M2M KEY APPLICATIONS

1. Energy and Heat Industry
2. Water and Water Management
3. Transportation and Technical Services
4. Gas and Crude Oil Distribution
5. Winning and Payment Terminals
6. Remote Management and Monitoring
7. Meteorology and Warning Systems
8. Telecommunications and Internet
9. Automatic Vending System
10. CCTV and Security Systems
11. Advertisement and Information Systems
12. Special Applications

Energy and Heat Industries

The energy and heat industries use wireless communication systems because they are economical and they are quickly and easily installed. They are mostly used for monitoring/supervising and control of various technological devices. A high level of reliability is necessary. Wireless connections may also serve as backup systems in case of failure of fixed/permanent communication lines. Heat distribution industries use wireless data transfer for their heat distribution systems - SCADA systems provides them with data collections and with management of transfer stations, or it is used to collect data (readouts) from heat measuring instruments (heat meters).

The most important uses and applications:

- remote control of high-voltage sectional switches
- measurement and control of devices in transformer stations
- remote readouts of electric meters, smart metering
- monitoring of small power plants - water, wind, photovoltaic power plants
- monitoring of cogeneration units, biogas stations
- monitoring and supervision of boiler rooms and heat distribution systems
- heat transfer station management and control
- data collection from heat measuring instruments

Water and Water Management

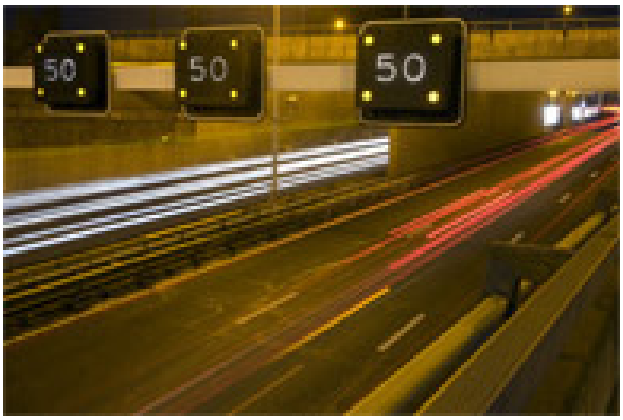
Water treatment processes, drinking water distribution, sewage water cleanup and water management are a typical example where wireless communication systems made the entire system management easier and more efficient. Applications in this area represent large distribution systems, which may usually be connected only via wireless communication systems. Information transfer between the pump station and the water reservoir is essential for effective water management and distribution. Data collection from measuring shafts and then transferring them over to the central dispatch room ensures quick detection of pipeline defects and minimizes losses. In the case of water management, wireless communications systems transfer information which are necessary for monitoring of river water levels as well as for water flow forecasts.

The most important uses and applications in the water industries include:

- monitoring and management of water distribution networks
- water flow measurements in water measuring shafts
- monitoring and management of sewage waters, sewage treatment plants
- agricultural irrigation systems control
- rainfall measurements and monitoring of river flows

Transportation and Technical Services

Transportation and logistics services are currently the fastest growing sector. For this reason, demands on the control and management of logistic services are rising. Because this field utilizes large networks operated over wide areas, wireless communication systems are in high demand.



Main application samples:

- meteorological measurements on roads
- traffic density monitoring
- camera systems
- road infrastructure monitoring - traffic signs, crossroads, tunnels
- parking machines, guidance systems, information boards
- railway cars - trolley lines exchange stations
- waste processing and management systems
- vehicles tracking and status monitoring

Gas and Crude Oil Distribution

Transportation systems dealing with petroleum products and gas contain a large number of measuring and technological stations, whose data must be transferred to control units. Transmission via wireless network offers very efficient transfer over large areas where the distribution system is installed.

Main application samples:

- transfer of data obtained by systems used for monitoring of leaks in pipes carrying petroleum products and oils
- monitoring of gas regulation stations
- monitoring of gas reservoirs
- data transfer from gas measuring instruments (gas meters)
- SCADA systems

Winning and Payment Terminals

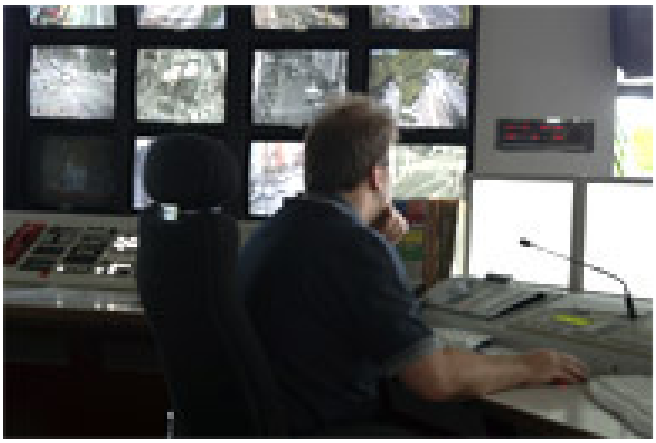
Devices and systems necessary for banking and payment services are everywhere where financial transactions and payments occur. It is real-time communication, which must provide a high level of reliability and security. Mobile GPRS and 3G technologies enable us to create fixed or mobile applications. Wireless communications can be used as a primary or backup communication channel.

