FUJIKURA NEWS 1
2021
No.473

Fujikura Modern history -9

Overseas Expansion of Businesses

From the mid-1960s to the mid-1970s, Fujikura's products and construction skills were widely publicized and exported in a special way. From 1969 to 1973, the company undertook the construction of a large-scale communications network in Sri Lanka. The CCP cables, which were used in the construction, were also exported to a US company, WE. Fujikura not only exported products but promoted technical cooperation and training by investing in a Malaysian company and providing technical assistance to a US company.
For power cables, OF cables were successively exported with construction work because the installation was complicated and required expertise. The exports included submarine cables to Greek, which were the largest in scale for a domestic maker, and cables to be laid in a bridge across the Ganges River.

Loading of export OF cables into ship

President's New Year's Message for 2021

President & CEO
Masahiko Ito

Happy New Year.
We ask for your continued good will in the new year.
Last year in 2020, the COVID-19 pandemic raged from the beginning of the year and we have not seen the end of it yet. I extend my deepest sympathies to those who have contracted COVID-19 and pray for their early recovery. I would also like to express my sincere respect for healthcare and nursing care providers on the frontlines who are contributing to the health and welfare of our citizens. The pandemic has affected our lifestyle as well as the economy. I pray that these conditions will soon come to an end.
Fujikura Group business performance during the first half recorded a year-on-year decline in revenues due to the suspension of production by auto manufacturers under the impact of the COVID-19 pandemic. However, the company gained the benefits from business structural reforms in fiscal year 2020, cost reductions, which were encouraged by the Save Committee, appraisal profit consequent to a rise in copper prices and "stay-at-home" demand for digital devices. This resulted in the year-on-year increase in operating income in the Electronics Business. Overall, the company generated an operating income of 8.9 billion yen and a 3.0% operating income to net sales ratio.
During the second half, a decline in domestic demand in the energy business and continuing impact from the COVID-19 pandemic is expected. However, the benefits from business structural reform, increased sales of Spider Web Ribbon® (SWR®)/Wrapping Tube Cable® (WTC®), strategic products of the Telecommunication Business sub-company and AFL, are forecast to reach 11.0 billion yen in operating income and the ratio of operating income to net sales of 1.8% for the full year.

Fujikura posted a huge net loss in the fiscal year ended March 31, 2020. To focus on the operational turnaround of the company, we abandoned the Mid Term Management Plan and formulated the "100- Day Plan" to transform ourselves into a sustainable business entity.
Under the 100-Dday Plan, we will revise the business portfolio and business strategy according to the four categories of "Energy business", "Telecommunication business", "Flexible printed circuits (FPC)", and "Wire harnesses (WH)".
Opportunities to contribute to society in areas of Fujikura's strength await in the growth phase following the operational turnaround phase. We will use our strengths to further expand the optical cable business based on IT, provide solutions using electronic component-related technology in the healthcare area, and manufacture FPCs, connectors, and other peripheral products to support sensor systems in automated driving.
Fujikura will launch the operational turnaround with unflagging determination and become a sustainable and promising company to contribute to society through our "Tsunagu (connecting)" technology.
We will also introduce the Group's product information through Fujikura News again this year and look forward to your continued patronage.

Power & Telecom

Fujikura Releases Solution To Visualize Seasonal Flu Outbreak Risk (* this is just for Japanese market)

Fujikura has expanded the lineup of the solutions that use a sensor system employing a DSSC (Dye-sensitized solar cell) and started selling a solution to visualize the risk of a seasonal flu outbreak. Statistics show that the victims of flu are found especially among the elderly. There are cases where the infection spreads in places where many people are crowded together, for example, in schools. And then such the infection spread at schools may bring on it to elderly people. Therefore, reducing the risk of infection in such crowded places is thought to be one of the effective measures to decrease the number of the elderly who contract flu.

In addition, businesses are required to put more effort than ever before in strengthening the management of work environment, such as taking measures to prevent flu in workplaces including offices and worksites.

The following are the main product features:

- This solution uses the correlation between seasonal flu and absolute humidity obtained from the research by Dr. Shoji of Shoji Internal Medicine/Pediatric Clinique in Sendai City as the indicator for visualizing the risk of a flu outbreak. (Table 1)
- To calculate absolute humidity values, the sensor node measures temperature and humidity. The data is stored in Cloud and then visualized as risk information. The visualized information is available on customers' terminal screens including those of smart phones and tablets through the Internet anytime anywhere. In addition, when an absolute humidity value exceeds above a predetermined threshold value, an alarm is activated by the change of color of a terminal screen, warning sound, and email. (Fig. 1)
- Detecting a seasonal flu outbreak risk in the environment where the system is installed and announcing clarifying the risk by activating an alarm urge the people involved to maintain and adjust room humidity by humidification. This allows a reduction in the risk of contracting flu.
- The sensor node used for measuring temperature and humidity is capable of generating power and operating by itself because it is equipped with an energy harvesting device, a DSSC. This enables the construction of a completely wireless maintenance-free sensor network.
- This solution comes with an IoT solution to prevent heatstroke, which we released last summer, so customers who use the heatstroke preventing IoT solution can use the new solution without entering into a new contract or adding a new device. We will contribute to stopping infection with a seasonal flu virus before happening through the provision and proliferation of this new solution.

