PRESS RELEASE

A.L.I. Technologies and Surveying App Development Startup MAPRY form Business Alliance to Streamline Inspection of Bridges and Other Road Facilities

2022/12/06

A.L.I. Technologies Inc.

A.L.I. Technologies Inc. (“A.L.I.”) announced that it has entered into a business alliance agreement with Mapry Corporation (Mapry), with the aim of jointly developing a hybrid solution for infrastructure structure inspection using drones and 3D point cloud data for infrastructure structure inspections.

■Background and Purpose of Business Alliance

Mapry is a start-up that develops applications for easily acquiring, seamlessly analyzing, and utilizing all kinds of spatial information, including three-dimensional information. In the field of forestry, Mapry has established solutions using its patented methods of measurement and analysis of groves and forests, as well as lumber detection (LiDAR and photogrammetry) technologies. In 2022, the Forestry Agency's Smart Forestry Development and Promotion Project Report announced that the development and diffusion of smart forestry construction released in FY2022 highlighted Mapry’s geospatial information application platform as a technology that contributes to the realization of smart forestry. At the same time, in the same report, Skydio, a US-made AI-equipped drone that A.L.I. distributes and provides solutions for, was used for aerial photography of forests and 3D modeling of forests, demonstrating the high affinity between drones and geospatial information solution applications in the forestry industry.

In this business alliance, the two companies will develop new solutions (inspection methods and applications) to promote the efficiency of maintenance and management data (periodic inspections) by applying these technologies, which Mapry has been developing in the forestry field, to infrastructure structure inspections, which A.L.I. is focusing on, in order to significantly reduce the cost of commissioned inspections of bridges and other road facilities

in local governments.　The objective is to contribute to the creation of a sustainable society and a strong national land structure by significantly reducing the cost of outsourced inspections of bridges and other road facilities in local governments.

■Awarded the Excellent Technology Award at the Infrastructure DX Competition

A solution developed by A.L.I. and Mapry, with a view to forming a business alliance, received the Technology Award for Excellence at the Infrastructure DX Competition sponsored by the Kinki Regional Development Bureau as "Drone Inspection Essentials Application (Mapry Inspection Survey Version): Proximity 3D Point Cloud and Drone Inspection Integrated Smartphone Application." This solution was awarded the Technology Prize.

This solution is designed to improve the efficiency of maintenance management data (periodic inspections), which is a pressing issue for basic local governments. It is an inspection application (hereinafter referred to as the "application") that replaces the analog process of hand-drawing to drawing with the automatic organization of 3D point clouds and images.

The main function is to take drone shots during inspections and surveys and acquire proximity 3D point cloud data with a smartphone, superimpose the drawing data on a map, and store images, videos, and 3D data. Existing 2D drawings, 3D point clouds, and drone photography data information can be integrated, reducing the burden of creating field plans on site and organizing data during internal work.　In addition, the application can visualize the linkage of data to image locations and photographed materials, which is an issue in drone inspections, by plotting them on the drawings. Furthermore, data transfer between the client and the contractor, as well as on-site bulletins, can be performed using only a smartphone.

In recent years, the use of drones in bridge inspections has been spreading rapidly due to the inclusion of the use of new technologies, such as drones, in the action plan of the Infrastructure Longevity Plan.　However, it is important that inspections are not limited to external inspections that can be covered by drones, but that they are also properly utilized in conjunction with visual inspections conducted in proximity.　Since there has been no readily

available tool to coordinate a series of operations that have been conducted separately, we believe that the wide spread of inspection methods using this application will accelerate the realization of infrastructure DX in bridge inspections.

Figure 1: Illustration of operations using the application, taken from the Infrastructure DX Competition materials

■Economic Effect

Based on the conventional inspection method using inspection vehicles, the most recent cost per bridge is estimated to be approximately 235,000 yen(*1) on average. By using Skydio drones and this application, which are marketed and operated by A.L.I., the external work of data acquisition can be reduced from 6 hours to 1 hour(*1), and the internal work of record creation can be reduced from 3 hours to 30 minutes. In addition, since inspection vehicles and traffic control personnel are no longer needed, the above work can be converted to a 60% efficiency and cost reduction when converted to direct labor from the start of traffic control to the creation of a damage map field book. The annual outsourcing cost of bridge inspections by local governments alone is estimated to be around 50 billion yen, so a reduction of 30 billion yen per year can be expected.

■Future Development

A.L.I. plans to promote bridge inspections using this application, starting with our civil engineering unit. At the same time, A.L.I. plans to start offering this application and Skydio aircraft for sale to construction consultants and survey companies throughout Japan. By expanding recognition of this new standard method of bridge inspection, we hope to achieve a reduction in infrastructure inspection costs for basic municipalities nationwide, thereby contributing to a stronger national land and a more sustainable society.

In addition to road bridge inspections, we plan to apply this method to water pipe bridge inspections, for which jurisdiction is scheduled to be transferred from the Ministry of Health, Labor and Welfare to the Ministry of Land, Infrastructure, Transport and Tourism in the next fiscal year and beyond. Since there is no set format for inspection of water pipe bridges, we estimate that the cost reduction effect will be even greater than for road bridges, and we will contribute to the standardization of water pipe bridge inspections in the next fiscal year and beyond.

<A.L.I. Technologies Inc.>

Under the mission statement Changing Society from the Top Down, A.L.I. has developed and released air mobility platform, C.O.S.M.O.S., and the *XTURISMO Limited Edition* Hoverbike. A.L.I. will continue to innovate, unbound by existing ideas, to develop and deploy systems that are necessary for the realization of an air mobility society.

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＜Mapry Corporation>

Mapry is a service for all people involved in surveying, forestry, disaster prevention, agriculture, and construction.　We provide solutions that facilitate the acquisition, analysis, and utilization of 3D data, which until now has been difficult due to the cost of surveying equipment and the difficulty of operating and analyzing such equipment.

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■Forward-Looking Statements

This press release contains statements that constitute "forward-looking statements." Forward-looking statements are subject to numerous conditions, many of which are beyond A.L.I.'s control. While A.L.I. believes these forward-looking statements are reasonable, undue reliance should not be placed on any such forward-looking statements, which are based on information available to A.L.I. on the date of this release. These forward-looking statements are based upon current estimates and assumptions and are subject to various risks and uncertainties. Actual results could be materially different. A.L.I. undertakes no obligation to update these statements whether as a result of new information, future events or otherwise, after the date of this release, except as required by law.

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[i] (*1)The figures are calculated based on the following

・Example of non-destructive testing technology for road bridge inspection (Kyoto Prefecture)
http://library.jsce.or.jp/jsce/open/00035/2014/69-06/69-06-0510.pdf

・Ministry of Land, Infrastructure, Transport and Tourism, Roads Bureau, Road Maintenance
https://www.mlit.go.jp/road/sisaku/yobohozen/pdf/h29/30_03maint.pdf

・Ministry of Land, Infrastructure, Transport and Tourism, Roads Bureau, Roads and Bridges, Ministry of Land, Infrastructure, Transport and Tourism, Roads and Bridges
https://www.mlit.go.jp/road/sisaku/yobohozen/tenken/bridge.pdf