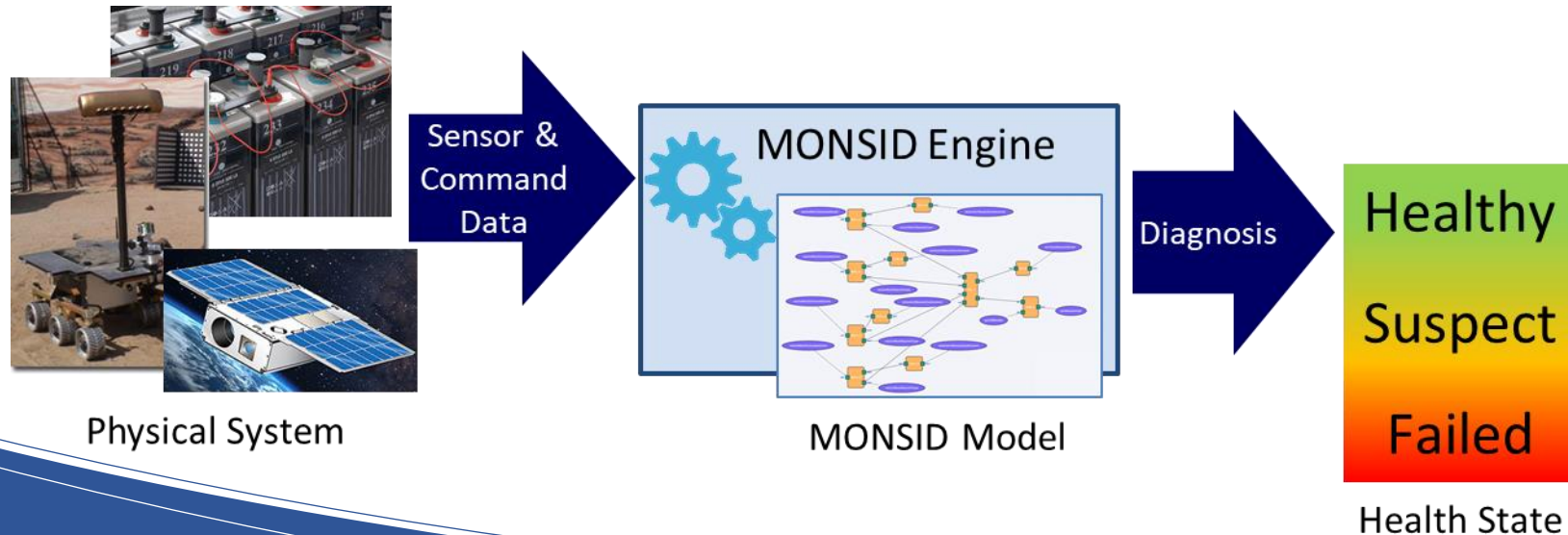# MONSID is a product of Okean Solutions, Inc.

Real-time fault detection and identification for increased autonomy

Physical System → Sensor & Command Data → MONSID Engine / MONSID Model → Diagnosis → Health State (Healthy, Suspect, Failed)

MONSID®

Is a model-based software package designed to detect and identify hardware faults and off-nominal behavior.

Can be applied to virtually any electro-mechanical system.

Detects faults AND identifes the source of faults, unlike limit checking.

Enables systems to be continuously aware of their own health state. Self-aware systems can respond to problems and replan activities on their own, saving time and money.

Protect *Your* System with MONSID
Robotics   Power systems
Medical Devices   Operations Support
Test Facility Monitoring

MONSID applications
- NASA/JPL Athena test rover
- Caltech state-of-the-art test facility
- JPL Technology Development Programs (Assurance and Autonomy Framework)
- CubeSats (ASTERIA)
- Air Force Research Lab autonomy testbed

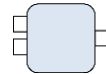# MONSID Fault Diagnosis: Scalable, Modular, Reusable *and* Verifiable

Use It Where You Need It

- Small footprint, lightweight, minimal RAM requirements
- Designed for real-time monitoring
- Can be used in conjunction with existing fault response/recovery mechanisms
- Update and reuse models on similar systems

MONSID Models

- ✓ Represent physical hardware components and their nominal behavior
- ✓ Can be adapted from hardware specs, data sheets, existing models used in control design
- ✓ Fault models not needed
- ✓ Relatively simple models proven highly effective
- ✓ Models are independently verifiable

MONSID Software

- ✓ Compact and modular API
- ✓ Platform independent
- ✓ C++, C#, C versions available
- ✓ API enables your own tool creation and customizations
- ✓ Leverage the out-of-the-box executive, or a specialized one can be built for your system.
- ✓ Developer's Guide and code examples

MONSID Toolkit Web App

- ✓ Visual model design
- ✓ Model validation and verification
- ✓ Post-run analysis
- ✓ Diagnosis visualization
- ✓ Analyze fault diagnosis resolution using model topology

Enhance Integration and Test

- Effective even for sensor-poor systems
- Fault Management design can be started earlier in project lifecycle
- Can uncover control software and operation errors
- Models validated once, can be used in all phases of project cycle
- Offers higher fault coverage than traditional fault monitors/limit checkers

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MONSID is a product of

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Want assistance building models and integrating MONSID? We're happy to help with that!

MONSID stands for Model-based Off-Nominal State Identification and Detection.