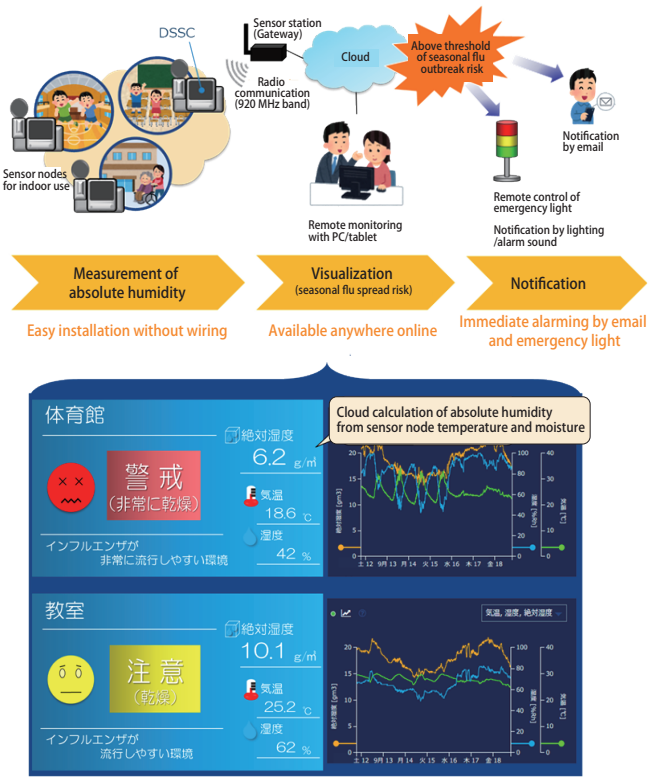
Moreover, the outline of system of this solution is available by clicking the link below:
https://eh-iot.fujikura.jp/

● Table.1 Indicator of absolute humidity where seasonal flu spreads

Absolute humidity	Seasonal flu outbreak risk	
Over 17 (g/㎥)	Virtually safe (highly humid)	Extremely low risk
17 (g/㎥) or less	Virtually safe (humid)	Low risk
11 (g/㎥) or less	Caution (dry))	High risk
7 (g/㎥) or less	Warning (extremely dry)	Extremely high risk

(Reference) Miyagi Medical Information Center Nationwide flu outbreak forecast (http://www.mmic.or.jp/flu/flu-list.php)

● Fig.1 Overview of the system and example of images on screen



Sensor and System Research Department ask-dsc@jp.fujikura.com

Power & Telecom

Introduction to ZLCX Series, Cable-type Antenna for 920 MHz Band RFID Communication

Fujikura Dia Cable Ltd. has developed high-power leaky coaxial cables, the ZLCX series, for 920 MHz band RFID (radio frequency identifier) communication. In recent years, RFID has attracted attention as one of the technologies in the IoT market. This technology is used to communicate with electronic tags incorporating ID information using radio waves and is applicable to different services including access control and storage management by attaching the tags to people or goods.

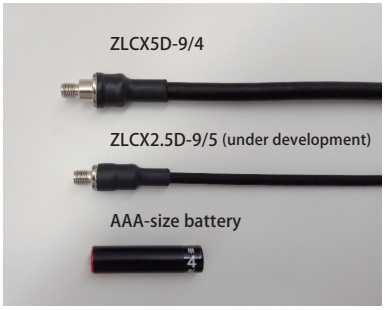
Leaky coaxial cables allows the construction of a stable communication environment near the area where they are wired by leaking radio waves outside the cables through holes bored in the external conductor of the cable at regular intervals. These cables have been used for radio communication in railroad, rebroadcasting of FM radio and mobile communication such as Wi-Fi. However, applying the LCX technology to RFID communication was difficult due to insufficient output power of the existing LCX cables. This is because passive RFID tags, which are often used in RFID communication, do not have a power supply and thus send back data using radio waves from the transmitter.

