

# MACHINE2MACHINE SOLUTIONS

HMI - SCADA - LIFE CYCLE MANAGEMENT

## Machine-2-Machine

“The Internet of Everything (IOE) is a global industry phenomenon, where the intelligent networked connections between people, process, data, and things make networked connections more relevant and valuable than ever before.” - Wim Elfrink (Cisco).

M2M refers to technologies that allow measurements of real world events such as Temperature, Pressure, Energy, Machine Performance to be securely transferred using the Internet as a network (often supplied by Telco Operators) to a central repository of data. Once in the central database the application layer can include real-time or big data analytical solutions to extract some economic value around the machines being monitored.

Having been designed and implemented on many telemetry applications the Adroit Technologies SCADA is the perfect M2M platform on which to build cloud-based or locally hosted M2M solutions.

## MAPS M2M

Adroit Technologies have a number of M2M offerings which are designed to meet various customer needs. Based on the Mitsubishi FX PLC, or bespoke IIoT board and also offering support for custom embedded solutions all three options work seamlessly with the MAPS SCADA. The M2M Protocol was developed with 25 years' experience in industrial telemetry as well as a deep understanding of operating over telco IP networks.

The Mitsubishi FX PLC, Is used where a customer requires robustness and programmability, a bespoke board is used where a customer requires less flexibility and lower cost and we can integrate all solutions where a customer has designed their own board but wants to leverage the communications and ease of application development offered by an off-the-shelf SCADA

## The Key Differentiators

The MAPS M2M protocol is a full telemetry protocol that offers the following features and benefits to customers;

- The field device is the master of communications, this means that the device makes the connection back to the host MAPS SCADA. This means that users are not bound to using any network operators services or be bound by any contractual obligation. It is possible to simply put in any data SIM card. The big advantage is that it becomes a truly global M2M capable solution as you do not need fixed IP's. The only fixed IP you require is at the host SCADA.
- The internal link manager gives users an indication that there may be a problem on a particular device. This allows users to alarm if the communications link goes down.
- The protocol supports polling for real-time data, polling for history of data stored on the device and exception based and alarm/events data. All these are buffered should the link go down and emptied once the link is re-established. This gives users the ability to manage how much data they wish to transmit.
- An estimate statistical data around the device is available including (errors, messages, Rx/Tx data).
- In order to assist with the data management it is possible to “empty” the historical buffer based on a percentage use basis (25%, 50%, 75% and 100%).

The MAPS M2M solution does not require a fixed IP or Dynamic DNS middleware. This means you can use this solution on any GPRS network and not require a static IP from your ISP (Internet Service Provider). The only fixed IP required is at the MAPS M2M I/O Server. Low Bandwidth Impact: MAPS M2M offers efficient communications with cost effective data transfer costs. The hardware can be configured to send data on a time interval, when storage buffer limits are reached or manually polled. Event and alarm data is transmitted to the SCADA immediately. Communications can be set to “live” mode which will show real time data. This gives users a complete capability of managing what and how much data is transferred.



## **Interoperability**

The ability of cyber-physical systems (CPS), humans and “smart factories” to connect and communicate with each other via the IoT and the Internet of Services (IoS).



## **Virtualisation**

A virtual copy of the physical processes or “smart factory” created by linking sensor data with virtual plant models and simulation models.



## **Decentralisation**

The ability of CPS within the smart factory to make decisions on their own.



## **Real-time Capability**

The capability to collect and analyse data and provide the insights immediately.



## **Service Orientation**

Offering of services (CPS, humans and smart factory) via the IoS.



## **Modularity**

Flexible adaptation of smart factories for changing requirements of individual modules.

## **Functionality & Key Benefits**



## **Master Communicator**

Makes the connection back to the host, leaving users unbound to using specific network operators as any data SIM card can be used.



## **Internal Link Manager**

Gives an indication of possible problems on devices and allows for alarms to be set for if the communications link is lost or interrupted.



## **Data Transmission Control**

Supports polling for real-time data, history of data stored on the device, allowing management or control of the level of data being transmitted.



## **Statistical Data**

Estimate statistical data on devices are available, such as errors, messages, Rx/Tx, etc.



## **Data Management**

It is possible to “empty” the historical buffer, assisting with data management, based on a percentage-use basis - 25%, 50%, 75% and 100%