



Metering system

Utility Systems offers water service providers an entirely **integrated water usage control system** for domestic and small commercial consumers, incorporating automated meter reading (**AMR**), Automatic Meter Control (**AMC**) and advanced metering infrastructure (**AMI**) technology.





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The system makes use of radio communications between USC Water Management Devices installed alongside client water meters and a Mobile Data Collector, which in turn transfers the data via a Data Bridge directly into the utility's existing billing system either by means of a GSM modem or USB port.

The system and its components have all been developed by Utility Systems, using cutting edge technology, yet are all extremely cost effective.

System Components

The system consists of the:

- Water Management Device (WMD),
- Mobile Data Collector (MDC),
- Data Bridge Application (DBA)
- Field Support Terminal (FST).

Water Management Device (WMD)	An integrated water control valve with onboard microprocessor ,radio transceiver and LCD to monitor, control and display the consumer's water usage. More details are described in the WMD detailed technical brochure
Mobile Data Collector (MDC)	Collects data transmitted from the installed WMD's and conveys this data via the Data Bridge Application Software to the Utility. The MDC has the same type of short- range radio transceiver utilized in the WMD's , a solid-state onboard memory, a USB interface and an optional GSM module.
Data Bridge Application (DBA)	Forms the bridge between the data collected from the consumer and the water service provider's existing billing system. The application can take several forms <ul style="list-style-type: none"> · a data file viewed as a spreadsheet on a standalone computer, · a PC based application which formats, stores and processes the data received; · an online data base , or even a fully independent server implementation. <p>Each option has its own specific advantages addressing the needs of projects of virtually any size .</p>
Field Service Terminal (FST)	An in field programming and testing platform for the WMD's. It is essentially a PC based software application that can be deployed on any Windows based platform (from notepad or laptop to desk top PC), a Utility Systems Infra Red communication probe and optionally a Utility Systems Mobile Data Collector.

Operational Benefits

The implementation of the Utility Systems AMR/AMI allows for easy and accurate meter reading, analysis of consumption patterns, data collection, leak and tamper detection, remote disconnection and reconnection of defaulters and various other features. Importantly the system has been designed to accommodate geographic areas with poor communication infrastructure either as a walk-by or drive-by, dependent on the utility's preference.

The Data Bridge Application and the Mobile Data Collector are envisaged as an extension of the water service provider's existing billing system and not as a replacement thereof. This obviates the need for dual management systems, reduces the cost of acquisition and ownership and the need for extensive re-training of staff. Easy to use features have been incorporated to allow for the seamless transfer of data through the Data Bridge Application into the water service provider's billing system.

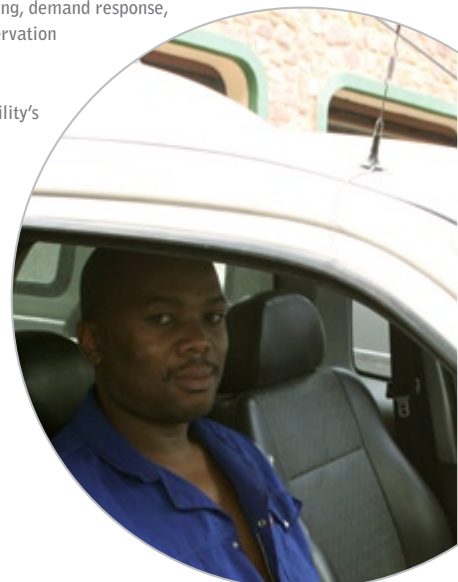
Since WMD's are not reliant on a proprietary billing system, implementation can be on an ad hoc basis, interspersed amongst the installed meter base in a discrete zone, or as part of a network - wide initiative as required.

When a discrete zone is fully populated, including the system, zonal or network meters measuring imports and exports to/from the zone enables a true synchronised water balance to be calculated with all devices recording their readings at the same designated time.

System Capabilities

The system records relevant billing data, event alarms such as tamper and leak detection, as well as capturing interval data and logging this to memory. This data can be used for profiling, time of use billing, demand forecasting, demand response, rate of flow recording, conservation enforcement, etc.

This greatly enhances the utility's ability to turn its data into information, just as happens in any other business sector.



