Business from technology

Novel Potentiometer Sensor Interface DiagSens™

Problem

Potentiometers offer a simple, cheap method of getting absolute position measurements, but potentiometer wear and its resistive track gets dirty and becomes oxidised over time causing an increase of contact resistance and intermittent contact losses. Also sensor wiring could short circuit or break. Studies show that of over 80% of the field returns, the cause for malfunction was not found, and less than 10% of samples were actually worn out.

Invention

The invention is to use a slightly modified electrical interface for the sensor potentiometer. This interface makes it possible to detect and identify all potentiometer sensor and wiring faults. After a single fault it is still possible to measure the wiper position in 64% of the cases (pseudo-redundancy). It makes it also possible to measure contact resistance continuously during the operation and predict the wear. The interface also has other benefits, like insensitivity to disturbances.

Patent pending.

Solution

This novel interface can be used either in control systems or field test equipment. It is very simple to implement and does not need excessive computing power. Accurate fault detection speeds up corrective actions and reduces unnecessary sensor replacements. Pseudoredundancy increases availability and wear prediction makes predictive maintenance possible.

VTT is looking for an industrial partner to license the invention.

Why partner with VTT?

10 reasons for technology partnering with VTT

1. Key factor in Finland's success story with a track record to prove it
2. Licensing and co-venturing opportunities
3. Portfolio of more than 1,000 patents and inventions
4. New business and product concepts based on strong IP and world class research
5. Combined experience of more than 2,000 motivated researchers in eight focused areas of technology
6. Active member in hundreds of scientific & business communities
7. Excellent track record as coordinator and partner in EU projects
8. Collaboration with TOP 50 R&D companies in Finland
9. Global R&D partnership with 50 Fortune 500 companies
10. Market driven multi-disciplinary solutions

Additional information

VTT Technical Research Centre of Finland
Inka Orko, Business Development Manager
Tel: +358 20 722 6630
inka.orko@vtt.fi
P.O. Box 1000, FI-02044 VTT, Finland