

**TRI-AD**Toyota Research Institute
Advanced Development, Inc.**DYNAMIC
MAP
PLATFORM**

March 17, 2020

Toyota Research Institute - Advanced Development, Inc.
Dynamic Map Platform Co., Ltd.

TRI-AD and DMP kick off HD Map update PoC from April 2020

On March 17th, 2020, Toyota Research Institute - Advanced Development, Inc. (Headquarters: Chuo-ku, Tokyo, CEO: Dr. James Kuffner, "TRI-AD") and Dynamic Map Platform Co., Ltd. (Headquarters: Chuo-ku, Tokyo, President: Hiroyuki Inahata, "DMP") have agreed to a partnership to build a proof of concept ("PoC") applying the technologies of both companies starting April 2020. This PoC aims to demonstrate the efficient update of DMP's high definition ("HD") maps by using TRI-AD's open software platform, Automated Mapping Platform ("AMP") to detect and process changes in lane-level road features based on images and other data collected from vehicle sensors.

Demand for high-accuracy and high-quality HD maps for automated driving has been growing with the increased use of automated driving and advanced driver assistance systems (ADAS). It is essential for map building to capture changes in roadway attributes accurately and quickly, and update the maps with high efficiency. The conventional approach detects lane-level changes through on-site surveys using expensive survey vehicles and typically based on planned road construction notices. In this PoC, TRI-AD's image recognition technology automatically detects changes based on image data collected by commonly available cameras. By helping focus the survey fleet only on areas of change as they occur, it is expected to demonstrate a significant reduction in the cost of operating the fleet and an acceleration of the map update to users including automotive manufacturers.

TRI-AD and DMP will demonstrate the ability to update DMP's HD maps with an improved efficiency using the automatic change detection technology by TRI-AD's AMP based on images and other data of roadways in Japan. Aiming to start operation from fiscal year 2021, this PoC will study methods to further improve the frequency of HD map updates, and consider the use of AMP to update map data by Ushr, Inc. (a DMP Group company) that supplies its HD maps in North America.

Mandali Khalesi, Vice President of Automated Driving at TRI-AD said:

"I am delighted to collaborate with DMP, an industry leader in the development and management of high-quality HD maps through automotive manufacturers collaboration, on a map update system using AMP technology. This collaboration enables us to provide up-to-date map data for automotive manufacturers and other users, and accelerate technology development for AMP. Through this PoC, TRI-AD hopes to be able to offer safe and secure automated driving technology to users across the world."

Hiroyuki Inahata, President at DMP said:

"DMP Group is the leading supplier of HD maps for passenger vehicles in Japan and North America because of its exceptional data accuracy. Now, we seek to maximize the usability of mapped roads by capturing small changes in road elements. With TRI-AD's AMP change detection technology, DMP Group can improve the coverage and cycle times of map updates. I also believe that this effort will help improve the map update service for all of our clients. We are excited to work together with TRI-AD to extend AMP to other automaker ecosystems. The result will be lower data acquisition costs and better HD map quality for everyone."

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< About TRI-AD >

Toyota Research Institute-Advanced Development, Inc. (TRI-AD), located in Tokyo, Japan, was founded in March 2018 for the purpose of developing innovative products that will enable Toyota's vision, "Mobility for All." TRI-AD's mission is to create new technology and advanced safety systems for the world. TRI-AD also oversees Toyota's newly announced Woven City, that will serve as an incubator for smart city design, connected mobility, and robotics technology from Toyota and its partners.

For more information about TRI-AD, please visit: <http://www.tri-ad.global>

< About DMP >

Dynamic Map Platform Co., Ltd. (DMP) develops and supplies HD maps with centimeter accuracy level essential for estimating the accurate position of the driving vehicle and achieving safe and comfortable driving. DMP acquired Ushr, Inc. and made it a wholly-owned subsidiary in April 2019 to develop and supply HD maps also in North America, in addition to Japan.

<https://www.dynamic-maps.co.jp/>

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