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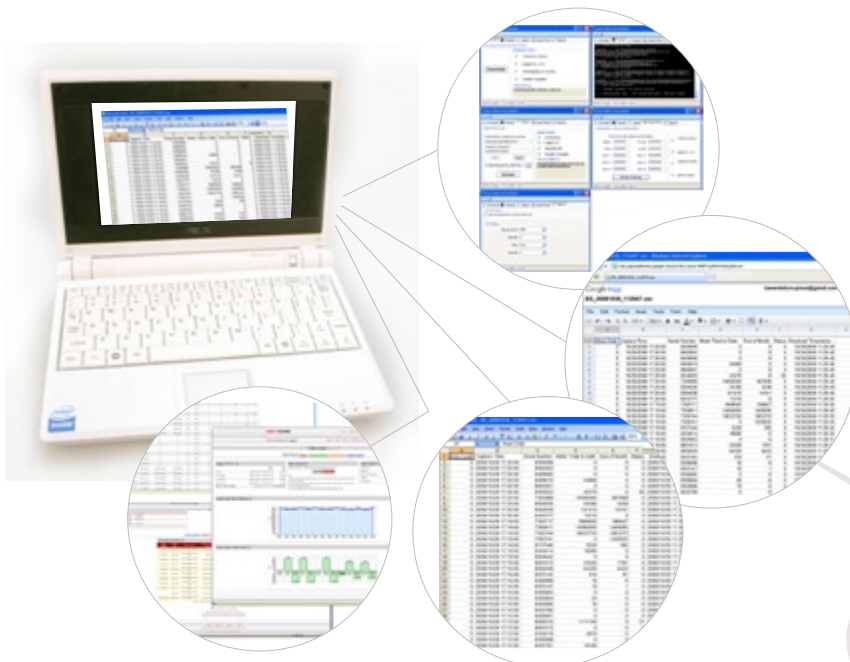
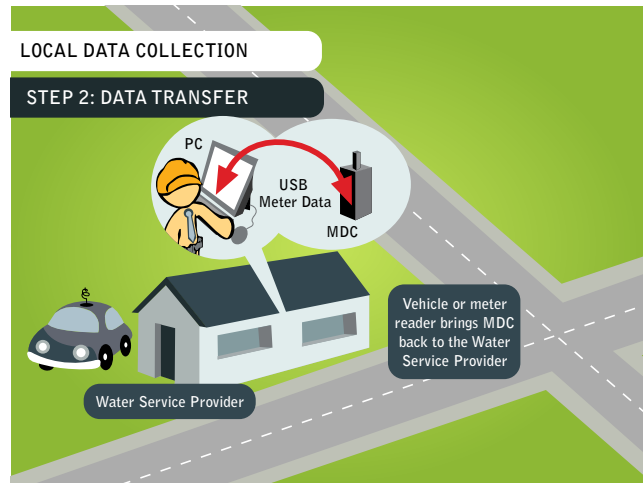
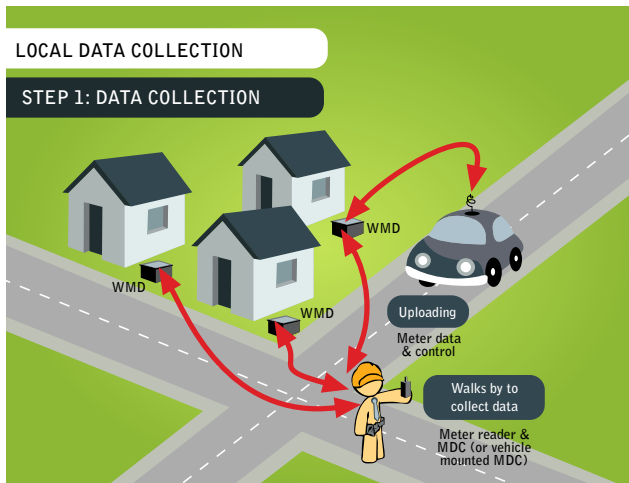


Implementation

Set out below are some of the implementation options available. In all three options there is the added ability to implement the actual data capture either as a walk-by or drive-by:

Local:

This is the simplest system targeted at closed communities that are responsible for their own revenue collection. In this implementation the data is collected by the Mobile Data Collector and transferred via USB cable to the to the Field Service Terminal, which also serves as the billing system. The data is downloaded to the FST and is presented in a spreadsheet format listing date and time-stamp, meter number, meter reading and various other control data. This can then be sorted by meter number and compared to a previous recorded meter data file. The difference between the corresponding records is then automatically calculated, and the appropriate amount billed. Returned commands for WMD control such as changing configuration, disconnections etc are also supported.



