REVIEW PAPER ON IOT WITH HOME AUTOMATION

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Abstract: *It is IoT which allows objects to be sensed & controlled remotely across existing network[13] infrastructure, creating opportunities for more direct integration of physical world into computer-based systems, & resulting in improved efficiency, accuracy & economic benefit. IoT is expected to offer advanced connectivity of devices, systems, & services that goes beyond machine-to-machine (M2M) communications & covers a variety of protocols, domains, & applications. End-to-end health monitoring IoT platforms are coming up for antenatal & chronic patients, helping one manage health vitals & recurring medication requirements[11]. The IoT could assist in integration of communications, control, & information processing across various transportation systems[9]. In the IoT, things are expected to become active participants where they are able to interact and communicate among themselves by exchanging data and information sensed about the environment. For that they react autonomously to the real world events and provide services with or without direct human intervention. In this paper we use IoT for energy efficient Environmental Conditions sensing and in Home Automation[3].*

Keywords: IOT, Home automation, Machine to Machine, Auto ID Center, Auto ID Labs

[I] Introduction

There are several planned or ongoing large-scale deployments of IoT, to enable better management of cities & systems. For example, Songdo, South Korea, first of its kind fully equipped & wired smart city, is near completion. Ambient intelligence[8] & autonomous control are not part of original concept of Internet of Things. Ambient intelligence & autonomous control do not necessarily require Internet structures, either.

In future Internet of Things may be a non-deterministic & open network in which auto-organized or intelligent entities Web services, SOA components, virtual objects also known as avatars will be interoperable & able to act independently pursuing their own objectives or shared ones depending on context, circumstances or environments. Environmental monitoring applications[1] of IoT typically use sensors to assist in environmental protection by monitoring air or water quality, atmospheric or soil conditions,and could even include areas like monitoring movements of wildlife & their habitats. Usage of IoT devices for monitoring & operating infrastructure is likely to improve incident management & emergency response coordination, & quality of service, up-times & reduce costs of operation in all infrastructure related areas[23].

The objective of research is Home automation[3] using IOT with integration of Solar based energy system. Integration of sensing & actuation systems, connected to Internet, is likely to optimize energy consumption[17] as a whole. It is expected that IoT devices will be integrated into all forms of energy consuming devices (switches, power outlets, bulbs, televisions, etc.) & be able to communicate with utility supply company in order to effectively balance power generation & energy usage. Solar Energy System that is properly installed & adequately sized will not really require much in way of management. To make this relationship clear, & for those who might think solar energy is complicated, I designed & wrote this simulation to demonstrate basic operation of a solar energy electric power system. Only 3 things need to be considered first is level of charge on battery bank. (AmpHour Meter), Second is Amount of charging power coming in. (Solar Amps Meter), Third is Amount of power being used. (AC Amps Meter)

IoT is especially relevant to Smart Grid since this provides systems to gather & act on energy & power-related information in an automated fashion with goal to improve efficiency, reliability, economics, & sustainability of production & distribution of electricity. The Internet of Things (IoT) is network of physical objects—devices, vehicles, buildings & other items—embedded with electronics, software, sensors, & network connectivity that enables these objects to collect & exchange data.