M2M – the Machine to Machine technology

M2M = Machine-to-Machine or Man-to-Machine or Machine-to-Man or Machine-to-Mobile or Mobile-to-Machine. It is about enabling the flow of data between machines and machines and ultimately machines and people. Regardless of the type of machine or data, information usually flows in the same general way - from a machine over a network, and then through a gateway to a system where it can be reviewed and acted on.

M2M, also known as the "Internet of Things", offers added value to a broad range of domains that can benefit from remote monitoring and control using automated exchange of data. Sensors and terminals (M2M devices) can exchange data with other devices and centralized back-end systems (M2M servers), often even in real-time. This connectivity allows existing business processes to scale and new innovative services to be created.

Some of the areas that are gaining benefits through M2M include the Telecommunication, IP Internetworking, Wireless and Mobile, Asset Management, Process/Factory Automation, Building Automation, Telemetry, Mobile Learning, Supply Chain and Logistics Management, Security and Surveillance, Telematics/In-Vehicle Applications, Sensing and Instrumentation, e-Business and m-Business Solutions, etc.

M2M technology is implemented in the agriculture industry in India as follows:

- ❖ A GSM based remote control for water pump set which will provide a remote control for water pump set, based on GSM. Farmer can switch OFF/ON the motor from his home, and even can check the availability of electricity from home.
- ❖ Sensors are placed in various parts of the farms, which will communicate the soil conditions to 'Central-Unit' located near the Water Pump. The 'Central Unit', by looking at the data from various sensors will decide which part of the farm to be watered. These sensors will have a low cost M2M module connected to them and will use GSM NWs for doing the job.

Wireless networks that are all interconnected can serve to improve production and efficiency in various areas. Such information serves to streamline products that consumers buy and works to keep them all working at highest efficiency. It can be applied to use wireless technology to monitor systems, such as utility meters. This would allow the owner of the meter to know if certain elements have been tampered with, which serves as a quality method to stop fraud. Also, it can use wireless networks to update digital billboards. This allows advertisers to display different messages based on time of day or day-of-week, and allows quick global changes for messages, such as pricing changes for gasoline.

Some of the benefits that can be gained through M2M are as follows:
- ❖ On-going revenues throughout the product lifetime
- ❖ Preventive maintenance and QoS by cost-effective support
- ❖ Centralized service support and data management
- ❖ Less down time increases revenues
- ❖ Remote diagnostics and Real-time statistics
- ❖ Fast response by outsourcing troubleshooting

However, M2M imposes new demands and a standard SIM card is not adapted for the job. This new, environment requires a Machine Identity Module (MIM) that:
- ❖ resists extremes of vibration, temperature, and humidity
- ❖ has a long life span (ex: 10 years)
- ❖ has a small footprint (miniaturization)
- ❖ is adapted to industrial manufacturing processes

M2M is expected to become mass market fairly quickly given the ubiquity of network technologies, incorporating lessons learned from existing online services, in legal, security, privacy, and other arenas.

Source: http://www.m2m-embeddedmobile.com/
http://www.m2mcomm.com/about/what-is-m2m/index.html
http://www.gemalto.com/telecom/m2m/
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