flow using the technology of analysis software for flow velocity and heat dissipation used in the development of oil pumps and has been selling the product on a trial basis since 2022, aiming for business as early as around 2026. In the future, the company intends to grow its business with a view to processing and selling fresh fish and expanding overseas.

As the automotive industry is undergoing changes, parts suppliers will continue to search for growth markets and business areas where they can utilize their core technologies in order to survive. However, the hurdle to turning a business profitable is high, and investment resources must be secured to make the business profitable. In parallel with new business areas, companies are working to improve the profitability of existing businesses and enhance their competitiveness.