

Network Connected Ammeter

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The proposed idea of a network connected ammeter solves the problem of uncertainty of the on/off state of a manufacturing machine. The ammeter should be a non-intrusive device that does not damage/modify the machine. Since it is non-intrusive it would have no way of interrupting the machine's operation- and thus is safe from computer viruses or malicious use. An inductive coil, hall effect sensor, or shunt resistor can be used to measure the current running through the cord powering the machine. The ammeter would be included within an embedded system, such as a microcontroller with wifi or ethernet capabilities to read the state of the machine, and send out that information as an MTConnect agent. By using the device, machines can be monitored by external software for uptime/downtime time, allowing for efficient job scheduling based on actual manufacturing time. The current output of the ammeter can be used to derive correlations for various traits of the machine, such as tool wear and speed of production, which would allow predictions for when a machine needs repair and prevent future downtime.