DMG MORI

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Press Release

May 21, 2020

Joint Verification on 5G with KDDI for Achievement of Digital Factory - 5G Environment Ready at DMG MORI's Iga Campus and Tokyo GHQ -

DMG MORI CO., LTD (Head Office: Nagoya City, Aichi; President: Masahiko Mori; hereinafter called DMG MORI), began the joint verification and experiment (hereinafter called the Experiment) with KDDI Corporation (Head Office: Chiyoda-ku, Tokyo; President Makoto Takahashi; hereinafter called KDDI) to achieve digital factory using the fifth generation mobile communication system 5G (hereinafter called 5G) on May 21, 2020.

The 5G environment was established at DMG MORI Iga Campus (Iga City, Mie) in April with Tokyo Global Headquarters (Koto-ku, Tokyo) following in coming July, aiming for aggressive promotion of digital transformation (DX) throughout the entire manufacturing industry. We will further proceed with the development of cutting-edge solutions that contribute to higher customer productivity by use of the 5G technology featuring high speed, large capacity and low latency.

<Background of Joint Verification>

- In recent years, shop issues such as realization of variable production and high-mix low-volume production, improvement in productivity and standardization of operator skills have drastically changed. Along with increased machine accuracy and efficiency, customer needs for shop automation is increasingly growing.
- On the other hand, automation such as unmanned and night operation has problems to tackle. (e.g. machining failure and operation stop caused by chips generated during machining processes).
- DMG MORI facilitates the creation of digital factory that solves such issues and problems and for higher shop productivity, using cutting-edge technologies.

<Details of the Experiment>

 In the Experiment, the 5G technology is incorporated into the DMG MORI's new technology "Al-enabled chip removal solution*" by which the location and amount of chips are estimated based on images from cameras attached inside machine tools, and chips are optimally removed by means of automatic calculation of the cleaning paths.

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 Automatic collection of a massive amount of image data inside machine tools is accelerated using the 5G features of high speed, large capacity and low latency to verify the effectiveness of the incorporation of the advanced AI function.



Al-enabled chip removal solution - Image recognition



Al-enabled chip removal solution - Automatic cleaning nozzle

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<Future Plan>

- By use of 5G at two of the DMG MORI's operation bases, not only images inside machine tools but also
 a massive amount of data such as various sensor information are collected in real time. This allows us
 to grasp the machine operation status at customers' shops more accurately. We aim to develop the
 solutions for maximizing machine tool performance in collaboration with KDDI.
- The KDDI's 5G business development base "KDDI GIDITAL GATE" is used to carry out an in-depth study of shop issues and the verification on solutions.

*Chips accumulated inside machines are detected by AI and automatically removed, using the nozzles capable of discharging coolant to specified locations. The technology can help reduce the operators' workload for cleaning machines, making possible long hours of unmanned operation.