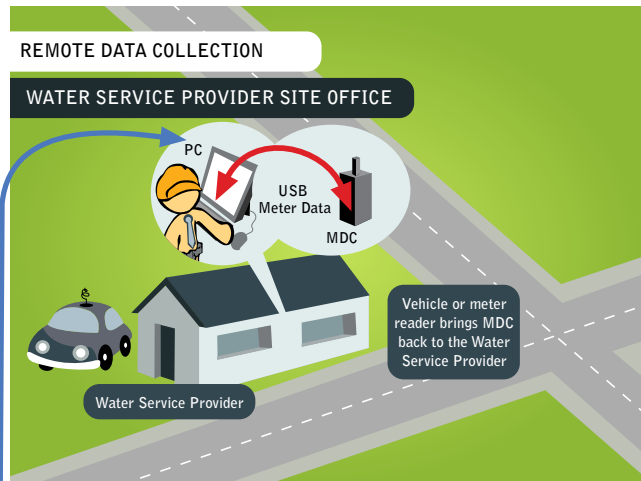
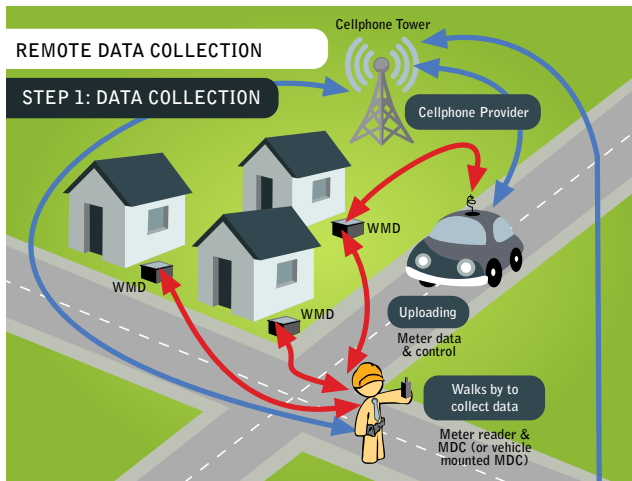
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Remote:

This implementation utilises either internet connectivity and/or the cell phone GSM network in order to transfer data from the customers' installation to the water service providers' database. Once data is downloaded into the MDC (whether via walk-by or drive-by), it can be uploaded to the billing system from a PC in a remote office via the internet and/or from the MDC to the database via a GSM network.

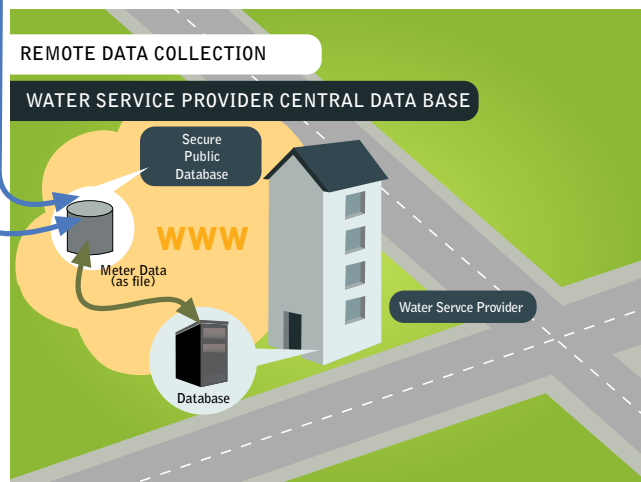
This system has the added advantage of having a rudimentary offsite data back-up through a secure public server. This can then be viewed from any location with appropriate passwords and permitted access.



Further Information

Please visit our website at www.utility-systems.co.za

For related information please see our Water Management Device (WMD), Field Service Terminal (FST), and Flow Limiter brochures.



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