

# Unmanned Driving System Control Technology

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⇒ Autonomous control of high capacity electrohydraulic system and autonomous operation in off-road with autonomous driving and autonomous operation technology, which are core technologies of unmanned driving system



### Client / Market

- Construction machine/agricultural machine manufacturer
- Construction/civil engineering company
- Nuclear power plant/disaster response-related institution

### Necessity of this Technology

- Existing construction machine with autonomous working function can work autonomously but cannot drive at the same time.
- Existing autonomous driving technology is focused on driving on roads with infrastructures.
- Existing autonomous off-road driving lacks consideration of the ground shape.
- With the nonlinear properties of the hydraulic system, precision control is difficult.
- A multi-purpose unmanned driving system platform technology is needed.

### DESIRED PARTNERSHIP

Technology Transfer

Licensing

Joint Research

Other



### TECHNOLOGY READINESS LEVEL [TRL]



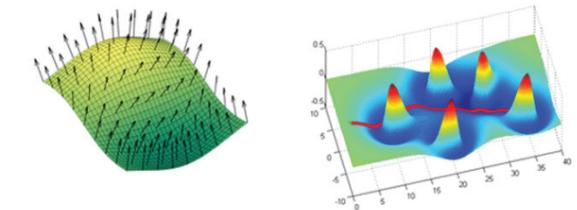
### Technical Differentiation

- Provides a technology for integrated platform of multi-purpose autonomous working and autonomous driving
- Generates routes considering the inclination and steep slope of the ground
- Enables precision control considering load characteristics of the hydraulic system
- Enables automatic work control using pattern input

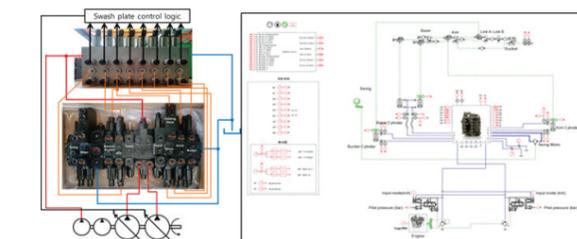
### Excellence of Technology

- Enables precision control of path following using an inexpensive, high-precision GPS
- Follows the route on a tough road
- Enables hydraulic system location control precisely to the cm-level
- Remodeled existing system with autonomous driving and autonomous working
- Possible to verify hydraulic system simulation and optimize control algorithm

Route generation considering ground shape



Electrohydraulic control remodeling technology Control algorithm development and optimization technology



### Current Intellectual Property Right Status

#### PATENT

- Patents application scheduled

#### KNOW-HOW

- Cheap high-precision GPS utilization technology
- Route planning considering ground shape
- Electrohydraulic control remodeling technology
- Precision location control algorithm optimization technology for hydraulic system