



SYSTEM AND METHOD OF DETECTING AND LOCATING INTERMITTENT ELECTRICAL FAULTS IN ELECTRICAL SYSTEMS

Detection/Monitoring of intermittent electrical faults in electrical wire systems

Contact

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Inventor

Charles J. Kim, Ph.D

Field

Electrical and Computer
Engineering

Technology

Electrical fault detection

Key Features

- Real-time monitoring
- Easily integrated within existing electrical system
- Easily adapted to a variety of electrical systems

Stage of Development

Prototype has been developed.

Status

Seeking development &
licensing partner.

Patent Status

Patent pending

Electric Wire Intermittent Fault Detector

Howard University has developed a method and circuitry for use in data error monitoring of communication over an electrical wire system. This invention allows for the detection of intermittent electrical faults in electrical wires. Upon the finding of the transmission errors and comparing with a threshold, an alarm or annunciation is activated to alert the user of intermittent fault.

Intermittent fault situations in wiring systems, unless detected timely, can develop into permanent faults that may lead to problems within the system including: mission abortion, electrical fire, fuel tank explosions, and other dangerous fault consequences. In the event of an intermittent fault, a wiring system will operate normally as if nothing has happened; however, it can be the precursor to permanent faults. These types of faults are elusive and expensive to locate and detect within existing wiring systems.

The invention is an intermittent fault determination system that can be conveniently installed and operated within an existing electrical system or applied within a newly developed system. In addition, it can be adapted to a variety of different types of electrical systems. For example, wiring systems within aerospace, automotive, nautical and construction.

This approach is unique and differs from previous diagnostic methods of wire fault detection. The detection system contained herein injects a signal at one location of the electrical wire system and diagnoses the health status of the system by measuring the error rate of the signal at another location. If an error is found, an alarm or annunciation is activated to alert the user of an intermittent fault.

This intermittent fault detection technology provides an effective tool for continuous, real-time monitoring of the wire system to predict, detect and locate random and unpredictable electrical failure.

Opportunity

Howard University is looking for a commercial partner to further develop this system.



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INVENTOR

Charles J. Kim, Ph.D.
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EDUCATION

Ph.D., Electrical Engineering, Texas A&M University, 1989
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SPECIALTY

Power Electronics and Computer Applications, Power System Automation and SCADA, Predictive Maintenance and Diagnostics, Artificial Intelligence Applications, AM/FM/GIS and Electric Fire Investigation