Main application samples:

- connection of ATMs and payment terminals
- connection of lottery and slot/game machines
- monitoring of vending and dispensing machines
- backup connections for ATM machines and online
- betting terminals

Remote Management and Monitoring

Customers who buy these machines and technological systems from their suppliers expect to get not only the system and hardware, but also fast, high-quality warranty and post-warranty services. The cost reduction for these additional services enabled us to provide remote monitoring services, which the supplier may use to monitor his products directly at the customer's location. GPRS / 3G networks, which are available almost anywhere in the world, are very effective and suitable for communications.



Main application samples:

- remote programming of control machines and SCADA systems
- remote management of control systems and computers in industry
- control of functions and remote service of machinery and equipment
- monitoring of key elements of telecommunication networks
- monitoring of advertisement billboards
- advertisement contents update used in electronic terminals

Meteorology and Warning Systems

Water, wind, earthquake, radiation. Today, we witness various natural disasters more often. Sufficient number of monitoring and measuring stations/locations and transfer of data provided by these stations in real time, enables us to warn the affected area efficiently and in time and thus protect human lives.

Weather forecast, air quality monitoring and air pollution level represent important information for everybody. Due to these reasons, online and real-time communication is necessary.

Main application samples

- transfer of data provided by metrological stations and sensors
- air quality measurement and monitoring
- flood control systems, early warning information systems for municipalities, cities and industrial enterprises
- monitoring of volcanoes, prediction of earthquakes and other natural disasters
- gas and radiation detection systems

Telecommunications and Internet Access

Companies operating telecommunications networks (mobile/fixed operators, Internet providers, private network providers) increasingly offer installation of connections from anywhere. Where fixed connection cannot be built, it is best to use 3G mobile (UMTS) networks. Operators often guarantee availability of services and therefore fixed lines are being backed up by independent mobile GSM / 3G network.

Main application samples:

- private telecommunications network used to connect company branches
- fixed/permanent data lines backup
- quick establishment of temporary connections/couplings to the Internet or Intranet
- access to the Internet / Intranet from remote areas
- internet access from mobile devices - buses, trains, ships

Automatic Vending System

Today, we are surrounded by automatic vending machines selling coffee, drinks, parking tickets, tickets for public transportation and by many other and similar vending machines. Companies are able to operate these machines thanks to remote GSM communications system which provides real-time overview and monitoring of the vending machine activity, number of goods stocked in each machine, number of coins and other important operational information. There is no need for manual inspections which significantly increases the efficiency of the operation. And for end consumers, it means that any breakdown or defect is immediately repaired.

Main application samples

- monitoring of vending and dispensing machines
- parking ticket machines, highway toll machines
- self-service gas stations
- Information kiosks

Camera and Security Systems

The expansion of CCTV systems and their frequent deployment in areas without a fixed line communications infrastructure requires fast wireless data transfer. Mobile 3G (UMTS), thanks to their high transmission speeds and low cost are becoming one of the most effective solutions. Today modern building security systems could not exist without long-distance communication systems. Mobility is the key for many applications. This is ensured by GSM and 3G networks.

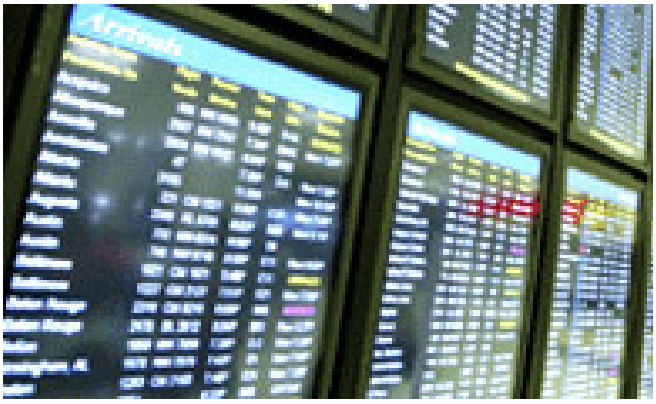
Main application samples:

- transfer of images and videos from security IP cameras
- large camera systems monitoring
- camera motion control
- security systems connections

Advertisement and Information Systems

Advertisers paying for the publication of their advertisements on billboards expect flawless functionality. The advertising agency must make sure that all customer requirements will be complied with. Therefore, the exchange of various commercials, lighting and other information must be monitored. Information about a breakdown are transferred via GSM. The contents displayed on multimedia advertising/commercial panels installed in supermarkets must be often remotely updated and commercial spots must be modified or changed.

Various changing and variable information boards or traffic navigation systems also require online updates which is best suited by wireless communication and control.



Main application samples:

- monitoring of advertisement billboards and
- movable/mobile commercial panels
- video commercial system contents update
- Information kiosks
- information and traffic navigation systems

Special Applications

As an example we would like to show you several other applications which were successfully realized but were not categorized.

- data transfer services used in heavy industries (iron mills, bridge cranes, belt conveyors ...)
- radio communications between rotary cement furnaces (Russia, Ukraine)
- Monitoring of the longest cargo cable lift in the middle Europe (the Krko lime producing plant).
- Radio communication for weight and scale systems used in various industrial operations
- GSM lift/elevator remote control
- transfer of time information and game results during sporting events
- control of artificial snow applications (artificial snowing systems) on skiing slopes
- applications used in military technologies and in simulator development process
- cooperation with schools and universities

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