

Penetrating Radar Robot Solution to On-site Inspection

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Based on the lessons learned during On-site Inspection (OSI) workshops; training courses and exercises, especially the Integrated Field Exercises (IFE); remotely controlled ground platform based geophysics detection systems, due to the practical application to hazard challenging conditions, would have their significance both for future real OSI activities and training courses of current stage. This work has put forward a remotely controlled ground penetrating radar (GPR) robot based on a commercial off the shelf GPR system demonstrated during SnT20021. The remotely controlled platform applies integrated-inertial /GNSS/high-precision-RTK positioning and navigation, so as to locate the position of GPR in real time. At the same time, advanced motion control algorithms have been developed to achieve the automatic movement of the platform once the scope and spacing of detection have been input into the control system. Meanwhile, the 2-D and 3-D GPR data acquisition could be achieved and integrated with the RTK positioning data. 2-D, 3-D and horizontal scanning data displaying mode could increase the target recognition accuracy and reduce the false alarm and target missing rate. This system has been tested and verified in the field and can be suitable for the development of concepts of operations during future IFEs and OSI training courses.

Promotional text

This work has put forward a remotely controlled GPR robot based on the commercial off the shelf GPR system. This system has been tested and verified in the field and can be suitable for the development of concepts of operations for future IFEs and OSI training courses.

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