SMART METER SYSTEM FOR REMOTE READINGS, BILLING AND LEAKAGE DETECTION FOR ENERGY RESOURCE

PCT/IT2009/000234
"ITALIA Camp 2012", sponsored by the Presidency of the council of Ministers

"Talento delle Idee 2012"

"UpStart Paolo Traci"

"Techgarage 2013"
MiDoMet is a "smart metering system" based on an innovative electronic device, self-powered with 10-year life cycle, is extremely versatile and can be connected to any type of mechanical meter, or sensor, which stores meter read data, and send through wired or wireless network to a management system that we provide also as a cloud computing service. The transmission protocol is open, and the data transmitted can be easily integrated with existing data management system.
FEATURES

Automatic reading and consumption storage
Transmission of the readings via GPRS or radio WM-BUS
Management Software as a Cloud Computing Service
Remote and easier management of meters/sensors network
Timely reporting of failures and losses
Temperature and pressure detection
Functioning parameters remotely configurable
It connects without modification to any type of sensor

BENEFITS

Savings on operating costs
Constant monitoring and timely consumption
Bill on real consumption
Remarks: losses / thefts and follows the evolution, the amount of
time and date blocks Report, peak values of anomalous
Sensor unsuitable: over-or undersized
Quantifies the resource is not accounted
Savings and rationalization of consumption: estimated consumption
during certain periods or time slots
Possibility of billing volumes consumed at certain times
Stimulates users to a more rational consumption
Monitoring and integral control of network
WHY MIDOMET,

SYSTEM FEATURES

NO CHARGE FOR NETWORK INFRASTRUCTURE. MiDoMet uses GPRS to send data therefore network does not require the installation of any equipment obtaining savings in time and money.

RETROFITTING ON EXISTING COUNTERS AND EQUIPMENT without damaging the seals present and maintaining compliance with the rules in force relating to security and certificates.

EASY CONNECTION to any mechanical or sensor to monitor the resource (gas, level reservoirs, etc.) or events (block counters, fraud, etc.).

MINIMIZE COSTS AND TIMES OF COMMUNICATION through the use of data compression.

ENERGY SAVING AND BATTERY LIFE OVER 10 YEARS through the use of low powered components and the implementation of algorithms that minimize energy consumption.

SOFTWARE DATA MANAGEMENT AS CLOUD COMPUTING Service customized to the client and without additional investment in hardware and software resources.
VERSIONS: **MIDOMET MASTER**

concentrator for collecting consumption data by radio WM-BUS OM (EN 1434), from meters (water, gas, heating), and sending via GPRS to the management system.

It is addressed to:
Domestic use or Industrial use: as Resorts, Hotels, Industries.
Utilities Company: municipalities, Companies in distribution or management of energy resources.
FOR DRINKING WATER AND GAS

for monitoring of large water or gas consumption, sub-distribution or blocks with collectors counters. Offering 12 inputs for connection with counters or sensors (for example temperature and pressure) and GPRS communication interface. (even LITE version up to 5 inputs)

It is addressed to:
Condo with collectors counters, large utilities (high consumption): Irrigation, Industries, Sub-distributions (such as support for the detection of leaks and breaks down on the network) to organizations such as: water utilities companies, municipalities, distribution or management companies of energy resources
MIDOMET SPECIAL

Custom Projects Monitoring:
sewage and waste water even with the use of ultrasonic sensors,
water quality,
photovoltaics,
vending machines for drinking water
HOW IT’S DONE:
ARCHITECTURE AND CLOUD COMPUTING SERVICE FOR MANAGEMENT

MiDoMet is a full service consisting of both the remote reading device to be associated with mechanical counter, both from the management software, customized for the customer, also provided as a cloud computing service, without investments in infrastructure (both hardware and software) and human resources management.

Operation of the system:
- The device picks up the meter readings
- stores them in a local memory of large capacity
- and sends them through the GPRS network to a remote management system for the presentation, analysis and utilization (eg billing).
# TECHNICAL SPECIFICATIONS

## INGRESSI

<table>
<thead>
<tr>
<th>Multi Input (More Sensors on One Device)</th>
<th>Up to 12 inputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Sensor or Meter</td>
<td>No limit on the flow rate or diameter or type of sensor</td>
</tr>
<tr>
<td>Retr膏ting (Insertion on the Already Existing Counters)</td>
<td>retrofitting on existing meter</td>
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## ANALISI

<table>
<thead>
<tr>
<th>CPU Module</th>
<th>Microcontroller ARM</th>
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<tr>
<td>Storage Module</td>
<td>1Mbit flash memory, about 15000 readings</td>
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## COMUNICAZIONE

<table>
<thead>
<tr>
<th>Data Transmission Module</th>
<th>GPRS communication via bidirectional modem OEM GSM/GPRS QUAD BAND</th>
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<tbody>
<tr>
<td>Serial Communication</td>
<td>Serial port RS485/RS232</td>
</tr>
<tr>
<td>Characteristics of the Transmission</td>
<td>Time referenced data: each reading is stored along with the time and date on which it was detected</td>
</tr>
<tr>
<td>Retransmission and Data Recovery</td>
<td>In case of communication failure system provides for the retransmission of data</td>
</tr>
<tr>
<td>Antenna</td>
<td>Antenna Quadri Band coaxial cable SMA 3mt/5mt</td>
</tr>
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## INSTALLAZIONE

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<thead>
<tr>
<th>Fixing</th>
<th>2 dowels Ø 6</th>
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<tbody>
<tr>
<td>Environmental Conditions</td>
<td>Operating Temperature: -20°C ÷ 55°C</td>
</tr>
<tr>
<td>Protection Level</td>
<td>IP 67 - IP 68</td>
</tr>
<tr>
<td>Dimensions</td>
<td>275x100x38(mm)</td>
</tr>
<tr>
<td>Display e Tasti a Membrana</td>
<td>Membrane with 4 buttons and informative display</td>
</tr>
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</table>
DATA ALWAYS UPDATED:
DATA TRANSMISSION AND ALERT EVENTS

Data are transmitted via GPRS to the information system.
The configuration (including frequencies of transmission of data, alarms) can be changed remotely.
In case of failure, the alarm is sent IMMEDIATELY, and it is asynchronous in relation to communication frequencies of ordinary operation.

ALARM / FAULTS AND LOSSES
PEAK values and relative date and time.
Sensor INADEQUATE: oversized, undersized.
REVERSE flow detection, the amount, and the date and time.
Detection and THEFT LOSS.

SOFTWARE AS A SERVICE
CLOUD COMPUTING

MiDoMet is supplied with management software, to which operators and maintenance workers "authorized" access to the system through authentication with any device connected to the Internet.
The system is CUSTOMIZED AND RESERVED for the customer.

The system and MULTILEVEL MULTIPLE USER with several logins and passwords

The data are EXPORTABLE in different formats (Excel, PDF), and are printable

GEOREFERENCING of the devices,

Profile of the DAILY CONSUMPTION,

Profile of the CONSUMPTION TIME, AND SECTION for STATISTICS AND ALARMS