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M2M NETWORK OPERATES OVER GSM

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Abstract- M2M stands for machine-to-machine communications. M2M is about the networking of machines and devices that pervade our everyday lives. M2M communications will connect and enable an array of equipment from mainframes to everyday products (e.g., home appliances, vehicles, buildings) and unleash new levels of smart services and commerce. Wireless M2M has emerged recently as a new technology that allows machines to transmit or receive data remotely over mobile communication networks such as GSM. The conventional wireless M2M systems available on the market today allow inputting data from mobile phone keypad which facilitates the communication to be of low cost and highly reliable. This paper deals with the implementation of M2M networking between two systems using a GSM mobile.

Index Terms- GSM, M2M Communications.

I. INTRODUCTION

20th century has seen the development of a public wire line network that allows reliable and affordable communication of voice and low rate data around the globe. The goal of wireless communication is to allow the user access to the capabilities of the global network at any time without regard to location or mobility. M2M is an acronym for Machine-to-Machine. This is a new and emerging technology falling under the category of wireless mobile connections. This technology is defined in the simplest terms as a way to let machines talk to each other, perform reporting functions and executing specific commands with the least human intervention possible. M2M facilitates interaction between people and products. A person can obtain data and insight about the status of a device: its location, health, fluid or consumable levels, temperature, maintenance history, and productivity levels. Devices can also connect with other devices to share content such as music, alerts, and supply chain information, making for a seamless and automated flow of data and services.

M2M exists in numerous environments and markets. Currently, successful implementations exist for cell towers, oil and gas pipelines, jukeboxes, vending machines, vehicles, security systems, electric metering, game systems, home appliances, and more. These implementations are already yielding significant results. With more devices becoming networked and enabled, M2M adoption will increase exponentially and have many unseen but important impacts on our daily lives. Other factors responsible for the emergence of M2M are regulatory requirements in markets such as electricity, pharmaceuticals etc, and a need for operational cost efficiency.

II. LITERATURE SURVEY

Typical use cases for M2M communications include [1], [2]: Metering and control of electricity, gas, heat, and water. Smart meters are immobile devices with very long maintenance intervals (several years), which is a challenge for meters which are solely battery-powered. Communication between the meter devices and the providers today is characterized by long time intervals. An analysis of the M2M requirements, performed e.g. in [3], [2], reveals that the challenges from M2M communications arise mainly from the following requirements: • Support for a very high number of devices per cell. • Support for different traffic characteristics of M2M communications, such as small message size and regular transmission intervals

III. PROPOSED WORK

M2M works fairly simple. In a normal setup, a machine is deployed in a location, turned on manually and left behind, then later turned off all done by a human going to and fro to the machine. This is normal, but in some cases costly and difficult especially when the machine is located in a remote location not easily accessible (such as satellite dishes or antennas). Even if you attempt to connect the machine to your computer you cannot control it. If you put wireless antennas on the machine, you will still need to “digitize” the signals of most machines since many of them are not digital (like light bulbs and older TVs) to be able to translate the signals into commands that the machine will understand. Using M2M technology, this becomes possible.

An M2M-enabled device is attached to the remote machine. Using any GSM-capable electronic device (a cell phone for example), the human sends a signal usually via SMS using special keywords and commands to the number of the M2M device. The signal is then carried by the cellular network provider to the number the same way an ordinary text message is sent to another cell phone number. Once received, the M2M device translates the message then executes the command to the

machine. End result: the machine follows the command as if the human himself performed the action physically. A design process may include a series of steps followed by designers. Depending on the product or service, some of these stages may be irrelevant, ignored in real-world situations in order to save time, reduce cost, or because they may be redundant in the situation.

Intelligent transport systems: creative communication solutions for intelligent transport systems, traffic, parking and passenger systems to aid remote management and solve problems. Intelligent Transport Systems (ITS) combine Information Technology (IT) and communication to offer online resources to road, rail, sea and air travelers & administrators. Intelligent Transport Systems include traffic, tolling, parking, passenger, information and ticketing systems. ITS improve efficiency, reduces congestion, facilitates a better informed traveler and aids enforcement of traffic regulations. **Medical m2m:** a wide range of health monitoring devices use wired and wireless networks transmit vital health information from humans and human implants to diagnostic equipment and health professionals.**Infrastructure M2M:** Devices and sensors in roads, dams, bridges, facilities, airports, rail lines, etc. can report back status on infrastructure and be controlled automatically by remote management systems and human operators.

Automated billing services: A GSM modem connected to the electricity meter offers cordless data transfer, easily installable on an existing meter. The GSM modem transfers the information directly to the central system for billing and reporting. Household meters, which only handle small amounts of data, use SMS text messages, whereas industrial meters use GSM data transfers to communicate their larger volumes of data.

V. CONCLUSION

Machine – to – Machine system promises to create a truly pervasive environment where machines are active and can communicate with each other without human intervention. M2M is poised to grow in nearly every vertical sector. The M2M technology gives immense opportunities and benefits to corporate world and industry by providing them with better market opportunities and new solutions to enhance their business processes. The M2M system can blend with our daily lives seamlessly and provide us with enhanced and intelligent environment. With the improvements in existing electronic, communication and IT technologies, one can hope that all the challenges to the large scale deployment of M2M solute ions will soon be overcome.

REFERENCES

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Typical stages of the design process include:

1. DEVIES
2. FRAMEUP

IV. RESULTS AND DISCUSSION

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