Our newly developed ZLCX5D-9/4 with ingeniously designed slots enabled improvement in output power and communication with passive RFID tags. In addition, since this product is a cable-type antenna with a 7 mm diameter, it can be installed in a narrow space such as a shelf in a convenience store to save space. The product is also easily adjustable for length and to various sizes of shelves to create a communication area. Moreover, a cable with an even thinner outer diameter of 4 mm, ZLCX2.5D-9/5, is being developed. These cables are expected to be used for different purposes such as store and storage management of different types, inventory in factories, and access control for people and goods in buildings.

Furthermore, we provided ZLCX5D-9/4 as an RFID reading antenna for demonstration testing as part of the FY2020 Project for Establishing Infrastructures for Enhancing Efficiency of Distribution and Creating Value Added Therein (Project for Food Waste Reduction in Convenience Stores Taking Advantage of IoT Technologies). The project has been commissioned to ITOCHU Corporation by the Ministry of Economy, Trade and Industry.

We will continue to contribute to the application of RFID technology at logistic sites including stores, storages, and factories.

● External view of ZLCX series



● Table of ZLCX series property

Product name	ZLCX5D-9/4	ZLCX2.5D-9/5
Cable outer diameter (mm)	approx. 7	approx. 4
Frequency (MHz)	915-930	915-930
Coupling loss (dB)*	38	46 (Reference)
Polarized wave	Linearly polarized wave	Linearly polarized wave

*Coupling loss is the difference between the power levels of transmitting power (Pt) of the LCX cable on an electromagnetic absorber and receiving power (Pr) of horizontal component of a standard dipole antenna 1.5 m apart from the cable and is defined as -10LogPr/Pt(dB). In addition, Pr is a 95% probability of the measured value in lengthwise direction.

Fujikura Dia Cable Ltd. https://www.fujikura-dia.co.jp/

R&D

"Dr. James Wong Award" Received from IEEE

Fujikura announces the receipt of the Dr. James Wong Award* from IEEE, one of the world's largest academic research organization and technological standardization institute, by Dr. Yasuhiro Iijima, a Fellow in the Superconductor Research Department in the Electronic Technologies R&D Center at Fujikura.

This is an award of great distinction that recognizes outstanding achievements and technological and academic contributions in the superconductor materials field over many years (normally 20 years or longer).

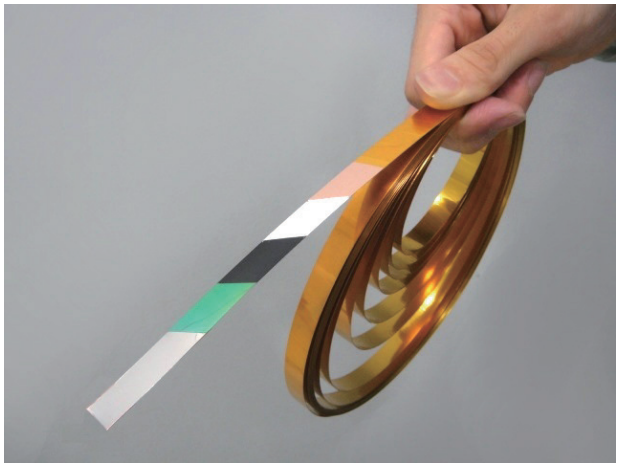
Iijima, a Fellow at Fujikura, has worked long time on the development of rare-earth-based high-temperature superconducting wire. He invented an ion beam assisted deposition method (IBAD method), indispensable for a mechanism to control the orientation of superconducting crystals, which presented the biggest challenge in practical application of the wire. He made a remarkable contribution to the practical use of a high-performance long wire that effectively incorporates this method and another key technology of artificial pinning.

The IBAD method has become widespread and is currently used by many institutions as an essential process in manufacturing rare-earth-based high-temperature superconducting wire. The wire manufactured using this method at these institutions is already being used in nuclear magnetic resonance equipment with ultra-strong magnetic fields and other devices, equipment, and products using advanced technology.

Fujikura will continue to contribute to widespread promotion of scientific technology through initiatives in the development of rare-earth-based high-temperature superconductor technology. We will also contribute to the realization of carbon-free society by creating products that use such technology and promoting their widespread use.

● Plaque sent by IEEE to commemorate the award

● External view of rare-earth-based high-temperature superconducting wire



New Business Development Center ask-sc@jp.fujikura.com

Fujikura Fujikura Ltd.

"Tunagu" Technology New Product News No.473
1-5-1, Kiba, Koto-ku, Tokyo, Japan 135-8512
TEL. +81 (0) 3 5606 1112 FAX. +81 (0) 3 5606 1501
Issue :January 2021, No. 473 Editor in Chief : Tomoharu Morimoto
https://www.fujikura.co.jp

Market Research & Planning Department +81(0)3 5606 1092
Kansai Office +81(0)6 6364 0373
Chubu Office +81(0)52 212 1880
Tohoku Office +81(0)22 266 3344
Kyushu Office +81(0)92 291 6126