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IEEE IoT Journal Special Issue on
Prognostics and Health Management using the Internet of Things

Prognostic and Health Management (PHM) is a branch in engineering that seeks to provide engineering decision support based on the health state of a component, equipment/machine, and/or an entire engineering system. PHM normally starts with collecting various sensing data from an engineering system/component, and uses the collected data to build models for predicting the remaining useful life (RUL). The RUL quantification can then be used to support decision making on predictive maintenance, replacement, and other operations and asset management. As an emerging key technique for gaining competitive advantage, PHM can improve system reliability, maintainability, safety, and affordability with lower operations cost.

Our society has benefited from PHM over the past few decades. In spite of the fact that PHM technologies have saved countless resources, including time and money, there are still challenges that need to be addressed. For example, recent tragedies in the aviation industry are attributed to the results of degradation or manufacturing faults in airplane parts or software faults. We are reminded by these real-life accidents that PHM technologies have not yet reached its full potential. It is imperative that more attention be paid to this field than ever before, not only to save time and money, but to protect people's lives as well. The emergence and rapid development of Internet of Things (IoT) technologies may provide a solution for the next evolution of PHM technologies. Through the use of IoT technologies, the operating conditions and system performance indices of machines can be monitored in real time using multiple IoT sensor sources through a coordinated data collection matter. This could provide more accurate estimations of the RUL or early warning of potential failures. Thus, this special issue is devoted to PHM using the Internet of Things.

Topics of interest include, but not limited to:

- Remaining useful life estimation with IoT
- IoT for transportation and aerospace safety
- IoT infrastructure deployment and optimization for PHM
- IoT sensing data fusion using Artificial Intelligence and Machine Learning
- Reliability and maintainability of IoT infrastructure
- Cost analysis and performability of IoT deployment in PHM
- Fault and anomaly detection and isolation with IoT
- Security of IoT for PHM applications
- Application of PHM with IoT in industry
- Integration of IoT systems with PHM
- PHM using IoT Big Data on cloud
- PHM and medical device monitoring through IoT infrastructure
- Data fusion and modeling using IoT for PHM
- Edge/fog/cloud computing and modeling using IoT

Important Dates:

- Submission Deadline (**Extended**): January 31, 2024
- Final Manuscript Due: April 30, 2024
- Publication Date: May 2024

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