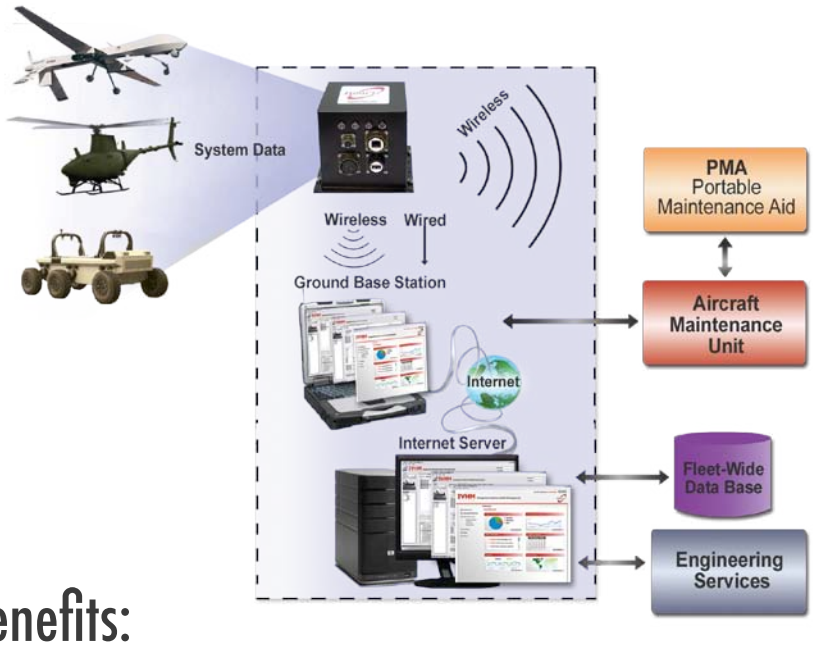
Integrated System Health Management for Unmanned Vehicles

Reduced Maintenance Costs

Impact Technologies, LLC has developed an Integrated System Health Management (ISHM) system capable of providing real-time health assessments of critical subsystems on unmanned air, sea, and surface vehicles. The on-board element of the system acquires analog and digital data from sensors and the vehicle bus and processes this data to assess the health state of the underlying mission critical subsystems. These health assessments are then supplied to personnel via the ground based element to support optimal management of the vehicles' operations, maintenance, and logistics activities by providing advanced warning of developing failures and specific corrective action recommendations.



Benefits:

- Improved Mission Reliability by providing asset health visibility
- Increased Time on Target by supporting capability based mission contingency management
- Increased Mission Safety by providing indications of flight critical failures
- Reduced Maintenance Costs by interpreting health information to supply personnel specific maintenance actions
- Increased Readiness by providing lead times on required repairs and supplies
- Lower Total Ownership Cost by supporting optimized operation, maintenance, and logistics

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Features:

Embedded Hardware

- Utilizes 3lb COTS hardware platform to acquire signals directly from sensors or tap into vehicle's data bus
- Utilizes subsystem specific state of the art PHM modules to monitor the health state of mission critical subsystems across the vehicle
- Utilizes scalable approach to support either centralized or distributed (multiple processing nodes) implementations depending on the size and complexity of the vehicle

Ground Station

- Supports local (co-located with system) and enterprise level users (via internet or other WAN)
- Supports additional analyses of health information at the vehicle and fleet levels:
  - maintenance reasoning (relating assessed health status to corrective actions)
  - data trending
  - data archiving
- Supports integration with fleet-wide data networks and offline engineering analysis and support capabilities via web-enabled services
- Utilizes standardized data interface architecture