GIST develops cleaning administration automation platform and receives excellence award for local problem solving project using science and technology

- AI Graduate School Professor Moon-won Lee's team develops an integrated automation platform for dispatching, vehicle control (FMS), operation logs, illegal discharge, operation route management, and waste collection volume statistical analysis of local government cleaning administration departments

- Plans to completely innovate cleaning administration work for local governments nationwide through the launch of public service-type software (SaaS)... "Optimizing current experience-dependent work operations by collecting and analyzing data in 5-second units with AI technology"

▲ Professor Moon-won Lee's AI Graduate School team participated in the 2024 'Science and Technology Utilization Resident Empathy Local Problem Solving Project' local government performance sharing meeting, received an award of excellence, and took a commemorative photo. (From left) I-ho Choi, head of the Regional Youth Policy Division of the Ministry of the Interior and Safety, Moon-won Lee, professor of industry-university cooperation at the GIST AI Graduate School, and Seong-hoon Min, head of the cleaning administration team at Gwangsan-gu Office

The Gwangju Institute of Science and Technology (GIST, President Kichul Lim) announced on the 26th that the AI Graduate School Professor Moon-won Lee's research team won 2nd place (Excellence Award) at the '2024 Science and Technology Utilization Resident Empathy Local Problem Solving Project' performance sharing meeting hosted by the Ministry of the Interior and Safety and the Ministry of Science and ICT and co-hosted by Ulsan Technopark and the National Research Foundation of Korea.

The 'Resident Empathy Local Problem Solving Project' is a project in which residents directly participate in the entire process from discovering local problems to solving them, and private companies and local governments cooperate to utilize digital technology to solve local problems.

Professor Moon-won Lee's team operated Living Lab* to collect opinions from the Gwangsan-gu cleaning administration team and environmental workers in Gwangju Metropolitan City for about 20 months from May 2023 and developed the cleaning administration work automation platform 'Superbucket (superbucket.kr)' based on the results of analyzing the living waste collection × transportation site.

* Living Lab: Living Lab, which means 'living laboratory', refers to a social innovation policy in which residents proactively discover problems in their lives, design solutions, and directly solve the problems.

Currently, the collection of household waste in Gwangsan-gu is entrusted to the Facility Management Corporation, and 23 collection teams, usually consisting of one vehicle and three personnel, carry out collection activities six days a week. However, since the COVID-19 situation, the amount of household waste and cases of uncollected waste have increased rapidly, and the need to solve these problems through data-based work efficiency has emerged.

Accordingly, Professor Moon-won Lee's team designed a service that measures the type, number, volume, weight, location, and time of volume-based waste bags being fed in real time using a 3D camera on the back of the cleaning vehicle and an 'edge AI' device in the driver's seat, and performs statistical analysis of the entire collection data on a cloud platform.

Afterwards, through living lab discussions with cleaning administration workers, the simple data analysis platform integrated the functions required for cleaning administration work, such as dispatching, vehicle control (FMS), operation logs, illegal discharge, operation logs, operation route management, and collection volume statistical analysis, and ultimately evolved into a public service-type software (SaaS)* with enterprise-level user management functions.

* public service-type software (SaaS, Software as a Service): This refers to a form in which the public sector does not own the software but pays only for what it needs and uses (subscription). Not only is the cost of purchasing the product greatly reduced, but since the cost of infrastructure investment and management is borne by the SW provider, users can always freely use the latest SW.

Professor Moon-won Lee said, "The problem of waste that increases every year and has no place to go is the dark side of civilized society, and it is an area where AI innovation technology should pay more attention. We hope that the ‘Super Bucket’, a cleaning administration automation platform developed in collaboration with Gwangsan-gu, will spread to local governments nationwide and become established as a public service software."

Meanwhile, the ‘2024 Local Government Performance Sharing Meeting’ was held at the Four Seasons Hotel in Seoul on Wednesday, November 13, and the top 3 teams that performed the ‘Science and Technology Utilization Resident Empathy Local Problem Solving Project’ were selected through document screening and on-site presentation evaluation, and the grand prize and excellence awards were awarded.