

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]



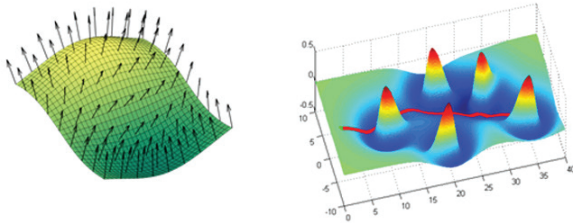
Technical Differentiation

- 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

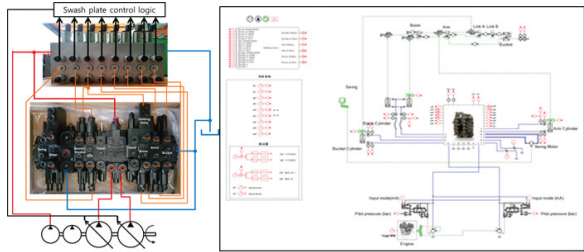
Excellence of Technology

- 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