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Development of Real Time Monitoring System Using Controller Area Network

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Abstract

This paper presents a new development of a real time monitoring subsystem in a general-purpose real time monitoring and diagnosing system using controller area network (CAN) technology. To validate the designed concept, several vehicle electric utility devices are constructed as CAN nodes and are integrated into the CAN bus. An intelligent transducer to convert utility current and voltage is designed and fabricated with micro-controllers. An automatic node detection mechanism is also developed and added to detect the newly jointed/retrieved nodes and record the running history for further diagnosis when system or device malfunction happens. The system design configuration, implementation and verification are demonstrated with actual test data, and the test results demonstrate that the proposed system accomplishes real time electric power monitoring with diagnosis capability.

Key words：Automatic Node Detection;Controller Area Network;
Intelligent Transducer;Real Time Monitoring System